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Analysis of training, experience and
salaries of secondary school
mathematics teachers in
Massachusetts, 1924-1953.

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BOSTON UNIVERSITY
SCHOOL OF EDUCATION

Thesis

ANALYSIS OF TRAINING, EXPERIENCE AND SALARIES
OF SECONDARY SCHOOL MATHEMATICS TEACHERS
IN MASSACHUSETTS, 1924-1953

by

Richard Ross Randlett

(A.B., Boston University, 1954)

submitted in partial fulfillment of the
requirements for the degree of
Master of Education

1955

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CHAPTER I

I. STATEMENT OF THE PROBLEM

A survey of the teachers of mathematics in the public high schools of the State of Massachusetts with consideration given to such factors as: size of school in which employed; sex; preparation; experience; and salary; and the various trends which have occurred in the above factors as indicated through a study of the five biennial surveys conducted by the Massachusetts Department of Education covering the school years 1924-1925, 1944-1945, 1946-1947, 1950-1951, and 1952-1953.

II. PURPOSES

The first purpose of the thesis is to provide information of such a nature as to enable teachers of mathematics in the public high schools of Massachusetts to determine their own status with respect to such factors as: size of school in which employed, sex, preparation, experience, and salary, in relation to all teachers in the field of mathematics employed in the State of Massachusetts.

The second purpose of the thesis is to show the correlation between such factors as salary and experience.

The third purpose of the thesis is to determine trends in the preparation of mathematics teachers as reflected in the academic degrees held by such teachers, as indicated in the biennial survey of the Department of Education of the State of Massachusetts.

III. SCOPE AND LIMITATIONS

This thesis is limited to a study of the factors of size of school in which employed, sex, preparation, experience, and salary, affecting teachers of mathematics in the public secondary schools of Massachusetts as found in the biennial survey conducted by the Massachusetts Department of Education during the school years 1924-1925, 1944-1945, 1946-1947, 1950-1951, and 1952-1953.

A few of the reporting schools failed to give information, failed to give information correctly, or had no full-time mathematics teachers. Figures under the heading "Number of Teachers" should not, therefore, be considered as indicating the total number of teachers of mathematics in all of the public secondary schools of Massachusetts. These figures are correct, however, for all schools used and reported in this thesis. A list of all secondary schools of Massachusetts not included in this thesis by reason of lack of, or incorrectly reported, information may be found in APPENDIX A.

IV. JUSTIFICATION

Too large a percentage of the lay public fail to understand the correlation existing between such factors as size of school in which employed, preparation, and experience, which affect salaries received by public school teachers employed in the State of Massachusetts. In this thesis, the writer has attempted to show this correlation and to furnish such information as may be useful to administrators and teachers in the establishment of appropriate and adequate salary schedules, or in the evaluation of those already established, more especially in the field of mathematics.

Chapter II

REVIEW OF RESEARCH

INTRODUCTORY. "The determination of educational trends involves a careful synthesis of material from many sources. The Purpose of the trend study is to establish a course of events originating in the past that may be expected to continue in the future. From examination of the facts for some particular period of history a generalization is reached about things to come."¹.

USE OF THE BIENNIAL HIGH SCHOOL SURVEY. The Massachusetts Department of Education has conducted this biennial survey since 1916,² for the use of everyone who has a professional interest in education. The only limitations are that they be used at the Department of Education and that one has a valid reason for consulting them.

An investigation of the theses at Boston University disclosed that, before 1948, only two persons had looked into the possibility of using the survey in their Master's program³ and that they both found the survey inadequate; hence had to use other methods to obtain their material. It was Mr. Gilbert H. Johnson, in 1948, who first attempted to use the survey as the sole basis for an investigation. (As has been stated before, the material used of 1946-1947 has been taken from Mr. Johnson's thesis.) The

1. Barr, A.S., Davis, R.A., Educational Research and Appraisal (New York: J.B. Lippincott Co., 1953), p. 220.

2. Eighty-First Annual Report of the Board of Education, The Commonwealth of Massachusetts, January, 1918 (Boston, Mass.: Wright and Potter Printing Company, 1918), p. 41-42.

3. Quimby, C.P., A Survey of Speech Education in the Secondary Schools of Massachusetts, (unpublished Master of Ed. thesis, Boston University, 1947) p.2.

Bradley Jr., A.L., An Analysis of Public High School Newspapers in Massachusetts, (unpublished Master of Education thesis, Boston University, 1947) p.10.

purposes of his thesis were "(1) to get a clear picture of mathematics teaching in Massachusetts in the school year 1946-47.....; (2) to determine from this the general conditions and characteristics with regard to the teaching staff and the courses offered.....; and (3) to discover what recommendations could be made to improve the part of the survey dealing with mathematics."¹.

In 1952, Miss Eileen T. Tormey did her Master's study on the status of secondary mathematics in the public schools of Rhode Island.² As there were no records for use at the Rhode Island Department of Education containing the required data, it was necessary for her to secure the information through questionnaires sent to every principal and mathematics teacher in all of the public senior and junior high schools of the state.

In 1953, Miss Edna L. Poeton also did a study similar to Mr. Johnson's and Miss Torney's, only with the junior high school biennial survey for the years 1946-47 and 1948-49. Miss Poeton compared the two surveys and noted trends, some of which are:

- "1. Mathematics teacher population. A decrease in the number of women, an increase in the number of men, and a six per cent decrease in the total number of mathematics teachers.
2. Pupil population. A decrease in the total population of all junior high schools and a decrease in the number of pupils in mathematics classes.
3. Salaries. An increase in salaries for all teachers, the average for men remaining higher than the average salary for women teachers in mathematics.
4. Academic preparation of teachers. An increase in the total number of teachers holding degrees, an increase in the number of men holding master's degrees, a decrease in the number of women holding master's degrees, an increase in the percentage of all

1. Johnson, G.H., Mathematics Teaching in the Public High Schools of Massachusetts 1946-1947. (unpublished Master of Education thesis, Boston University, 1948) p.1.

2. Tormey, Eileen T., Mathematics Teaching in the Public Secondary Schools of Rhode Island 1951-1952. (unpublished Master of Education thesis, Boston University, 1952)

women holding master's degrees, and an increase in the percentage of all men holding master's degrees.

5. Length of service of mathematics teachers. A slight decrease in the average number of years of experience of men teachers and a slight increase in the average number of years of experience of the women teachers.

7. Teaching administrators. A decrease in the number of principals and vice-principals teaching mathematics."¹.

These trends, with the exception of that dealing with pupil population, will be compared with the findings of this thesis in a later chapter.

RESEARCH ON SALARIES.

Through the years the research on salaries has been of two types, what the salaries of teachers should be and what they really are.

In the introduction of a report to the Governor of Massachusetts, from the Special Commission on Teachers' Salaries the following statement was

made: "Government service and private commercial and industrial establishments, suddenly offering largely increased wages, have attracted many teachers from the schools, and the rapidly mounting cost of living has forced others to abandon teaching. A large loss of teachers was thus sustained before the public had become sufficiently aroused to grant the increases in salaries necessary to stay the exodus. Furthermore, the many new opportunities offering lucrative wages to young men and women without any social training attracted many students from the normal schools and turned aside many from considering teaching as a life work."².

Although many would believe that this report was very recent, it was directed to His Excellency Governor Calvin Coolidge, in 1920.

Willard S. Elsbree uses stronger words about this problem in his book on teachers' salaries,³ when he states: "The rewards of teaching were expected to be largely spiritual; hence the only financial remunera-

1. Poeton, E.L., The Mathematics Teacher and Curriculum in the Public Junior High Schools of Massachusetts 1947-1949, (unpublished Master of Education thesis, Boston University, 1953) p.101.

2. Report of the Special Commission on Teachers' Salaries; The Commonwealth of Massachusetts, August, 1920 (Boston, Mass.: Wright and Potter Printing Company, 1920) p.9.

3. Elsbree, W.S., Teachers' Salaries, (Bureau of Publications Teachers College, Columbia University, New York City, 1931) p.1-2.

tion considered necessary was a paltry pittance barely sufficient to enable the teacher to keep body and soul together. And if, perchance, low salaries caused teachers to display some anxiety about their material welfare, the community of business people, themselves strenuously engaged in pursuing the golden dollar, were revolted by the crass self-interest of a supposedly spiritual-minded profession."

This movement of teachers away from education, due to low salaries is not only reflected in teachers leaving the profession, but also in teachers moving from one school to another. In the report of the National Commission on School District Reorganization is the following statement:

"The inadequacies of thousands of small school districts is most clearly shown in their inability to attract and keep well qualified teachers. It is true that some of the best teachers in America are in small schools of rural districts, but it is difficult for such districts to keep them. Once their abilities are recognized, larger city schools offer them higher salaries, more secure tenure, and more favorable working and living conditions. In almost every state the small schools in rural areas are the proving ground for substantial numbers of teachers for urban schools."¹.

This movement is expected to be shown in a later chapter dealing with the average length of experience in the different size schools. According to statements such as this, one would expect to find that the average in the large urban schools would be much higher than that of the smaller schools which experience a greater turnover in their teaching staff.

Harold Spears². gives an excellent summary of teachers' salaries and the schools of thought concerning the different methods of determining same. He finds that equal pay for equal service is the easiest and most common agreement. However, a question arises concerning what credit should be given for prior experience. Some schools give full credit, others give only partial credit, and in some cases prior experience is often ignored.

1. Dawson, H.A., Reeves, R.W., and others. Your School District. (Department of Rural Education, Washington, D.C., 1948) p.19.

2. Spears, H. The High School for Today. (American Book Company, New York, 1950) p. 243-258.

Another school of thought, he goes on to say, is not concerned about the experience, but instead looks at the job to be done, determines what it is worth and pays a fixed rate with little expectation of salary change, barring adjustments for depressions or for increased living costs. A third school of thought is salary differentials based on marital status, or even the related practice of allowing the men teachers a salary differential above that of women teachers. In recent years, he goes on to say, there has been a tendency toward the preparation type schedule, in which all teachers are treated alike and are provided annual increments until a maximum is reached. College training as well as experience is a basic factor, however; this encourages a teacher trainee to complete all of his graduate work before he has ever stepped into a classroom to try his hand at teaching. Mr. Spears goes on to say: "Graduate work beyond the first college degree means practically nothing to the teacher unless it is taken after he has had some experience in the classroom as a teacher."¹

The latest figures from the Massachusetts Teachers Association show the following salary schedules in effect today:²

TYPE	PERCENT
I. Single Schedules	
a. Preparation, with recurrent study.	58%
b. Preparation, by degree, no study.	36%
c. Experience only.	4%
II. Multiple Schedule	
a. Preparation-Position	1%
b. Position	1%

As the material for this thesis has all been taken from the five sets of biennial surveys, nothing can be said about the trends in method of

1. Ibid. p. 254.

2. Salary Schedules of Public School Teachers in Massachusetts as of September 1954. Massachusetts Teachers Association, Research Bulletin No. M1. September 1954.

forming the salary schedules, but this discussion should be kept in mind during the comparisons dealing with the trends in Education and Length of Experience. The single salary schedule that requires recurrent study would influence the trend toward higher education in the longer experience group than in the younger or inexperienced group. If the trend was toward the single salary schedule based on degrees and requiring no further study there should be a greater tendency toward the younger or inexperienced teachers to be entering the profession with higher degrees than the experienced teachers.

Most existing salary surveys have been concerned with a comparison of teachers' salaries with that of factory workers or other occupations. The National Education Association report of 1943 had this to say:¹

"Comparisons of teachers' salaries with earnings in other occupations are not easy to establish. The professions of law and medicine are conducted for the most part on a fee basis, with each practitioner assuming personally the expenses of making his services available to individual clients. In public-school teaching the responsibility for providing the service to individual pupils has been accepted as a matter of public concern, to be paid for from taxes on the basis of an annual salary. When salaries of teachers are compared with other workers, whether professional or nonprofessional, the longer hours on the job and the longer working year in other occupations must be weighed against the years of professional preparation required of teachers, the personal qualifications needed for successful teaching, the hours of after-school service during the school year, and the further professional study during the summer vacations which are obligatory on teachers, either by actual administrative ruling or by inner standards for continued professional growth.

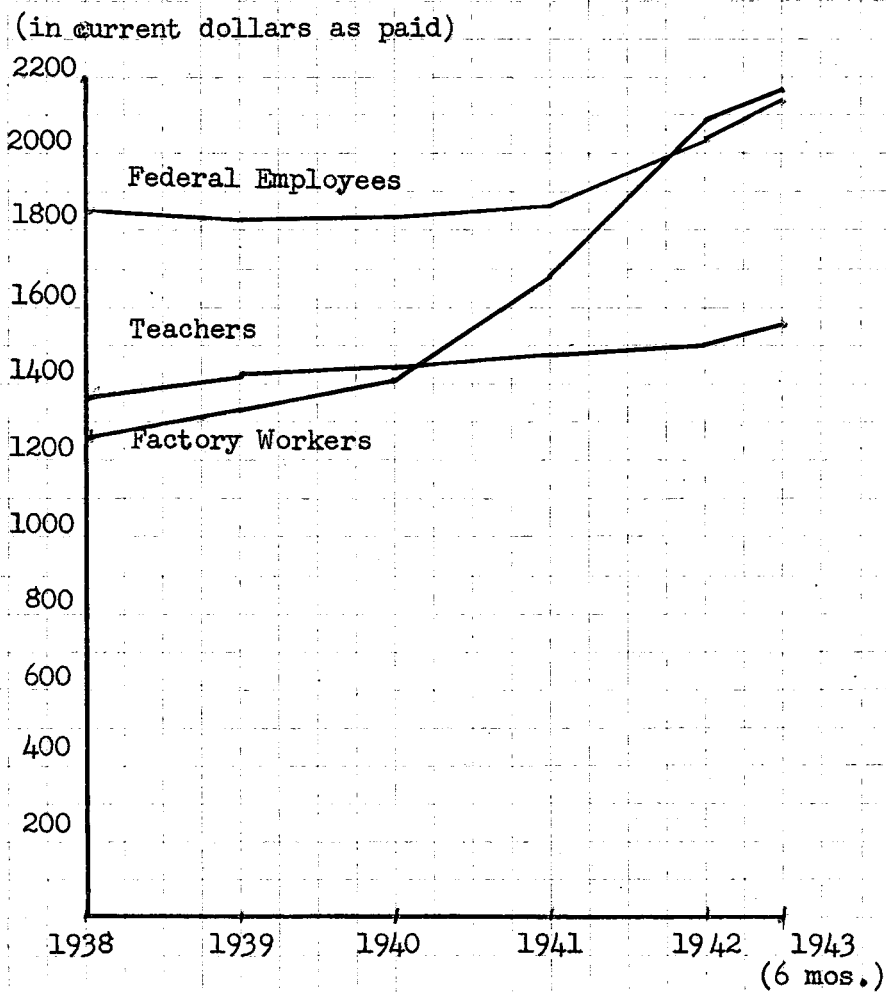
"Whatever effect of such factors may be, teachers and other workers receive an annual return for personal services in dollars of net income. When such annual figures are compared, it is seen that teachers were in an unfavorable position when the European War began and that their situation is getting worse." (See Charts I & II)

In a report from the Massachusetts Teachers Association, dated October

1. Salaries of City School Employees, 1942-43. National Education Association, Research Bulletin, Vol. XXI. No. 4. December 1943 (Research Division, Washington, D.C.) p. 97-100.

ANNUAL INCOME FROM SALARIES AND WAGES
1938-1943

CHART I

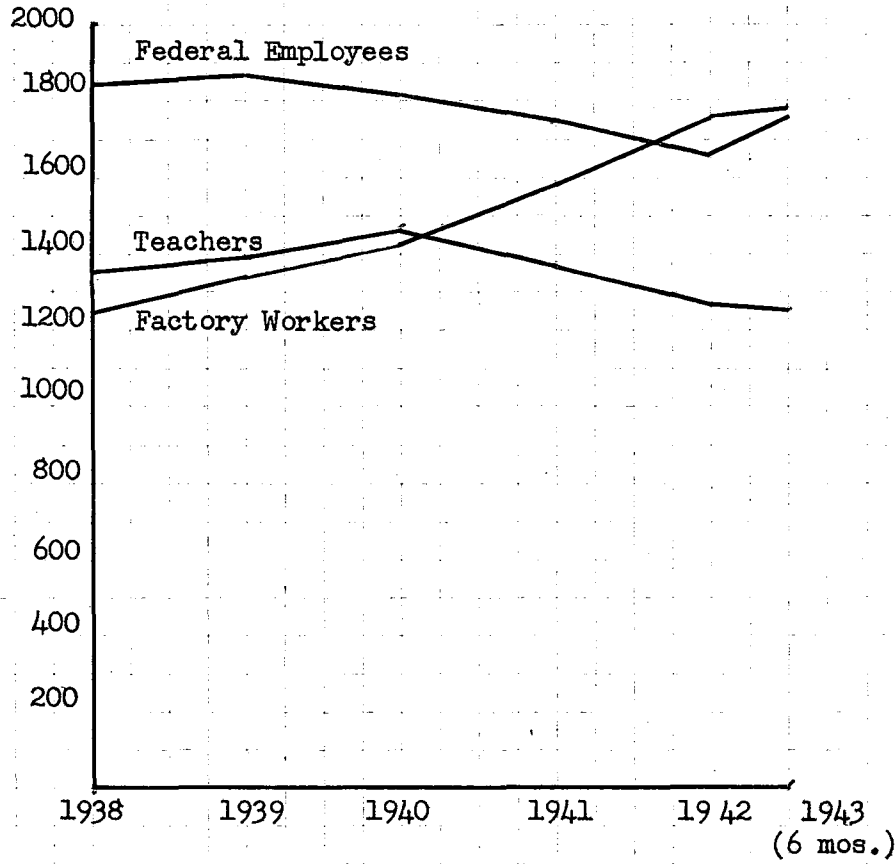


Sources: Teachers (teachers, principals, and supervisors) from U.S. Office of Education and NEA Research Division. Federal and factory employees from Bureau of Foreign and Domestic Commerce, U.S. Dept. of Commerce..... Res. Div., Nat. Educ. Assn.

PURCHASING POWER OF AVERAGE SALARIES
AND WAGES, 1938-1943

CHART II

(in 1935-39 dollars)



Sources: Teachers (teachers, principals, and supervisors) from U.S. Office of Education and NEA Research Division. Federal and factory employees from Bureau of Foreign and Domestic Commerce, U.S. Dept. of Commerce.....Res. Div., Nat. Educ. Assn.

1953, the teachers' salaries are compared with earnings in other occupations based on information secured from the Massachusetts Department of Labor and Industries; they are the estimated annual earnings.^{1.}

\$5955	Electrical construction
5420	Steam railroad crews
4828	Plumbing
4803	Highway construction
4519	Heavy construction
4329	Building construction
4203	Painters
4145	Carpenters
3900	<u>CLASSROOM TEACHERS IN MASSACHUSETTS</u>
(and others)	

Any attempt to discuss salaries over a long period of time must take into account the economic trends of that period. An excellent summary, of most of this period, is found in a 1952 report of the National Education Association of the United States.^{2.}

"The net effect on the economic shifts in the 23 years, 1929 thru 1951, was to bring teachers' salaries in 1951 to just a little lower relative status than in 1929.

In 1929, the average teacher earned 1.5 percent less than the average employed person in the United States.

In 1939, the average teacher earned 11.9 percent more than the average employee.

In 1951, the average teacher earned 2.0 percent less than the average employee.

Thus the apparent gain in the years of deflation of the 1930's was almost exactly cancelled by the relative loss in the years of inflation in the 1940's and early 1950's.

When the effects of rising prices and rising income taxes are considered, the value of the average salary was slightly less in 1951 and in 1952 than it was in 1950.

The teaching profession will keep working for the major upturn in salaries needed to raise the compensation of professionally prepared teachers to professional levels."

1. Teachers' Salaries Compared with Earnings in Other Occupations Massachusetts Teachers Association, Research Bulletin No. 19, 1953-54 Series. Report dated October 29, 1953. p. 1.

2. Economic Status of Teachers in 1952-53, Special Memo, National Education Association of the United States. (Research Division, Washington, D.C. November, 1952.) p. 26.

CERTIFICATION REQUIREMENTS FOR TEACHERS OF MATHEMATICS IN MASSACHUSETTS

Along with the desire of teachers to raise their salaries to that of professional level has been a desire by the towns and cities to secure teachers of professional level. One outcome of this has been the forming of state laws requiring certification of teachers.

Franklin H. Powers, in 1949, did a study of the certification requirements of teachers of mathematics in the United States.¹ He found that in Massachusetts, with the exception of thirty state-aided high schools, there were no certification requirements for teachers in any schools. The requirements in the thirty state-aided high schools are:²

- I. Bachelor's degree from a standard college or from a four-year course in a teachers college or normal school.
- II. Academic requirements in semester hours--at least a major in mathematics and another major of 18 each, or a major of 18 in mathematics and two minors of 9 (each).
 - A. English
 - B. Latin
 - C. Modern Language
 - D. Social Studies (may include college course in history, government, economics, sociology and related subjects).
 - E. Biological Sciences (must include college courses in biology, botany, physiology, hygiene, zoology, and related subjects).
 - F. Physical Sciences (must include college courses in chemistry and physics, and may include other related subjects).
 - G. Special subjects--Agriculture, Art, Commerce, Home Economics, Manual Arts, Music, Physical Education.
- III. Professional requirements according to the following options:
 - A. Semester hours in at least 2 of the following fields
Problems of Secondary Education, Educational Psychology, Tests and Measurements, Vocational

1. Powers, F.H., A Study of the Certification Requirements for Teachers of Mathematics in the United States. (unpublished service paper, Boston University, 1949)

2. Ibid. p. 48.

Guidance, School Hygiene, General Methods of Teaching, Special Methods, Practice Teaching, History of Education.

- B. Diploma from an approved teachers college or normal school.
- C. Completion of at least four courses of 30 hours each (covering 2 of the foregoing fields) in an approved summer school.
- D. Three years of successful teaching experience in secondary schools.

It was not until July 17, 1951, that the Department of Education in the Commonwealth of Massachusetts passed a law governing certification of teachers in all public schools.¹ It does not prevent a school committee from prescribing additional qualifications, and provides that a school committee may upon its request be exempt from the requirements by the department for any one school year when compliance therewith would in the opinion of the department constitute a great hardship in the securing of teachers for the schools of a town.²

The General Law was amended by Chapter 530, Acts of 1952, and Chapter 264, Acts of 1953. It was revised May 27, 1953, to be effective July 15, 1953. According to Section 2 of 278, 1951, these acts do not apply to any teacher employed or formerly employed by Massachusetts school committees before July 26, 1951.

It is interesting to note that according to the Acts of 1951, as further amended by Chapter 530 of the Acts of 1952 and Chapter 264 of the Acts of 1953:³

"It is permissible for a school committee to allow a teacher to teach outside the provisions of the certificate, provided that such

1. General Laws, Chapter 71, Section 38G, Commonwealth of Massachusetts, July 17, 1951. (Boston, Mass. Wright and Potter Printing Company, 1951) p. 1.

2. Ibid. p.1.

3. Ibid. p.2.

teaching does not exceed 20 percent of the full teaching program.

" A secondary school teacher may not devote more than 50 percent of teaching time to subjects in which he or she is not qualified to teach as a major."

With these conditions imposed in the certification of teachers, and as the biennial surveys give only the degrees that a teacher has and not the mathematics courses that he or she took, it is impossible to come to any conclusions in this thesis concerning the training of the teachers.

A recent survey was made by the Scientific Manpower Commission and the Engineering Manpower Commission¹ by polling engineers and scientists in industry, in order to advise high school teachers and to provide summer jobs that would give them realistic experience in their specialties and to assure them needed summer earnings. They noted:

1. "College science graduates, who obtain advanced training in their field, find that their improved preparation qualifies them for outstanding jobs that pay higher than teaching.
2. "In consequence, only half the young men and women who earn teaching certificates in science and mathematics actually teach."

SUPPLY AND DEMAND

Along with any discussion of salaries or qualifications of teachers one must examine the total picture of Supply and Demand. For if there was a small supply of teachers and a great demand, there would be reason to suspect that salaries would go up, and qualifications come down. If the picture was the opposite then the reverse would be expected; that is, the salaries would come down, and qualifications go up.

Perhaps the best known authority in this field is Ray C. Maul, Dean, Kansas State Teachers College, and Director, Research Associate of the

1. Scientific Manpower Commission, item in The Boston Traveler, December, 1954, IV, 8.

National Commission of Teacher Education. In two recent reports he says:

1. ".....we now have quite accurate and almost complete information concerning the number of students who graduated from the colleges and universities of the nation in 1941, the last normal prewar year; in 1945, the year of the greatest shortage; in 1948, and in 1949. These figures reveal a startling imbalance between the number of college students prepared to teach in the high schools and the number prepared to teach in the elementary grades..... We find, for example, that in 1941, the colleges produced roughly 17,000 four-year graduates who, that year, completed preparation for elementary teaching; while the same colleges, at the same time produced some 41,000 graduates qualified to teach in high school. In 1949, the number of four-year trained elementary teachers produced did not quite equal the number produced in 1941, whereas the number of trained high school candidates had risen from 41,000 to 64,000. Despite these figures, it is a known fact that, in the words of the economist, we have passed from a seller's to a buyer's market in the high school teaching field....."

2. "The need for high-school teachers can be met through the available supply, with candidates to spare in certain fields. The colleges and universities will produce in 1951 at least 77,000 graduates eligible for high school certification, while not more than 50,000 high school teaching positions will become available to new candidates."

In view of these reports, it would seem that any raise in salaries or qualifications would be from other factors than the Supply and Demand.

PRINCIPAL-TEACHER

Any attempt to discuss mathematics teachers, or any teachers, must take into account school principals who also teach. This joint job is especially true in the smaller school systems and has a large influence on salaries, experience, and preparation levels, when one is talking about schools in general.

Emery N. Ferriss, and others, in connection with the National Survey of Secondary Education of 1932, reported:

1. Maul, R.C. An Overview of the Situation in Teacher Supply and Demand. (The American Association of Colleges for Teacher Education, Third Yearbook, New York, 1950) p. 149.

2. Maul, R.C. Facts Revealed by the 1951 Study of Teachers Supply and Demand. (Journal of Teacher Education, June 1951.) p. 90-98.

1. ".....principals, especially in the smaller schools, devote a considerable portion of their time to classroom instruction. Practically all principals in schools enrolling fewer than 150 pupils do some teaching, and only in schools enrolling more than 300 pupils does the number of principals who give classroom instruction become less than half the principals represented."

This fact is again found in a study by Scott and Ried, done in 1939, in Nebraska.^{2.}

"Of the 479 principals (92 per cent) only seven have no teaching responsibilities, the mean number of periods spent daily in teaching and study-hall supervision being 6.3 per principal. Since practically all of the schools are operating on an eight period day, this means that the average principal of that rural state devotes 79 per cent of the school day to teaching and study-hall supervision. As to training, 87 per cent hold only the bachelor's degree, 12 per cent the master's and one-half of one per cent the doctor's degree."

"Obviously the typical principal is a high-school teacher with an administrative title."

This writer feels that in order to give a clear picture of the teachers of mathematics in Massachusetts, and on the basis of these two reports, one must also include in this thesis the principals who are teaching mathematics.

L. Ferriss, E.N., W.H. Gaumnitz, & P.R. Brammell, The Smaller Secondary Schools, National Survey of Secondary Education, Bulletin No. 17, 1932, (Government Printing Office, Washington, 1933) p. 65.

2. Scott, C.W. and H.O. Ried, The Public High School Principal in Nebraska. The School Review, Vol. 47, 1939 p. 121-127.

CHAPTER III

TECHNIQUE AND PROCEDURE

The most adequate and efficient way in which to obtain the necessary data to make a study of the factors involved in this thesis was to consider information as reported by the various secondary schools of Massachusetts in the biennial survey as conducted by the Department of Education (see APPENDIX C). After having received the permission of Mr. John J. Millane,^{1.} Supervisor of Secondary Education for the State of Massachusetts, the first step was to obtain the data in a more usable form. A special form was constructed, a copy of which may be found in APPENDIX B, on which data pertinent to this thesis was recorded as found in Section XI of the biennial surveys of 1924-1925, 1944-1945, 1950-1951, and 1952-1953, entitled "Teaching Staff". Information concerning the school year 1946-47 was obtained from Mr. Gilbert H. Johnson's thesis.^{2.} Specially constructed forms were necessary as the biennial surveys could not be removed from the office of the Massachusetts Department of Education for obvious reasons. A total of 165 forms were needed to obtain the necessary data from the biennial surveys. After an examination of the biennial surveys it was decided not to enter data in the column under the heading "Years in This School", as this data had no bearing upon factors under consideration. The interesting fact that nearly all teachers of mathematics settled down in

1. Interview with Mr. J.J. Millane, Supervisor of Secondary Education for the Commonwealth of Massachusetts, October 12, 1954.

2. Johnson, Gilbert H., Mathematics Teaching in the Public High Schools of Massachusetts 1946-1947. (Unpublished Master of Education thesis Boston University, 1948.) Table 11A, pp. 15-19.

one school or another after 6 to 10 years of experience was determined from these biennial surveys.

The sex of the teacher was determined by the first name, and the few schools which gave only the teacher's initials are omitted from this study.

The completed forms were then divided according to year of biennial survey and the size of all schools considered. Schools were divided into four (4) classes according to pupil enrollment as follows: Class I includes all secondary schools having a pupil enrollment of more than 500; Class II a pupil enrollment of 201 to 500; Class III a pupil enrollment of 101 to 200; and Class IV a pupil enrollment of 100 or less. From these forms 120 scatter diagrams (see Table 5) were constructed showing the number of teachers and their years of experience within each salary group, classified according to class of school, degree held, and sex.

The data pertinent to this study were then compiled from these scatter diagrams on forms designed to give desired information as described hereafter.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

GROUPING OF SCHOOLS

The Massachusetts Department of Education has conducted the biennial survey since 1916, with the purpose "to compare conditions in high schools of different sizes."¹ The 255 high schools of 1916 were grouped into five classes, or groups, on the basis of the number of pupils. Group I includes all schools whose enrollment was greater than 500 pupils. Group II, those schools with an enrollment between 201 and 500 pupils. Group III includes all schools whose enrollment was between 101 and 200; Group IV, between 51 and 100 pupils; and any schools whose population was under 50 made up Group V. Mr. Johnson states in his thesis:²

"This grouping remained in effect until the survey of 1946-1947. At that time there were only nine high schools with less than fifty pupils. Therefore Group V was made a part of Group IV, which then included schools with one to one hundred pupils."

Upon examining the biennial survey for 1924-1925, it was found that there were only 27 schools in Group V, and only 28 mathematics teachers; hence, to aid comparison the later grouping of only four classes has been used in this study for all five sets of surveys.

1. Eighty-First Annual Report of the Board of Education, The Commonwealth of Massachusetts, January 1918 (Boston, Mass.:Wright and Potter Printing Company, 1918), p. 41.

2. Johnson, G.H., Mathematics Teaching in the Public High Schools of Massachusetts 1946-1947. (unpublished Master of Education thesis, Boston University, 1948), p. 2.

TABLE 1

GROUPING OF SCHOOLS BY POPULATION

YEARS	C ** L A S S	No. of SCHOOLS			No. of TEACHERS USED		
		TOTAL	USED	PER CENT	MEN	WOMEN	TOTAL
1924-1925	I	67	65	97.0%	164	181	345
	II	58	58	100.0	66	64	130
	III	47	46	97.9	39	34	73
	IV	77	69	89.6	64	19	83
	TOTAL	249	238	95.6%	333	298	631
1944-1945	I	91	87	96.6%	264	206	470
	II	67	62	92.5	63	71	134
	III	47	46	97.9	39	36	75
	IV	45	38	84.4	39	21	60
	TOTAL	250	233	93.2%	405	334	739
1946-1947	I	100	99	99.0%	347	172	519
	II	61	61	100.0	94	55	149
	III	52	50	96.2	59	23	82
	IV	45	44	97.8	45	18	63
	TOTAL	258	254	98.4%	545	268	813
1950-1951	I	95	87	91.6%	273	150	423
	II	72	70	97.2	111	56	167
	III	52	48	92.3	65	25	90
	IV	36	32	88.9	36	13	49
	TOTAL	255	237	92.9%	485	244	729
1952-1953	I	97	90	92.8%	284	141	425
	II	76	74	97.4	114	66	180
	III	49	43	87.7	56	19	75
	IV	33	27	81.8	35	17	52
	TOTAL	255	234	91.8	489	243	732

**Classified by the Massachusetts Department of Education.

Class I over 500 students
Class II 201- 500 "
Class III 101- 200 "
Class IV 100-under "

OBSERVATIONS

Table 1 "Grouping of Schools by Population"

Since the information on the number of teachers will be discussed at length in the next section on degrees, such discussion will be omitted from these preliminary observations. It should be noted that the figures included under the heading "Number of Teachers" do not include all of the teachers of mathematics in Massachusetts since a few schools could not be included in this study due to incorrectly reported, or insufficient, data given on the biennial surveys. These figures do, however, include all of the teachers of mathematics in all of the secondary schools used in the study.

1. The total number of secondary schools in the State of Massachusetts has varied between a low of 249 in 1924-1925 and a high of 258 in 1946-1947.

2. The biennial survey of 1952-1953 shows a total of 255 secondary schools, which is exactly the same number of secondary schools as was indicated in the first biennial survey of the Massachusetts Department of Education held in 1916.

3. There has been a steady decline in the number of Class IV schools.

4. Since 1946-1947 there has been a steady increase in the number of Class I and Class II schools and a steady decline in the number of Class III and Class IV schools.

5. The increase in the number of Class I and Class II schools may be attributed to an increased school population and to the greater

holding power of the secondary school. When the present heavy elementary school population reaches the secondary school the increased enrollment will cause a sharp rise in the number of Class I and Class II schools. Regional consolidation of secondary schools will further decrease the number of small high schools.

6. The State Department of Education will be forced to revise the present system of classifying secondary schools.

TEACHERS AND THEIR PREPARATION

Teachers' preparation has been expressed in this study only in terms of the academic degrees which they hold. This was done in order to present a common base for comparing teachers' preparation. Examination of Section XIII of the biennial surveys disclosed that "Years of Study" was also included, but the inconsistency of the numbers in this column made comparisons impossible. Some schools reported in terms of credits earned and some in years of study. It was not apparent whether this preparation was as full-time students or included years of graduate work as part-time students.

Throughout this study reference has been made to teachers with no degree, a bachelor's degree, or a master's degree. No attempt has been made to distinguish between types of degrees such as Bachelor of Arts or Bachelor of Science, nor is it possible from the available data to determine in what subject field a degree was obtained, for example, mathematics, science, or possibly, languages.

The tabulations are here presented in three sections. Table 2 is the number of men and women mathematics teachers with degrees in the

different class schools over the years. Table 2A shows the per cent of degrees in the total number of schools over the years and indicates the trends in preparation for the whole picture, or the average trends of preparation of mathematics teachers in Massachusetts. The third section, Tables 2I, 2II, 2III, and 2IV, is the per cent of degrees in the four different classes of schools. This subdivision enables one to compare his own preparation with those in his own group, which is one of the over-all purposes of this study.

TABLE 2
NUMBER OF TEACHERS BY DEGREES

YEARS	C L A S S	NO DEGREE			BACHELOR'S			MASTER'S			GRAND TOTAL
		MEN	WOMEN	TOTAL	MEN	WOMEN	TOTAL	MEN	WOMEN	TOTAL	
1924- 1925	I	8	22	30	113	141	254	43	18	61	345
	II	3	6	9	57	55	112	6	3	9	130
	III	2	8	10	32	25	57	5	1	6	73
	IV	2	5	7	59	13	72	3	1	4	83
TOTAL		15	41	56	261	234	495	57	23	80	631
1944- 1945	I	11	13	24	123	112	235	130	81	211	470
	II	5	7	12	26	40	66	32	24	56	134
	III	0	8	8	26	24	50	13	4	17	75
	IV	3	3	6	21	17	38	15	1	16	60
TOTAL		19	31	50	196	193	389	190	110	300	739
1946- 1947	I	15	9	24	165	89	254	167	74	241	519
	II	2	5	7	59	34	93	33	16	49	149
	III	2	7	9	34	13	47	23	3	26	82
	IV	0	2	2	24	11	35	21	5	26	63
TOTAL		19	23	42	282	147	429	244	98	342	813
1950- 1951	I	9	7	16	114	60	174	150	83	233	423
	II	2	2	4	59	37	96	50	17	67	167
	III	1	1	2	37	23	60	27	1	28	90
	IV	1	1	2	16	9	25	19	3	22	49
TOTAL		13	11	24	226	129	355	246	104	350	729
1952- 1953	I	4	2	6	98	62	160	182	77	259	425
	II	4	5	9	58	40	98	52	21	73	180
	III	1	0	1	27	14	41	28	5	33	75
	IV	1	4	5	17	9	26	17	4	21	52
TOTAL		10	11	21	200	125	325	279	107	386	732

FIGURE 2A

PER CENT OF DEGREES IN ALL SCHOOLS

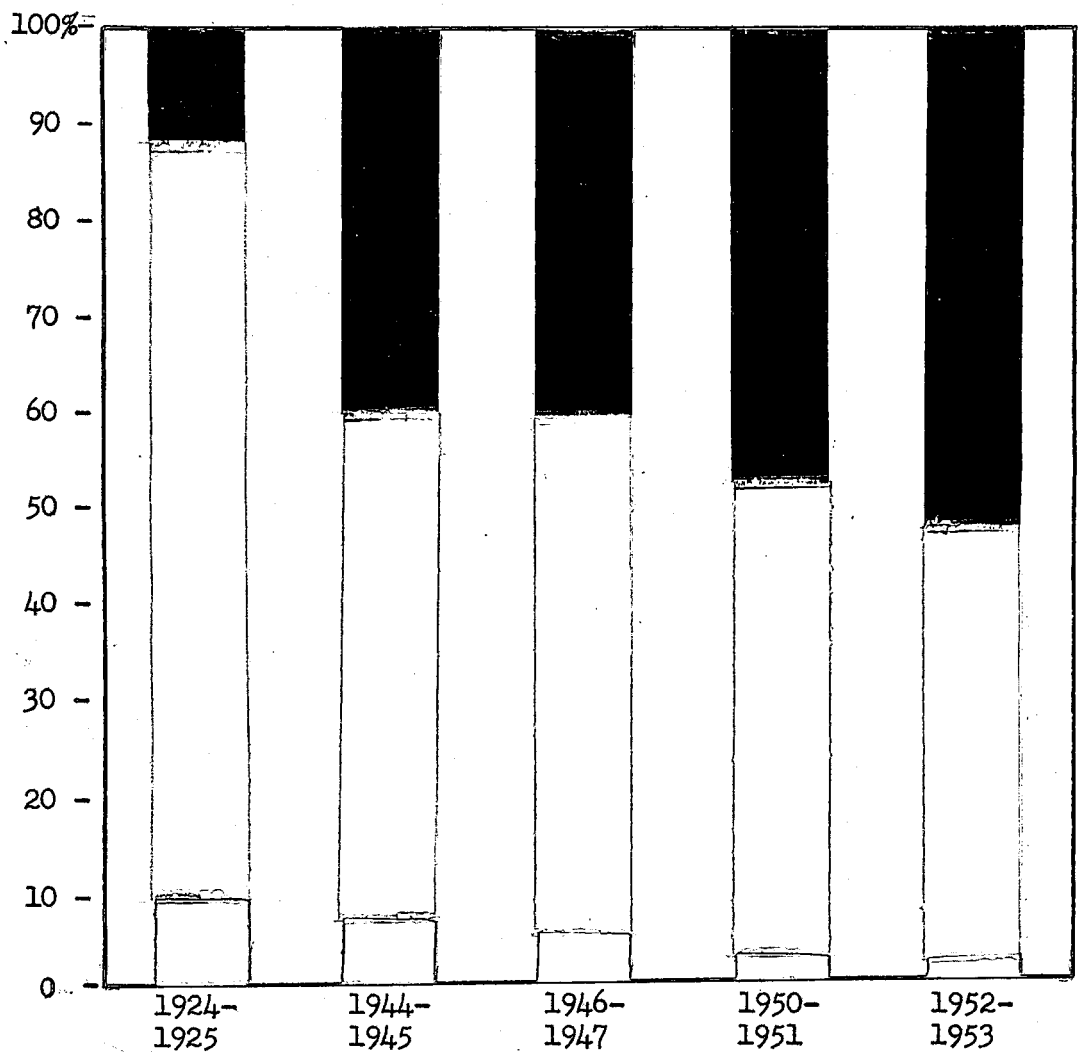


TABLE 2A

	1924-1925	1944-1945	1946-1947	1950-1951	1952-1953
MASTER'S	12.7%	40.6%	42.1%	48.0%	52.7%
BACHELOR'S	78.4	52.6	52.8	48.7	44.4
NO DEGREE	8.9	6.8	5.1	3.3	2.9

FIGURE 2-I

PER CENT OF DEGREES IN CLASS I SCHOOLS

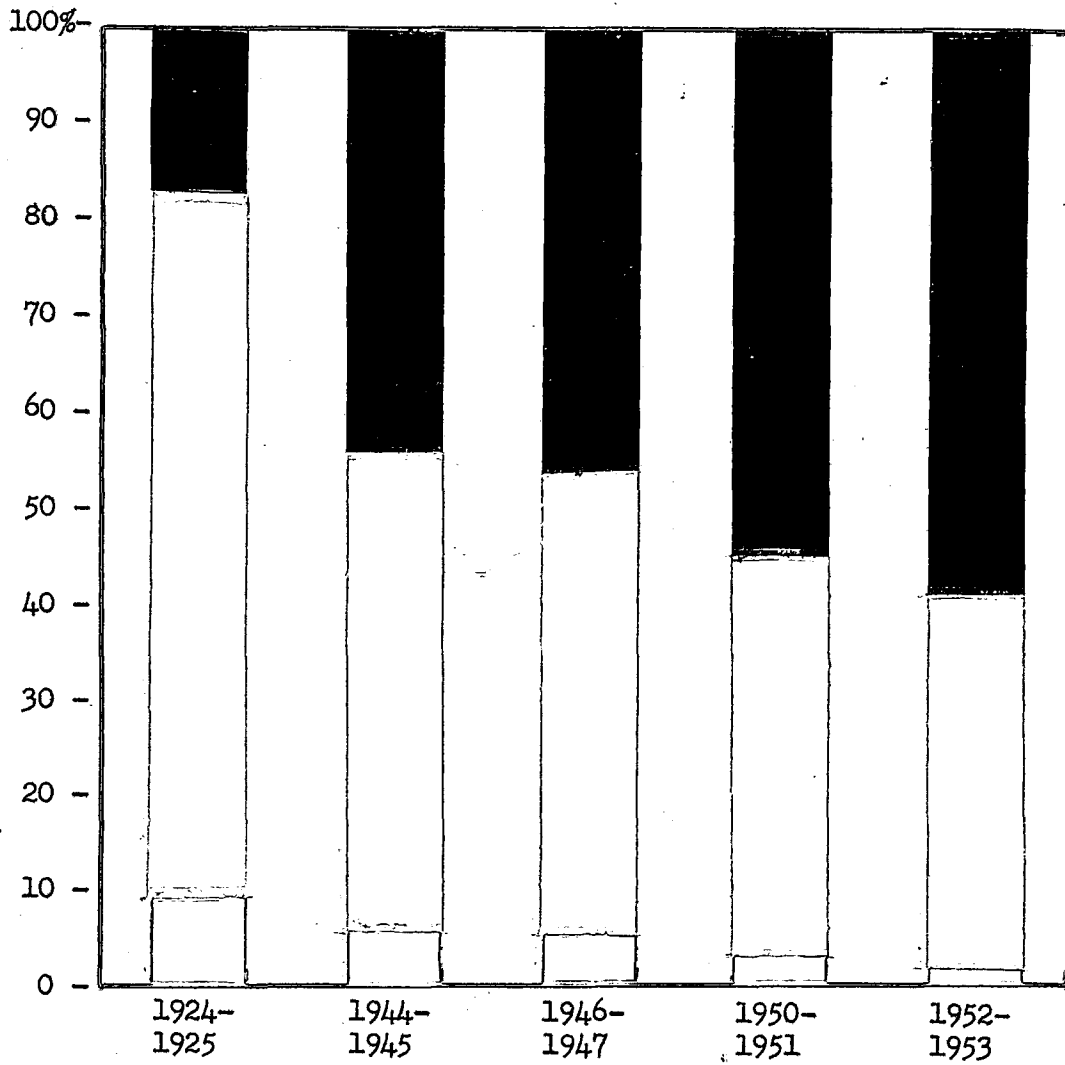


TABLE 2-I

	1924-1925	1944-1945	1946-1947	1950-1951	1952-1953
MASTER'S	17.7%	44.9%	46.5%	55.1%	60.9%
BACHELOR'S	73.6	50.0	48.9	41.1	37.6
NO DEGREE	8.7	5.1	4.6	3.8	1.9

FIGURE 2-II

PER CENT OF DEGREES IN CLASS II SCHOOLS

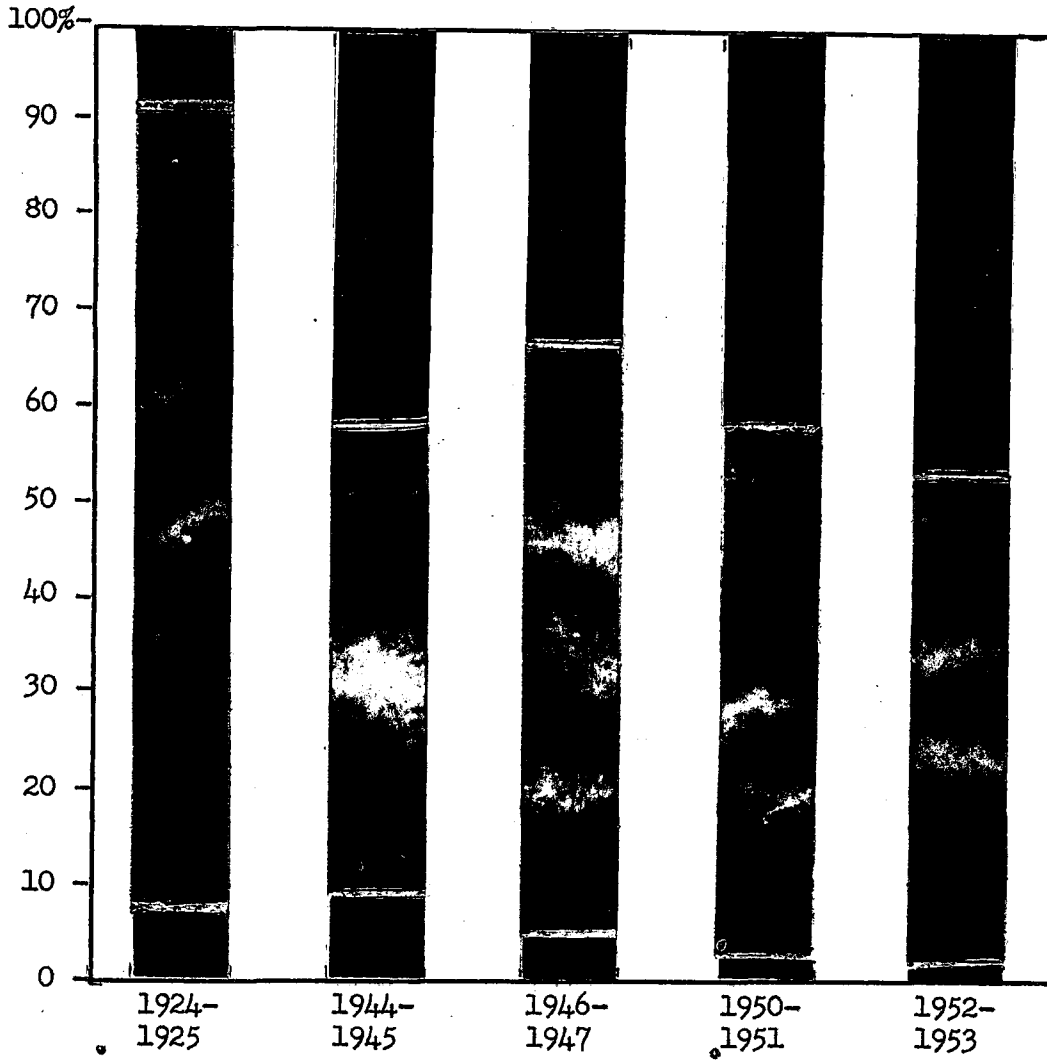


TABLE 2-II

	1924-1925	1944-1945	1946-1947	1950-1951	1952-1953
MASTER'S	6.9%	41.8%	32.9%	40.1%	44.0%
BACHELOR'S	86.2	49.3	62.4	57.5	54.7
NO DEGREE	6.9	8.9	4.7	2.4	1.3

FIGURE 2-III

PER CENT OF DEGREES IN CLASS III SCHOOLS

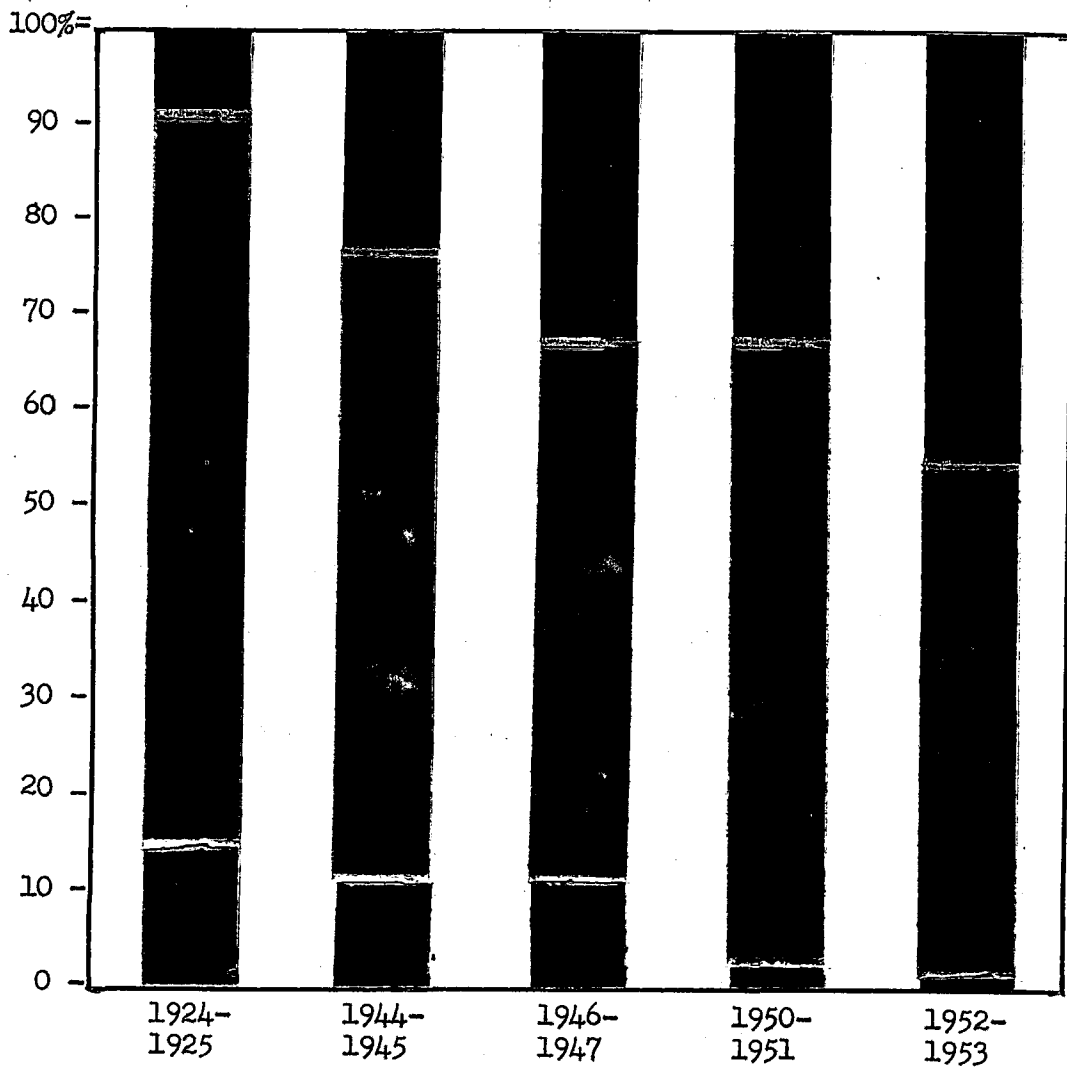


TABLE 2-III

	1924-1925	1944-1945	1946-1947	1950-1951	1952-1953
MASTER'S	8.2%	22.6%	31.8%	31.1%	44.0%
BACHELOR'S	78.1	66.7	57.3	66.7	54.7
NO DEGREE	13.7	10.7	10.9	2.2	1.3

FIGURE 2-IV

PER CENT OF DEGREES IN CLASS IV SCHOOLS

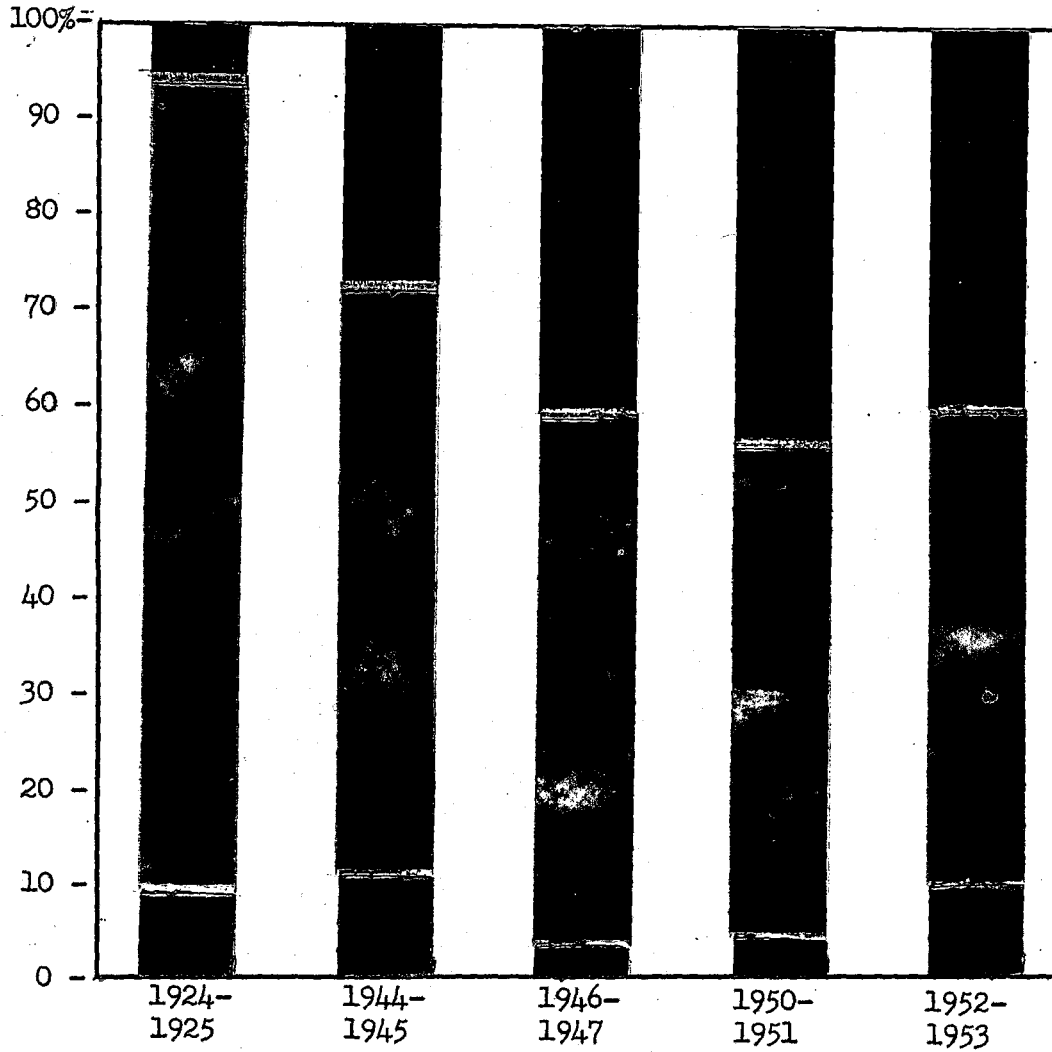


TABLE 2-IV

	1924-1925	1944-1945	1946-1947	1950-1951	1952-1953
MASTER'S	4.8%	26.7%	41.3%	44.9%	40.4%
BACHELOR'S	86.7	63.3	55.5	51.0	50.0
NO DEGREE	8.4	10.0	3.2	4.1	9.6

OBSERVATIONS

A study of Table 2, "Number of Teachers by Degrees", makes evident the following facts:

1. Teachers having no degree were, and are, in the minority in all classes of secondary schools.
2. The number of teachers having no degree has diminished each year in all classes of secondary schools.
3. The number of women having no degree was greater than the number of men having no degree until 1950, from which time the number of each sex has been approximately equal.
4. With only one exception, that of the number of women having no degree in Class II schools as reported in the biennial survey of 1952-1953, the largest number of teachers, both men and women, having no degree has been found in Class I schools. With the exception of 1952-1953, this number has been considerably above that in any of the other classes of secondary schools.
5. The number of men holding bachelor's degrees in Class I schools showed an increase through the survey of 1946-1947 and a decrease since that time.
6. There are more men teachers of mathematics than women. At the present time the proportion of men to women in the mathematics field is better than 2 to 1.
7. Until 1950, there were more men holding the Bachelor degree than the master degree. Since that time, there has been a greater number of men teachers of mathematics holding the master degree.

8. The total number of women teachers of mathematics holding the bachelor's degree has consistently been above the number of women holding the master's degree.

9. The total number of master's degrees has shown a steady rise.

Table 2A, "Per Cent of Degrees in All Schools", reveals the following facts:

1. There has been a steady rise in the number of master's degrees in all classes of schools.

2. There has been a steady decline in the number of bachelor's degrees in all classes of schools.

3. There has been a steady decline in the number of teachers having no degree.

4. Since 1952 there have been more teachers holding the master's degree than in both of the other two categories combined.

5. Although the number of teachers having no degree has shown a steady decrease, the classification has not ceased to exist. 2.9% of the teachers of mathematics in the public schools (secondary) of Massachusetts do not hold a degree as of the school year 1952-1953.

A study of Table 2 I , "Per Cent of Degrees in Class I Schools", reveals the following:

1. In comparing Table 2 I with Table 2 it is apparent that there has always been a greater percentage of master's degrees in Class I schools than the percentage of such degrees in the schools of the other classes.

2. Although the number of bachelor's degrees has steadily de-

clined, it was not until the survey of 1950 that the figures showed a greater percentage of master's degrees than bachelor's degrees, although the percentages were within 2.4% of each other as reported in the survey of 1946-1947.

3. The number of teachers having no degree has shown a steady decline, in line with the general trend as indicated in Table 2.

Table 2 II, "Per Cent of Degrees in Class II Schools", indicates the following:

1. In the survey of 1924-1925 it is indicated that there was the same percentage of teachers holding the master's degree as there were teachers having no degree.

2. The survey of 1944-1945 showed a sharp rise in the number of master's degrees over the number of these degrees in 1924-1925.

3. There was a 2.0% rise in the number of mathematics teachers having no degree in 1944-1945 over the number having no degree in 1924-1925.

4. Although the percent of bachelor's degrees in 1944-1945 was considerably lower than the percent of those degrees in 1924-1925, a sharp rise in the percent of those degrees was indicated in 1946-1947.

5. Since 1946-1947 the percent of bachelor's degrees has shown a steady decline.

6. The number of master's degrees declined 8.9% between 1944-45 and 1946-1947.

7. Since 1946-1947 the percentage of master's degrees has shown a steady increase.

8. The latest biennial survey shows there is 1.3% of all

mathematics teachers in Class II schools who have no degree.

Table 2 III, "Per Cent of Degrees in Class III Schools", reveals:

1. There has been a steady increase in the number of master's degrees, ranging from 8.2% of the total in 1924-1925 to 44.0% of the total in 1952-1953.

2. With the exception of the year 1950-1951 the number of bachelor's degrees has shown a steady decline.

3. The bachelor's degree is still the predominant degree in Class III schools, the percentage of such degrees being well over 50%.

4. There has been a steady decline in the number of teachers having no degree, although the survey of 1952-1953 shows that this group comprises 1.3% of the total number of teachers of mathematics in Class III schools.

5. It is interesting to note that in 1952-1953 there were the same percentages of mathematics teachers having the master's degree, the bachelor's degree, and no degree in both Class II and Class III schools, namely 44.0%, 54.7%, and 1.3%.

A study of Table 2 IV, "Per Cent of Degrees in Class IV Schools", indicates the following:

1. A rise and fall in the percentage of teachers of mathematics having no degree between 1924-1925 and 1946-1947, then a steady increase in the percentage of those teachers to 9.6% in 1952-1953.

2. The percentage of master's degrees showed a steady increase

from 1924-1925 through 1950-1951, although it indicated a tendency to level off between 1946-1947 and 1950-1951.

3. The percentage of master's degrees declined 4.5% between 1950-1951 and 1952-1953.

4. The percentage of bachelor's degrees has shown a steady decline but has tended to level off between 1950-1951 and 1952-1953.

5. Bachelor's degrees are predominant among teachers of mathematics in Class IV schools.

YEARLY TOTALS OF SALARY FREQUENCY

Rather than include all 120 scatter diagrams showing salary frequency each year by class of school and degree, the data found on these diagrams were tabulated so that results would be more meaningful. Yearly totals according to the biennial surveys have been tabulated showing the number of teachers to be found in each salary range according to class of schools in which employed and degree held. These tables indicate the number of men teachers of mathematics, the number of women teachers of mathematics, and the combined totals in each salary range in each class of school according to degree held. These correspond to the totals of the rows of the scatter diagrams.

The salary ranges covering increments of \$400.00 were selected in order that the figures included in the thesis of Mr. Gilbert H. Johnson,¹ dealing with the biennial survey of 1946-1947, could be used.

1. Johnson, op. cit., pp. 15-19.

TABLE M-I-S

YEARLY TOTALS OF SALARY FREQUENCY

DEGREE: MASTER CLASS: I

SALARY	1924-1925			1944-1945			1946-1947			1950-1951			1952-1953		
	M	W	TOTAL	M	W	TOTAL	M	W	TOTAL	M	W	TOTAL	M	W	TOTAL
\$6400-6799													1		1
6000-6399													7	1	8
5600-5999										4	2	6	11	5	16
5200-5599										8	2	10	41	21	62
4800-5199										19	19	38	19	11	30
4400-4799				6		6				20	9	29	28	11	39
4000-4399				10	1	11	27		27	38	18	56	36	17	53
3600-3999	6		6	34	3	37	39	1	40	29	21	50	15	9	24
3200-3599	9	1	10	17	6	23	24	19	43	17	10	27	17	2	19
2800-3199	6		6	27	16	43	51	30	81	11	2	13	2		2
2400-2799	8	5	13	28	24	52	22	19	41	3		3	2		2
2000-2399	6	5	11	6	21	27	4	5	9	1		1	3		3
1600-1999	4	7	11	2	10	12									
\$1200-1599	4		4												

M-MEN, W-WOMEN.

TABLE M-II-S

YEARLY TOTALS OF SALARY FREQUENCY

DEGREE: MASTER CLASS: II

SALARY	1924-1925			1944-1945			1946-1947			1950-1951			1952-1953		
	M	W	TOTAL	M	W	TOTAL	M	W	TOTAL	M	W	TOTAL	M	W	TOTAL
\$6400-6799															
6000-6399															
5600-5999															
5200-5599													3		3
4800-5199										1		1	4		4
4400-4799										6		6	11	2	13
4000-4399							5		5	5	2	7	9	7	16
3600-3999				1		1	7		7	10	5	15	8	7	15
3200-3599	2		2	9	1	10	6	4	10	17	8	25	10	3	13
2800-3199	3		3	6		6	11	9	20	6	1	7	6	2	8
2400-2799	1	1	2	6	3	9	4	3	7	4	1	5	1		1
2000-2399		1	1	2	10	19				1		1			
1600-1999		1	1	1	9	10									
\$1200-1599					1	1									

M-MEN, W-WOMEN.

TABLE M-III-S

YEARLY TOTALS OF SALARY FREQUENCY

DEGREE: MASTER CLASS: III

SALARY	1924-1925			1944-1945			1946-1947			1950-1951			1952-1953		
	M	W	TOTAL	M	W	TOTAL	M	W	TOTAL	M	W	TOTAL	M	W	TOTAL
\$6400-6799															
6000-6399															
5600-5999															
5200-5599															
4800-5199													4		4
4400-4799													1		1
4000-4399							2		2	5		5	7		7
3600-3999							3		3	8		8	6		6
3200-3599				3		3	4		4	4		4	2	1	3
2800-3199				7		7	5		5	4	1	5	5	3	8
2400-2799	3		3				6	1	7	3		3	3	1	4
2000-2399	1		1	3	1	4	3	2	5	3		3			
1600-1999					3	3									
\$1200-1599	1	1	2												

M-MEN, W-WOMEN.

TABLE M-IV-S

YEARLY TOTALS OF SALARY FREQUENCY

DEGREE: MASTER

CLASS: M-IV-S

SALARY	1924-1925			1944-1945			1946-1947			1950-1951			1952-1953		
	M	W	TOTAL	M	W	TOTAL	M	W	TOTAL	M	W	TOTAL	M	W	TOTAL
\$6400-6799															
6000-6399															
5600-5999															
5200-5599															
4800-5199													1		1
4400-4799										1		1	1		1
4000-4399										3		3	3		3
3600-3999										5		5	4	1	5
3200-3599							1		1	6		6	2	1	3
2800-3199				4		4	7	2	9	1	2	3	3	2	5
2400-2799				7		7	9	1	10	2	1	3	3		3
2000-2399	1		1	4		4	3	2	5	1		1			
1600-1999	1		1		1	1	1		1						
\$1200-1599	1	1	2												

M-MEN, W-WOMEN.

TABLE B-I-S

YEARLY TOTALS OF SALARY FREQUENCY

DEGREE: BACHELOR CLASS: I

SALARY	1924-1925			1944-1945			1946-1947			1950-1951			1952-1953		
	M	W	TOTAL	M	W	TOTAL	M	W	TOTAL	M	W	TOTAL	M	W	TOTAL
\$6400-6799															
6000-6399															
5600-5999													1		1
5200-5599										1		1	3		3
4800-5199										8		8	13	7	20
4400-4799										7		7	8	11	19
4000-4399				4	1	5	14		14	28	15	43	400	21	61
3600-3999	11		11	16	2	18	41	1	42	37	14	51	18	15	33
3200-3599	22		22	33	6	39	34	10	44	15	23	38	7	4	11
2800-3199	17	33	20	29	5	34	37	36	73	10	4	14	3	4	7
2400-2799	26	25	51	24	27	51	19	31	50	5	1	6	3		3
2000-2399	18	35	53	8	39	47	12	38	20	3	2	5	2		2
1600-1999	15	61	76	5	25	30	8	3	11						
\$1200-1599	4	15	19	4	6	10									

M-MEN, W-WOMEN.

TABLE B-II-S

YEARLY TOTALS OF SALARY FREQUENCY

DEGREE: BACHELOR CLASS: II

SALARY	1924-1925			1944-1945			1946-1947			1950-1951			1952-1953		
	M	W	TOTAL	M	W	TOTAL	M	W	TOTAL	M	W	TOTAL	M	W	TOTAL
\$6400-6799															
6000-6399															
5600-5999															
5200-5599													1		1
4800-5199										1		1	1	1	2
4400-4799										2		2			
4000-4399				1		1	1		1	5		5	3	3	6
3600-3999							1		1	7	3	10	13	12	25
3200-3599	2	1	3	2	1	3	4	1	5	11	12	23	12	12	24
2800-3199	8		8	4		4	16	1	17	14	15	29	19	7	26
2400-2799	9	1	10	8	3	11	23	11	44	14	6	20	9	5	14
2000-2399	14	3	17	14	3	17	12	12	24	5	1	6			
1600-1999	12	34	46	6	27	33	2	9	11						
\$1200-1599	12	16	28	1	6	7									

M-MEN, W-WOMEN.

TABLE B-III-S

YEARLY TOTALS OF SALARY FREQUENCY

DEGREE: BACHELOR CLASS: III

SALARY	1924-1925			1944-1945			1946-1947			1950-1951			1952-1953		
	M	W	TOTAL	M	W	TOTAL	M	W	TOTAL	M	W	TOTAL	M	W	TOTAL
\$6400-6799															
6000-6399															
5600-5999															
5200-5599															
4800-5199															
4400-4799													1		1
4000-4399							1		1	2	1	3	2		2
3600-3999										3		3	3		3
3200-3599				1		1	1		1	5	2	7	7	6	13
2800-3199	3		3	3	1	4	6		6	8	8	16	6	5	11
2400-2799	6	1	7	6	1	7	14	1	15	12	7	19	8	3	11
2000-2399	10	1	11	6	1	7	9	4	13	7	5	12			
1600-1999	8	10	18	10	9	19	3	8	11						
\$1200-1599	5	13	18		12	12									

M-MEN, W-WOMEN.

TABLE B-IV-S

YEARLY TOTALS OF SALARY FREQUENCY

DEGREE: BACHELOR CLASS: IV

SALARY	1924-1925			1944-1945			1946-1947			1950-1951			1952-1953		
	M	W	TOTAL	M	W	TOTAL	M	W	TOTAL	M	W	TOTAL	M	W	TOTAL
\$6400-6799															
6000-6399															
5600-5999															
5200-5599															
4800-5199															
4400-4799										1		1			
4000-4399													3		3
3600-3999										1		1	2	1	3
3200-3599				1		1	4		4	3		3	3	1	4
2800-3199	2		2	3		3	5		5	8		8	5	2	7
2400-2799	12		12	5		5	5	1	6	2	6	8	4	5	9
2000-2399	23		23	6		6	9	3	12	1	3	4			
1600-1999	13	4	17	5	6	11	1	7	8						
\$1200-1599	9	6	15	1	11	12									0

M-MEN, W-WOMEN.

TABLE O-I-S

YEARLY TOTALS OF SALARY FREQUENCY

DEGREE: NO DEGREE CLASS: I

SALARY	1924-1925			1944-1945			1946-1947			1950-1951			1952-1953		
	M	W	TOTAL	M	W	TOTAL	M	W	TOTAL	M	W	TOTAL	M	W	TOTAL
\$6400-6799															
6000-6399															
5600-5999															
5200-5599													1		1
4800-5199										1		1	1		1
4400-4799										1		1	1		1
4000-4399										1	2	3		1	1
3600-3999				3		3	1		1	2	3	5			
3200-3599		1	1	1		1	3		3	1	2	3	1	1	2
2800-3199	2	3	5		1	1	5	4	9	1		1			
2400-2799	1	3	4	3	2	5	2	2	4	2		2			
2000-2399	3	6	9	3	4	7	4	3	7						
1600-1999	1	6	7	1	4	5									
\$1200-1599	1	3	4		2	2									

M-MEN, W-WOMEN.

TABLE O-II-S

YEARLY TOTALS OF SALARY FREQUENCY

DEGREE: NO DEGREE CLASS: II

SALARY	1924-1925			1944-1945			1946-1947			1950-1951			1952-1953		
	M	W	TOTAL	M	W	TOTAL	M	W	TOTAL	M	W	TOTAL	M	W	TOTAL
\$6400-6799															
6000-6399															
5600-5999															
5200-5599															
4800-5199															
4400-4799													1		1
4000-4399									1		1				
3600-3999															
3200-3599									1		1		1	1	2
2800-3199										1	1		2	2	4
2400-2799	1		1	2		2	1	1	2		1	1		2	2
2000-2399				1	1	2	1	3	4						
1600-1999	2	3	5	1	3	4		1	1						
\$1200-1599		2	2	1	3	4									

M-MEN, W-WOMEN.

TABLE O-III-S

YEARLY TOTALS OF SALARY FREQUENCY

DEGREE: NO DEGREE CLASS: III

SALARY	1924-1925			1944-1945			1946-1947			1950-1951			1952-1953		
	M	W	TOTAL	M	W	TOTAL	M	W	TOTAL	M	W	TOTAL	M	W	TOTAL
\$6400-6799															
6000-6399															
5600-5999															
5200-5599															
4800-5199															
4400-4799															
4000-4399															
3600-3999															
3200-3599										1		1	1		1
2800-3199											1	1			
2400-2799							1		1						
2000-2399		1	1				1	5	6						
1600-1999		2	2		3	3		2	2						
\$1200-1599	2	5	7		1	1									

M-MEN, W-WOMEN.

TABLE O-IV-S

YEARLY TOTALS OF SALARY FREQUENCY

DEGREE: NO DEGREE CLASS: IV

SALARY	1924-1925			1944-1945			1946-1947			1950-1951			1952-1953		
	M	W	TOTAL	M	W	TOTAL	M	W	TOTAL	M	W	TOTAL	M	W	TOTAL
\$6400-6799															
6000-6399															
5600-5999															
5200-5599															
4800-5199															
4400-4799															
4000-4399															
3600-3999													1		1
3200-3599									1		1			2	2
2800-3199										1	1			2	2
2400-2799									1		1				
2000-2399	1		1	1	1	2		1	1						
1600-1999	1	1	2	2	1	3		1	1						
\$1200-1599		3	3		1	1									

M-MEN, W-WOMEN.

OBSERVATIONS

Table M I S "Master's Degrees in Class I"

1. In 1924-1925 men comprised the best paid teachers as well as the poorest paid as compared to women teachers of mathematics in this group.

2. In 1944-1945 the largest number of men teaching mathematics and the largest number of women were in the \$2400-\$2799 bracket.

3. In 1946-1947 the largest number of men and the largest number of women were both in the \$2800-\$3199 bracket, or a raise of \$400 over 1944-1945.

4. In 1950-1951 the largest number of men were in the \$4000-\$4399 bracket, while the largest number of women were in the \$3600-\$3999 bracket.

5. In 1952-1953, however, both the largest number of men and women were together in the \$5200-\$5599 bracket.

6. Over all, with the exception of 1950-1951 when the women teachers' salary scale was as high as the men's, the men teachers of mathematics have placed higher in the salary scale than have women teachers.

Table M II S "Master's Degrees in Class II"

1. In 1924-1925 the lowest paid man was in the same salary bracket as the highest paid women.

2. Men predominately placed higher on the salary scale than did the women.

3. In 1952-1953 the largest number of men were in the same bracket as the highest paid women.

4. In comparison with Table M I S the rise in salaries for both men and women with a master's degree is not as great as that in Class I schools.

Table M III S "Master's Degrees in Class III"

1. The difference in number of men with a master's degree and of women with a master's degree is very apparent, in this Class.

2. The women have constantly been found at the lower end of the men's salary scale, but as the difference in number is so great no comparison would be reliable.

Table M IV S "Master's Degrees in Class IV"

The small but steady increase in the number of master's degrees is very apparent with the men teachers in this group, but the number of women is so small that no increase is found.

Table B I S "Bachelor's Degrees in Class I"

1. With the exception of 1944-1945 the men teachers' scale has consistently extended higher than that of the women teachers of mathematics.

2. It is interesting to note that the lowest paid women in 1952-1953 are in the same salary bracket as the highest paid women in 1924-1925, namely \$2800-\$3199.

3. The lowest paid men in 1924-1925 and in 1952-1953 differ by only \$800.

4. The salary spreads for both the men and women very closely approximate a normal distribution.

Table B II S "Bachelor Degree in Class II"

1. Until 1950-1951 the largest number of women teachers has been in a salary bracket at least \$400 less than that of the largest number of men.
2. With the exception of only one teacher there is no difference in the range of salaries in 1924-1925 and that of 1944-1945.

Table B III S "Bachelor's Degree in Class III"

1. There has been very little change in the salary range of this group over all the years. The largest number of teachers in 1952-1953 receive a salary which is only \$400 higher than the largest number of men in 1924-1925.
2. The highest and largest paid group of women in 1952-1953 were receiving \$800 more than the largest group of men, but \$1100 less than the highest paid man.

Table B IV S "Bachelor's Degree in Class IV"

1. The difference in the number of men and women teaching mathematics in this group is very apparent, as is the difference in their salary ranges.
2. The few women in this group have almost constantly been near the bottom of the men's salary range.
3. Over the years the largest number of men have been found at the bottom of their salary range.
4. The large overlapping of the women's salary ranges, in view of the few number of teachers in these groups, is an indication of a very slow change.

Table O I S "No Degree in Class I"

1. Although the number of teachers with no degree has been steadily decreasing, the salary spread has been very good over the years.
2. On the whole the largest number of women and the largest number of men in this group have been in the same salary bracket.
3. In comparing this table with Table B IV S, it is found that some men and women teachers with no degree in Class I were in higher salary brackets than the highest paid men or women in Class IV with a bachelor degree.
4. It is interesting to note that the lowest paid women in 1952-1953 were receiving the same amount of money as the highest paid women with no degree in 1924-1925.
5. The variation in the salary ranges for the men and women in this group is an indication of the influence of sex upon salary.

Table O II S "No Degree in Class II"

1. It is noted that there is little change in the salary ranges between the years 1944-1945 for either men or women.
2. There is only a slight rise in salaries between 1944-1945 and 1946-1947, but there is a very apparent rise between 1946-1947 and 1950-51.
3. The variation of the number of teachers in this group is apparent upon examination of the data for 1946-1947 through 1952-1953, which shows a decrease to a total of four in 1951-1952 and an increase to nine in 1952.

Table O III S "No Degree in Class III"

1. This is the first group that has no teachers in some of the

subdivisions; there were no men in this group in 1944-1945, but there were in all other years. There were no women in this group in 1952-1953.

2. In comparison with Tables M III S and B III S, it is observed that the few teachers in this group are near or in the same salary brackets as the largest number of teachers with either a master degree or a bachelor degree.

3. It is interesting to note that the number of "no degree" teachers increased from four in 1944-1945 to nine in 1946-1947 and then decreased to only two in 1950-1951 and to one in 1952-1953.

Table O IV S "No Degree in Class IV"

1. The most apparent factor of this tabulation is the constant range of salaries until 1946-1947 and then the rise in 1950-1951 to almost double those original salaries.

2. The small number of teachers in this group makes it impossible to compare the salary ranges of the men and women teachers and arrive at any valid conclusions.

NUMBER OF TEACHERS, CLASSIFIED BY YEARS OF EXPERIENCE

As in the case of Salary Frequency, tables showing yearly totals of teaching experience have been prepared from the 120 scatter diagrams from which this information was first collected. The figures in each block show the number of men teachers of mathematics and the number of women teachers of mathematics in each experience range in each of the years in which a biennial survey was made. The total number of men and the total number of women in each year is also indicated. The figures in each block represent the totals of the columns of the scatter diagrams.

The author selected four-year intervals for length of service since a smaller division would spread the data too thin and a larger one would not discriminate sufficiently. To avoid fractions, length of service was taken to the nearest year.

TABLE M-I-E

NUMBER OF TEACHERS,
CLASSIFIED BY YEARS OF EXPERIENCE

DEGREE: MASTER CLASS: I

1924-1925

	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-up	TOTAL
MEN	12	5	6	5	5	6	1	3		43
WOMEN	3	6		3	2	1	2	1		18

1944-1945

MEN	3	11	19	33	35	9	13	5	2	130
WOMEN	1	8	8	21	17	12	8	3	3	81

1946-1947

MEN	6	16	36	33	45	17	9	5		167
WOMEN		6	4	15	21	14	10	3	1	74

1950-1951

MEN	9	5	26	38	24	35	6	5	2	150
WOMEN	1	3	8	8	16	20	14	12	1	83

1952-1953

MEN	22	15	20	32	22	40	21	5	5	182
WOMEN	1	2	9	8	12	16	18	11		77

TABLE M-II-E

NUMBER OF TEACHERS,
CLASSIFIED BY YEARS OF EXPERIENCE

DEGREE: MASTER CLASS: II

1924-1925

	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-up	TOTAL
MEN		1	2		2		1			6
WOMEN		2					1			3

1944-1945

MEN	3	5	7	3	7	4	2		1	32
WOMEN	5	4	5	3	3	2	2			24

1946-1947

MEN	3	8	6	6	3	5	1		1	33
WOMEN		6	1	4	2	3				16

1950-1951

MEN	14	10	11	5	4	3	2	1		50
WOMEN	1	1	3	2	4	2	4			17

1952-1953

MEN	15	12	8	7	4	3	1	1	1	52
WOMEN	3	2	4	2	4	3	2	1		21

TABLE M-III-E

NUMBER OF TEACHERS,
CLASSIFIED BY YEARS OF EXPERIENCE

DEGREE: MASTER CLASS: III

1924-1925

	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-up	TOTAL
MEN	2	1	1	1						5
WOMEN			1							1

1944-1945

MEN	3	1		1	4	3		1		13
WOMEN	1	1		2						4

1946-1947

MEN		4	3	4	7	3	2			23
WOMEN	1	2								3

1950-1951

MEN	7	4	3	3	1	7	2			27
WOMEN		1								1

1952-1953

MEN	8	6	4	1	2	3	3	1		28
WOMEN	2		2		1					5

TABLE M-IV-B
 NUMBER OF TEACHERS,
 CLASSIFIED BY YEARS OF EXPERIENCE

DEGREE: MASTER CLASS: IV

1924-1925

	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-up	TOTAL
MEN	1			1			1			3
WOMEN			1							1

1944-1945

MEN	1		4	2	5	3				15
WOMEN					1					1

1946-1947

MEN	4	5	4	2	2	4				21
WOMEN	2	1			1		1			5

1950-1951

MEN	4	7	5	1	1	1				19
WOMEN	2					1				3

1952-1953

MEN	5	2	5		3	1	1			17
WOMEN		1	2			1				4

TABLE B-I-E.

NUMBER OF TEACHERS,
CLASSIFIED BY YEARS OF EXPERIENCE

DEGREE: BACHELOR CLASS: I

1924-1925

	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-up	TOTAL
MEN	29	18	21	16	8	9	5	5	2	113
WOMEN	31	38	21	14	14	14	6	4		141

1944-1945

MEN	7	15	10	20	23	14	20	9	5	123
WOMEN	11	14	12	10	16	14	15	16	10	112

1946-1947

MEN	28	19	28	17	27	18	12	10	6	165
WOMEN	5	5	14	9	14	13	16	9	4	89

1950-1951

MEN	18	10	4	21	10	24	9	13	5	114
WOMEN	5	3	7	5	6	10	14	6	4	60

1952-1953

MEN	15	17	7	13	12	14	12	7	1	98
WOMEN	2	1	4	10	7	11	12	9	6	62

TABLE B-II-E

NUMBER OF TEACHERS,
CLASSIFIED BY YEARS OF EXPERIENCE

DEGREE: BACHELOR CLASS: II

1924-1925

	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-up	TOTAL
MEN	32	8	6	3	6		1		1	57
WOMEN	25	11	5	4	6	1	2	1		55

1944-1945

MEN	10	9	6	1	5	1	2		2	26
WOMEN	13	9	5	5	4	3			1	440

1946-1947

MEN	19	13	9	5	8	2	1	2		59
WOMEN	8	6	5	1	6	5	1	2		34

1950-1951

MEN	29	8	8	9	2	1	1	1		59
WOMEN	7	6	6	6	3	1	4	3	1	37

1952-1953

MEN	36	5	3	5	6	1	1	1		58
WOMEN	8	5	7	2	3	6	6	1	2	40

TABLE B-III-E

NUMBER OF TEACHERS,
CLASSIFIED BY YEARS OF EXPERIENCE

DEGREE: BACHELOR CLASS: III

1924-1925

	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-up	TOTAL
MEN	16	5	4		3	1	3			32
WOMEN	16	3	2	3	1					25

1944-1945

MEN	6	7	2	4	2	1	3	1		26
WOMEN	4	2	3	2	3	1	2			24

1946-1947

MEN	17	8		3			3	3		34
WOMEN	5	4	2		1		1			13

1950-1951

MEN	19	8	5		2	2	1			37
WOMEN	8	5	2	3	1	2	1		1	23

1952-1953

MEN	18	4	1	2		1	1			27
WOMEN	5	3	2	2	1	1				14

TABLE B-IV-E

NUMBER OF TEACHERS,
CLASSIFIED BY YEARS OF EXPERIENCE

DEGREE: BACHELOR CLASS: IV

1924-1925

	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-up	TOTAL
MEN	36	10	6	4	2			1		59
WOMEN	10	1	1	1						13

1944-1945

MEN	7	5	3	1	2	1		2		21
WOMEN	13		3		1					17

1946-1947

MEN	10	6	3		3	1		1		24
WOMEN	7	1		1	1				1	11

1950-1951

MEN	9	2	2	1		1			1	16
WOMEN	4	1	1	1	1	1				9

1952-1953

MEN	10	4	2						1	17
WOMEN	5	1		1	1	1				9

TABLE O-I-E

NUMBER OF TEACHERS,
CLASSIFIED BY YEARS OF EXPERIENCE

DEGREE: NO DEGREE CLASS: I

1924-1925

	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-up	TOTAL
MEN	1	2	2	1	1			1		8
WOMEN	3	1	1	1	2	2	7	3	2	22

1944-1945

MEN	3	1	1		2	2		2		11
WOMEN	3			2	1	1	3	1	2	13

1946-1947

MEN	1	3	1	1	1	3	5			15
WOMEN		1					5	1	2	9

1950-1951

MEN	2	2		2		2	1			9
WOMEN			1		2			2	2	7

1952-1953

MEN		1					2		1	4
WOMEN					1	1				2

TABLE 0-II-E

NUMBER OF TEACHERS,
CLASSIFIED BY YEARS OF EXPERIENCE

DEGREE: NO DEGREE CLASS: II

1924-1925

	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-up	TOTAL
MEN	1	1				1				3
WOMEN	1	1		1	1			1	1	6

1944-1945

MEN	1		1	1	1		1			5
WOMEN		1	2	1	2	1				7

1946-1947

MEN			1				1			2
WOMEN			1	2		2				5

1950-1951

MEN		1						1		2
WOMEN									2	2

1952-1953

MEN	1	1					1		1	4
WOMEN	1		1	1				1	1	5

TABLE O-IV-E

NUMBER OF TEACHERS,
CLASSIFIED BY YEARS OF EXPERIENCE

DEGREE: NO DEGREE CLASS: IV

1924-1925

	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-up	TOTAL
MEN	2									2
WOMEN		3		1	1					5

1944-1945

MEN	2		1							3
WOMEN	1							1	1	3

1946-1947

MEN										
WOMEN						1		1		2

1950-1951

MEN				1						1
WOMEN	1									1

1952-1953

MEN					1					1
WOMEN		1			1	1			1	4

OBSERVATIONS

Table M I E "Master's Degree in Class I"

1. It should be noted that although the total number of men teachers of mathematics in this group has constantly risen, the total number of women teachers has remained about the same.

2. There has been a greater trend for the men teachers to have more experience than they had in previous years when taken as a group.

3. There is a greater tendency in 1952-1953 for the younger experienced groups of men to have a master's degree, while the largest number of women with a master's degree has been constantly later in the experience range.

4. In 1952-1953 there were more men with a master's degree in the 0-4 years experience interval than in any single group of women.

5. Until 1946-1947 it would appear that women stayed in the profession longer in this group than the men; however, since then it has been reversed, with more men than women in the 40-up interval.

Table M II E "Master's Degree in Class II"

1. There was no pattern to the number of teachers with a master's degree in this class in 1924-1925.

2. In 1944-1945 the teachers of both sexes showed the start of a need for a master's degree.

3. The largest number of men with master's degrees over all the years is found in the 0-4 interval of 1952-1953.

4. It would appear that it is a greater tendency for the men teachers to obtain their master's degrees much sooner than the women

teachers.

5. It is interesting to note that there has been a steady climb in the number of men with a master's degree, but a rise and fall in the number of women with a master's degree in this group.

Table M III E "Master Degree in Class III"

1. As was true with those teachers with a master's degree in Class II, the largest number of men with a master's degree is in the 0-4 year interval for the years 1952-1953.

2. There is a greater tendency for the younger teachers to have a master's degree. This is especially true in the case of the few women teachers in this group. They are consistently found in the first few experience intervals.

3. The decrease should be noted in the total number of men with a master's degree in the intervals above 15-19 years in the past few years.

Table M IV E "Master Degree in Class IV"

1. As is true in all other classes, there is a very apparent trend for the men and women with a master's degree to be found in the less experience intervals.

2. The decline in the total number of men with a master's degree should be noted in comparison with the almost constant number of women in this group.

Table B I E "Bachelor Degree in Class I"

1. In 1924-1925 the largest number of men with a bachelor's

degree was in the 0-4 experience interval, and the largest number of women in this group was in the 5-9 interval.

2. In 1944-1945 the largest number of men and the largest number of women were in the 20-24 years of experience interval.

3. In 1946-1947 the largest number of women had dropped to the 10-14 interval while the largest number of men had increased to the 30-34 years of experience interval.

4. There was a great tendency for the men and women of this group to be spread over the full range, with the men predominant in the lesser experience groups in 1952-1953.

Table B II E "Bachelor Degree in Class II"

1. In each year the largest number of men and women in this group has been in the 0-4 years of experience interval.

2. A persistent decrease in the number of teachers is noted with the increase in experience for each year; this is the reverse of the Master's Degree in Class I.

3. There is a greater tendency each year for the women to comprise the large experience intervals and the men the less experience intervals.

4. 1944-1945 was the only year in which the women were more numerous in the 0-4 years of experience interval than the men.

Table B III E "Bachelor Degree in Class III"

1. The largest number of men and women has been predominantly in the 0-4 years of experience interval.

2. With the exception of a very few teachers, all men and women

in this group have had under 25 years of experience.

3. While the number of men in the 0-4 years interval has constantly increased since 1944-1945, the number of women in this same interval has remained nearly constant.

Table B IV E "Bachelor Degree in Class IV"

1. As was true in the preceding group, the largest number of men and women have been found in the 0-4 years of experience intervals.

2. Each year there is a steady decline in the more experienced teachers.

3. With the exception of one man in the 40-up interval, the women have had a greater tendency to be in the more experienced intervals than men.

Table O I E "No Degree in Class I"

1. In 1924-1925 the larger number of men in this group were in the less experienced intervals, while the largest number of women in this group were in the higher experience intervals.

2. Until 1946-1947 there was a larger number of women with no degree than men, but from then on there were more men than women in this group.

3. There was a decided change between 1950-1951 and 1952-1953 in the spread of men and women in this group. In 1950-1951 they were well scattered throughout the experience range, but in 1952-1953 the men are found at both ends of the range and the women in the middle.

4. It should be noted that the number of men with no degree increased until 1946-1947 at which time it started to decline. The women

in this group, however, have constantly declined as far as shown in this study.

Table O II E "No Degree in Class II"

1. Women have been predominant in this group with the exception of 1950-1951 when there were two women and two men.

2. In 1924-1925 the men in this group were found in the less experienced intervals, while the women were more scattered throughout.

3. In 1944-1945 the men were scattered throughout and the women were bunched in the middle experience intervals.

4. In 1950-1951 and in 1952-1953, both men and women were found near the ends of the salary range.

Table O III E "No Degree in Class III"

1. In 1924-1925 there were only two men, both in the 0-4 interval; the eight women, however, were scattered over most of the experience range.

2. In 1944-1945 there were no men in this group and the few women were at the extreme ends of the experience range.

3. In 1946-1947 and 1950-1951 the few men and women in this group were again found at the ends of the experience range.

4. In 1952-1953 there were no women teachers in this group and the one man in this group was found in the 5-9 years of experience interval.

Table O IV E "No Degree in Class IV"

1. In 1924-1925 the majority of men and women teachers in this group were in the lower experience intervals.

2. In 1944-1945 the men teachers were in the lower experience intervals and the few women were in the higher intervals.

3. In 1946-1947 there were no men teachers in this group and the two women teachers were in the 25-29 and 35-39 years of experience intervals, respectively.

4. In 1952-1953 there was no increase in the number of men, but there was an increase in the number of women, which spread them over the experience range again.

SALARIES

A great deal of material has been written, through the years, on teachers' salaries, but nearly all have considered all teachers rather than mathematics teachers. In the following tabulations the arithmetic mean, or average salary for each of the biennial surveys used, has been listed for each of the groups in this study. They have been divided according to the size of the school, the teacher's sex, and the degree that the teacher holds. They do not take into consideration the amount of experience of the individual teachers, but rather just the salaries of the group as a whole.

No observations will be made from this tabulation of salaries until after the Mean Years Of Experience are presented. At that time both the mean salary and the mean experience will be compared for each group.

MEAN YEARS OF EXPERIENCE

In the same manner as the salaries the arithmetic mean of the experience of the teachers in the different groups were calculated and are here presented. Table 4 shows the mean years of experience for each group.

TABLE 3
MEAN SALARIES

YEARS	C L A S S	NO DEGREE		BACHELOR'S		MASTER'S		TOTAL YEAR'S AVERAGE
		MEN	WOMEN	MEN	WOMEN	MEN	WOMEN	
1924- 1925	I	\$2300	\$2200	\$3074	\$2013	\$2749	\$2222	
	II	2067	1533	2165	1749	3200	1800	
	III	1400	1600	1987	1640	2280	1400	
	IV	2000	1400	2098	2200	1800	1400	
	AVERAGE	2093	1888	2521	1921	2705	2095	\$2248
1944- 1945	I	\$2818	\$2077	\$3019	\$2291	\$3155	\$2600	
	II	2120	1686	3338	1870	2800	2117	
	III	**	1750	2277	1700	2908	1900	
	IV	1933	1800	2333	1541	2600	1800	
	AVERAGE	2495	1877	2889	2064	3034	2462	\$2595
1946- 1947	I	\$2866	\$2644	\$3220	\$2802	\$3366	\$2957	
	II	2400	2200	2703	2282	2976	2625	
	III	2400	2086	2565	1986	3068	2333	
	IV	**	2000	2633	1982	2676	2600	
	AVERAGE	2768	2322	2983	2548	3226	2865	\$2939
1950- 1951	I	\$3667	\$3800	\$3828	\$3640	\$4160	\$4267	
	II	3800	2600	3197	3108	3600	3541	
	III	3400	3000	2903	2791	3385	3000	
	IV	3400	2600	3125	2466	3526	2800	
	AVERAGE	3646	3400	3462	3254	3912	4093	\$3669
1952- 1953	I	\$4600	\$3800	\$4134	\$4135	\$4631	\$4761	
	II	3500	2920	3338	3450	4031	3876	
	III	3400	**	3222	3086	3800	3000	
	IV	3800	3200	3282	2911	3588	3300	
	AVERAGE	3960	3182	3707	3710	4372	4450	\$4065

** No mathematics teachers reported in these groups.

TABLE A

MEAN YEARS OF EXPERIENCE

YEARS	C L A S S	NO DEGREE		BACHELOR'S		MASTER'S		TOTAL YEAR'S AVERAGE
		MEN	WOMEN	MEN	WOMEN	MEN	WOMEN	
1924- 1925	I	14.5	25.4	13.8	13.1	14.7	15.1	
	II	12.0	21.2	8.1	9.4	21.4	15.3	
	III	2.0	11.7	9.5	6.0	8.0	12.0	
	IV	2.0	12.0	6.2	4.3	17.0	12.0	
AVERAGE		13.1	20.5	10.3	10.9	14.9	14.9	11.8
1944- 1945	I	17.9	23.5	21.5	21.7	19.8	20.5	
	II	16.0	17.0	17.6	11.1	16.9	13.9	
	III	**	29.5	13.7	10.9	18.2	10.7	
	IV	5.3	27.0	11.8	4.9	18.3	22.0	
AVERAGE		15.4	23.9	18.9	16.7	19.1	18.7	18.5
1946- 1947	I	21.0	32.0	17.6	22.9	18.2	18.5	
	II	22.0	20.0	11.1	14.9	15.5	15.4	
	III	4.5	34.1	10.2	8.9	18.7	5.3	
	IV	**	32.0	9.5	9.3	12.8	13.0	
AVERAGE		19.4	30.0	14.7	18.8	17.4	17.3	17.1
1950- 1951	I	18.1	30.6	20.7	24.0	19.6	25.1	
	II	22.0	42.0	8.5	16.3	11.7	20.0	
	III	2.0	42.0	7.8	12.0	14.9	7.0	
	IV	17.0	2.0	8.9	10.3	9.6	10.3	
AVERAGE		17.4	31.1	14.6	18.7	16.7	23.7	17.6
1952- 1953	I	28.3	24.5	18.2	26.6	19.6	25.2	
	II	20.8	22.0	7.9	17.7	11.7	17.7	
	III	27.0	**	6.3	9.8	13.6	10.0	
	IV	22.0	24.5	6.7	9.2	12.3	14.5	
AVERAGE		24.6	23.4	12.6	20.6	17.1	22.6	17.5

** No mathematics teachers reported in these groups.

OBSERVATIONS

Upon comparing Table 3, "Mean Salaries", and Table 4, "Mean Years of Experience", the following facts were noted:

(For convenience, Mean Salaries and Mean Years of Experience will be referred to as salaries and experience.)

1. Although women with no degree in Class I in 1924-1925 had 7.5 more years of experience than men in the same group, they had a salary of \$100 less than that of the men.

2. It is interesting to note that the women with no degree in 1924-1925 in all classes had 7 more years of experience than did the men of that year; they had a salary of nearly \$200 less than that of the men.

3. It should be noted that while the men in Classes III and IV with no degree had only 2.0 years of experience the men in Class IV had a salary of \$600 more than that of Class III.

4. While the men with no degree in Class I have predominantly had less experience than the women they have received higher salaries. The only exception to this was in 1950-1951 when the men had 12.5 years of experience less than the women. The women received a salary of a little more than \$100 more than the men. (\$3667 for men, \$3800 for women.)

5. Until 1946-1947 the women with a bachelor degree in all classes have had about the same experience as the men in these groups. Since then, the women have had more experience than the men. The salaries, on the other hand, have been decidedly in favor of the men with very few exceptions.

6. It is interesting to note that in 1924-1925 the men teachers

with a bachelor degree in Class IV had more experience and received a lower salary than did the women.

7. In Class I the women with a master degree constantly have had more experience than the men in this group. It was not until 1950-1951 that the women received a higher salary than did the men.

8. In Class II the men with a master degree were the more experienced until 1950-1951 at which time the women had more experience. Again, however, the salaries have still been in favor of the men.

9. In Class III the men with a master degree have had more experience than have the women, the greatest difference being in 1946-1947 when the men had 18.7 years of experience and the women only 5.3 years. The only exception to this was in 1924-1925 when the women had 12.0 years of experience and the men had only 8.0 years.

10. The men and women with a master degree in Class IV have always had greater experience than that found in some other groups. The lowest for the men and women was in 1950-1951 when they had only 9.6 years of experience, and 10.3 years respectively.

11. Considering all groups over the years it appears that the women have had the greater experience in the largest and the smallest classes of schools than have the men.

12. It should also be noted that since 1946-1947 the total average of experience for all teachers in all classes of schools has remained nearly constant at 17.5 years of experience.

13. The average salary for all teachers in all classes of schools appears, in this study, to be constantly rising. In 1952-1953 it is nearly twice the average salary of 1924-1925, namely \$4065 to \$2248.

CORRELATION OF SALARIES AND EXPERIENCE

For correlation purposes the data were classified according to each of the two conditions, namely salaries and length of experience, for which covariation was to be measured.¹ This was done by preparing scatter diagrams for each of the sub-groups. The scale from left to right represents the independent variable, (X), here assumed to be the experience. The vertical scale represents the dependent variable, (Y), salaries. They were set down in descending order as in a chart, so that the completed scatter diagrams would suggest to the eye the nature of the correlations (See sample scatter diagram, Table 5.)

Actual calculation of the Coefficients of Correlation, (r), will be illustrated by reference to the sample scatter diagram for men with master's degrees in Class I schools, for the years 1952-1953.

The essential part of the procedure is the double-frequency table, or scatter diagram, Table 5. It registers not only the variability of the X and Y series considered separately, but also their covariation. The measurement of the X and Y class marks and frequencies are obtained directly from the diagram; the frequencies are the column and row totals respectively. From these the Means $\frac{\sum fX}{n}$, $\frac{\sum fY}{n}$ and the centered squares, $\sum x^2$ and $\sum y^2$, which are equal to $\sum x^2 = \sum fX^2 - \bar{X} \sum X$ were calculated by use of a Monroe Electric Calculator. The covariation as measured by $\sum fXY$ was then computed. The XY products were obtained by reference to each cell of the diagram, taken in succession. For example, the first cell of the first row has an X class mark of 42 and a Y class mark of 6600. Hence fXY

1. Davies, G.R., Business Statistics, (John Wiley & Sons, Inc. New York City, 1941) pp. 352-355.

TABLE 5

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TEACHERS: MenYEARS: 1952-1953DEGREE: Master'sSCHOOLS: Class I

	YEARS OF EXPERIENCE									TOTAL
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-up	
6799									1	1
-										
6400										
6399										
-				1	1	1	3	1		7
6000										
5999										
-				1	2	4	3	1		11
5600										
5599										
-			3	10	5	11	9	1	2	41
5200										
5199										
-			2	4	7	5	1			19
4800										
4799										
-		3	4	8	2	8	1	1	1	28
4400										
4399										
-	2	2	10	4	4	8	4	1	1	36
4000										
3999										
-	1	6	1	3	1	3				15
3600										
3599										
-	12	4		1						117
3200										
3199										
-	2									2
2800										
2799										
-	2									2
2400										
2399										
-	3									3
2000										
1999										
-										
1600										
1599										
-										
1200										
1199										
-										
800										
TOTAL	22	15	20	32	22	40	21	5	5	182

was found as $42 \times 6600 \times 1$ or 277200. All the f_{XY} 's thus obtained were totaled as $\sum XY = 17575600$ and centered by $\sum xy = \sum XY - \bar{X}\sum Y$. r was then computed by $r = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}}$, and the significance was checked on tables¹. showing level of correlation that might appear by chance once in 100 times (1 per cent level) in (n) pairs of samples. This means, if there was no correlation, then the probability of getting a coefficient of this large a value is less than .01.

To facilitate operations Y class marks taken as $x \times 100$, ($6600 = 66 \times 100$).

Men with Master's Degree, Class I, 1952-1953.

Y	f	fY	fY	X	f	fX	fX
66	1	66	4356	42	5	210	8820
62	7	434	26908	37	5	185	6848
58	11	638	37004	32	21	672	21504
54	41	2214	119556	27	40	1080	29160
50	19	950	47500	22	22	484	10648
46	28	1288	59248	17	32	544	9248
42	36	1512	63504	12	20	240	2880
38	15	570	21660	7	15	105	735
34	17	578	19652	2	22	44	88
30	2	60	1800				
26	2	52	1352				
22	3	66	1452				
	n=182	8428	403992		n=182	3564	89928

Means $\bar{Y} = 46.31$ (\$4631.)

$\bar{X} = 19.6$

Centered squares: $\sum y^2 = 377041$

$\sum x^2 = 86051$

Covariability (XY by rows x f.): $\sum XY = 175756$

$$\sum xy = \sum XY - \bar{X}\sum Y = 10715.5$$

Correlation coefficient: $r = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}} = .594$

(level of significance $r = .15$ 1% table; hence, as value of r obtained is greater than .15 it is significant, as the probability of getting this value if no correlation existed is less than .01.)

1. Ibid. p. 560.

TABLE 6
COEFFICIENTS of CORRELATION

YEARS	C L A S S	NO DEGREE		BACHELOR'S		MASTER'S	
		MEN	WOMEN	MEN	WOMEN	MEN	WOMEN
1924- 1925	I	(.793)	.762	.312	.444	.826	(.273)
	II	In.*	(.479)	.463	.326	(.123)	In.
	III	In.	(.423)	.621	.571	(.265)	In.
	IV	In.	In.	.611	(.211)	In.	In.
1944- 1945	I	.872	(.426)	.741	.341	.594	.428
	II	(.912)	(.216)	(.473)	.615	.753	.687
	III	In.	In.	.623	(.423)	(.209)	(.847)
	IV	In.	In.	.837	(.604)	(.067)	In.
1946- 1947	I	(.370)	(.261)	.621	.327	.611	.420
	II	In.	(.000)	.611	.543	.681	(.450)
	III	In.	(.293)	.572	(.119)	(.364)	In.
	IV	In.	In.	(.463)	.885	(.518)	(.268)
1950- 1951	I	.779	(.563)	.724	.352	.513	.431
	II	In.	In.	.688	.658	.778	.830
	III	In.	In.	.672	.715	.593	In.
	IV	In.	In.	(.371)	(.649)	.561	In.
1952- 1953	I	(.908)	In.	.621	.485	.594	.292
	II	(.604)	In.	.703	.525	.667	.623
	III	In.	In.	.775	.705	(.311)	(.845)
	IV	In.	In.	.636	.791	(.589)	(.704)

In. Insufficient number of teachers in group for correlation purposes.

() Insignificant at 1 % level of correlation.

OBSERVATIONS

A study of Table 6, "Coefficients of Correlation", revealed the following information:

1. Those Coefficients of Correlation in the No Degree columns for Class I, which are of a significant level, are of an extremely high nature. However, there are not enough of them for purposes of comparison.

2. The Coefficients of Correlation for men with a bachelor degree in Class I have been excellent; with the exception of a .312 in 1924-1925, they have all been above .621.

3. The Coefficients of Correlation for women with a bachelor degree in Class I has been very low (.326 to .485) compared to that of men in this same group. There has been a tendency, however, for it to improve since 1944-1945.

4. The Coefficients of Correlation for men with a master degree in Class I was .826 in 1924-1925; it then dropped to .594 in 1944-1945 and has since remained near this level.

5. The significant Coefficients of Correlation for women with a master degree in Class I has varied a great deal with a high of .431 in 1950-1951 and a low of .292 in 1952-1953.

6. There were no correlations possible for men or women with no degree in Class II, III, or IV schools, due either to an insufficient number of teachers or to an insignificant level of correlation.

7. The Coefficients of Correlation for men with a bachelor degree in Class II has been continually rising, with a low of .463 in 1924-1925 and a high of .703 in 1952-1953.

8. The Coefficients of Correlation for women with a bachelor degree in Class II rose to .615 in 1944-1945 and then varied to a high of .658 in 1950-1951 and a low of .525 in 1952-1953.

9. The Coefficient of Correlation for men with a master degree in Class II was insignificant in 1924-1925, but has been very good in the following years. The drop from .778 to .667 of 1950-1951 and 1952-1953, respectively, should also be noted.

10. The Coefficient of Correlation for women with a master degree in Class II has been excellent with the exception of 1946-1947 where there was an insignificant level of correlation. It also dropped between 1950-1951 and 1952-1953 from .830 to .623.

11. The Coefficient of Correlation for men with a bachelor degree in Class III has always been excellent, with a low of .572 in 1946-1947 and a high of .775 in 1952-1953.

12. The Coefficient of Correlation for women with a bachelor degree in Class III increased to .715 in 1950-1951 and dropped to .705 in 1952-1953.

13. The Coefficient of Correlation for men with a master degree in Class IV was significant in only 1950-1951, where it was equal to .593.

14. The Coefficients of Correlation for women with a master degree in both Class III and Class IV schools have never been of a significant level, partly due to the few teachers in these groups.

15. The significant Coefficients of Correlation for men with a bachelor degree in Class IV have been excellent, with a high of .837 in 1944-1945. However, it was on an insignificant level in 1946-1947 and in 1950-1951.

16. There were only two significant Coefficients of Correlation for women with a bachelor degree in Class IV. In 1946-1947 it was .885 and then it dropped to .791 in 1952-1953.

17. The Coefficients of Correlation for men with a master degree in Class IV reached only one significant level; that was .561 in 1950-1951.

18. On the whole, the level of correlation between teachers' salaries and their experience has been very good where there has been sufficient number of teachers in a group. However, it should be noted that, for the most part, the men teachers did have a higher degree of correlation than did the women in the same group.

CHAPTER V

SUMMARY, INTERPRETATIONS AND CONCLUSIONS

I. SUMMARY

PURPOSES

The first purpose of the thesis is to provide information of such a nature as to enable teachers of mathematics in the public high schools of Massachusetts to determine their own status with respect to such factors as: size of school in which employed, sex, preparation, experience, and salary, in relation to all teachers in the field of mathematics employed in the State of Massachusetts.

The second purpose of the thesis is to show the correlation between such factors as salary and experience.

The third purpose of the thesis is to determine trends in the preparation of mathematics teachers as reflected in the academic degrees held by such teachers, as indicated in the Biennial High School Survey of the Department of Education of the State of Massachusetts.

PROCEDURE

The most adequate and efficient way in which to obtain the necessary data to make a study of the factors involved in this thesis was to consider information as reported by the various secondary schools of Massachusetts in the Biennial Survey as conducted by the Department of Education. After having received the permission of Mr. John J. Millane, Supervisor of Secondary Education for the State of Massachusetts, the first step was to obtain the data in a more usable form. A special form was con-

structed on which data pertinent to this thesis was recorded as found in Section XI of the Biennial Surveys of 1924-1925, 1944-1945, 1946-1947, 1950-1951, and 1952-1953, entitled "Teaching Staff".

The completed forms were then divided according to the year of biennial survey and the size of all schools considered. Schools were divided into four (4) classes according to pupil enrollment as follows: Class I included all secondary schools having a pupil enrollment of more than 500; Class II a pupil enrollment of 201-500; Class III a pupil enrollment of 101-200; and Class IV a pupil enrollment of 100 or less. From these forms 120 scatter diagrams were constructed showing the number of teachers and their years of experience within each salary group, classified according to class of school, degree held, and sex.

II. INTERPRETATIONS AND CONCLUSIONS

GROUPING OF SCHOOLS

All of the data on the number of schools in the different classes point to an increase in the number of larger schools and a decrease in that of the smaller schools. The smallest number of schools, as shown by the available biennial surveys, was 249 in 1924-1925 with Class IV (under 100 students) comprising the largest number. The largest number of schools was 258 in 1946-1947. It is surprising to note that there were 255 secondary schools in Massachusetts in 1952-1953, the exact number of schools as was indicated in 1916.

With the constant increase in the number of schools in Class I and Class II, and the decrease of schools in Class III and Class IV, it would appear as if the State Department of Education will be forced to revise the present system of classifying the secondary schools in the near

future.

TEACHERS AND THEIR PREPARATION

An unmistakable trend toward the acquisition of a master's degree by mathematics teachers is evident in the data. Since 1950 more men teachers have held the master degree than the bachelor degree. The women, on the other hand, have always had a larger per cent with the bachelor degree than with the master degree. The Class I schools (over 500 students) have always had a larger per cent of teachers with a master degree than has any other class of schools.

There has been a decrease in the per cent of teachers of mathematics with no degree in all classes of schools with the exception of Class IV schools which had an increase in 1952-1953. This was due to an increase in the number of women teachers in the higher experience intervals (20 years or over).

YEARLY TOTALS OF SALARY FREQUENCY

The large amount of data in these tabulations show that regardless of experience or class of school, the men have always received a higher salary than have the women. Even the passing in 1946¹ of legislation relative to equal pay for men and women teachers in Massachusetts had only a slight influence in the actual salaries.

The women in Class I schools have always enjoyed higher salaries than have the women in the other classes of schools. This might also account for the reason that there has been a greater ratio of women in

1. General Laws of Massachusetts, Section 40, Chapter 71, Amendment by Chapter 527 of Acts of 1946.

Class I than in any other class. It should also be pointed out that the women in Class I had very little salary spread while the range of the men's salaries includes the very low and the very high salaries.

The only conclusions which can be arrived at in considering teachers with no degree is that they compose the minority in all classes and are found at the lower end of the salary ranges in the larger schools, but in some cases at the top of the salary ranges in the smaller schools due to having many years of experience.

In general it appears that the higher salaries are paid to men with a master degree in the larger schools.

NUMBER OF TEACHERS, CLASSIFIED BY YEARS OF EXPERIENCE

The constant trend of teachers to obtain a master degree early in their career has a great influence on the picture as presented in these tabulations. There is a general shift in the number of men, and to some extent, women with a bachelor's degree in the younger experience groups into the more experience groups with a master's degree. This movement also has an influence on the experience ranges in the smaller schools. It is quite possible that most men seek positions in the Class I and Class II schools which are able to offer a salary much higher than that of the smaller schools.

The increasing number of men in the 0-4 years of experience groups in all classes as compared to the number of women in these same groups indicates that regardless of salaries, the profession has a great attraction for more young men than women. It would appear, however, that the women who entered the profession remained, while the men were more apt

to leave for one reason or another.

"MEAN SALARIES" AND "MEAN YEARS OF EXPERIENCE"

In comparing experience and salaries it was quite apparent that the men nearly constantly had less experience than had women, but they received on the average, higher salaries. The women with no degree had a much greater average number of years of experience than did the men until 1952-1953 at which time the men had 24.6 years of experience and the women had 23.4 years of experience.

There has always been a much higher average experience and salary in the Class I schools than in any of the other classes. This indicates that the schools which give a larger salary are able to keep their teachers, while schools with low salaries provide only experience for teachers who either leave the profession or move to the larger schools.

It should be noted that between 1944-1945 and 1946-1947 the total average of experience for all teachers dropped from 18.5 years of experience to 17.1 years. This drop probably might be caused by the large increase in the total number of mathematics teachers between these years, 739 to 813 teachers respectively. However, it is surprising to note that between 1946-1947 and 1950-1951 the number of mathematics teachers dropped from 813 to 729 teachers and the mean years of experience rose from 17.1 to 17.6 years.

CORRELATION OF SALARIES AND EXPERIENCE

The Coefficients of Correlation for those groups that contained a sufficient number of teachers were especially good, with the exception of that for women in Class I with a master's degree in 1952-1953 who had

only a Coefficient of Correlation of .292.

From these calculations it can be concluded that experience is a large factor in determining salaries and in comparing salaries for the different groups of one school system with those of another in the same class. This holds especially true for the men, who have generally had a higher correlation than have the women in the same group.

Both the men and women with a master's degree in the smaller schools have had a slightly higher correlation than have the larger schools. This would indicate that the master's degree had more influence in the smaller schools. In view of the fact that the percentage of the master's degree in the smaller schools has never been as high as in the larger schools, the greater influence of the master's degree in the smaller schools is more readily seen.

The few existing correlations for teachers with no degree show a high correlation between experience and salaries. The lack of coefficients for this group and for those of the master's degree were mostly caused by an insufficient number of teachers.

The lack of correlation in the bachelor's degree columns is an indication of the varied salaries and years of experience found in the smaller schools in the past years.

SUGGESTIONS FOR FURTHER STUDY IN EDUCATION**

1. A study of the correlation between the rise in the number of teachers and the increase in student population.
2. A survey of the change in the number of students in the different mathematics courses as compared to the change in total student population.
3. A study of the trends in the number of classes and their size as compared to the school in which the teacher is found.
4. A study of the trends in teaching combinations and subjects offered as reflected in the biennial high school surveys.
5. The tracing of a few teachers, either through the biennial surveys or by case study, for the purpose of establishing data on the movement of teachers from the smaller high schools either to the larger high schools or from the profession.
6. A comparison of results obtained from the Junior High School surveys with those of this thesis.

** All material necessary for these studies could be obtained from the available biennial surveys on file at the State Department of Education.

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APPENDIX A

LISTING OF HIGH SCHOOLS NOT USED AND REASON

1924-1925

Class I

Charlestown High School	No positions given.
Boston English	No experience listed.

Class III

Bourne High School	No position listed.
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Class IV

Ashby	No full time teachers.
Bunarditon	" " " "
Bolton	" " " "
Holliston	No positions given.
Lunenburg	" " "
New Salem	No salaries listed.

1944-1945

Class I

Brighton	No salaries listed.
Charlestown	No positions given.
Methuen	No first names given.
Springfield Technical	No positions given.

Class II

Agawam	No full time teachers reported.
Auburn	No positions given.
Franklin	" " "
Uxbridge	No first names given.
Westboro	No full time teachers reported.

Class III

Hamilton	No positions given.
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Class IV

Avon	No full time teachers reported.
Burlington	" " " " "
Harwich	" " " " "
New Salem	" " " " "
Orleans	" " " " "
Plainville	" " " " "
West Newbury	" " " " "

1946-1947 Names of the four schools not used are not listed in Mr. Johnson's thesis.

1950-1951

Class I	
Brighton	No salaries listed.
Charlestown	" " "
Burke School (Dorchester)	No positions given.
Hyde Park	" " "
Boston Latin	No first names given.
Reading	" " " "
High School of Commerce (Springfield)	No mathematics teachers listed.
Winthrop	No positions given.
Class II	
Abington	No positions given.
Franklin	" " "
Class III	
Harwich	No full time teachers reported.
Holbrook	No salaries listed.
Medfield	No mathematics teachers listed.
Rockport	" " " "
Class IV	
Chatham	No full time teachers reported.
Dover	" " " " "
Mill River	" " " " "
Sandwich	No positions given.

1952-1953

Class I	
Brighton	No salaries listed.
Boston Commerce	No positions given.
Burke School (Dorchester)	" " "
Hyde Park	" " "
Reading	No first names given.
Springfield (Commerce)	No mathematics teachers listed.
Winthrop	No positions given.
Class II	
Franklin	No positions given.
Holden	No salaries listed.

1952-1953 (Cont.)

Class III

Brookfield

No positions given.

Lenox

" " "

Provincetown

" " "

Stockbridge

No mathematics teachers listed.

Sandwich (H. T. Wing)

No positions given.

Class IV

Ashby

No positions given.

Chatham

No full time teachers reported.

Charlemont

No positions given.

Dover

No full time teachers reported.

Manchester

No positions given.

Mendon

No full time teachers reported.

THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF EDUCATION

HIGH SCHOOL SURVEY

REPORT

ON THE

ORGANIZATION AND ADMINISTRATION

of the _____ High School

Located in _____ Massachusetts

Three copies of this blank are sent to the Principal of the High School, with the request that one copy be filled out, signed by the Superintendent and Principal, and returned to the Supervisor of Secondary Education, State Department of Education. Please avoid folding. The other copies of the blank should be filled out and retained in the offices of the High School Principal and the Superintendent of Schools, respectively.

GIVE ALL DATA AS OF JANUARY FIRST

SCHOOL YEAR.....

In case sufficient space is not provided for the answer to any question, put R in the space and complete the answer on the last page under Remarks.

DEFINITIONS

A *course* is a portion of a subject to be taught in a year or a part of a year. French I denotes the first course, and French II the second course in French.

A *curriculum* is an arrangement of courses, required and elective, designed to meet the needs of a particular group of pupils. Thus we speak of the commercial curriculum rather than the commercial *course*.

The *program of studies* consists of all the courses and curricula offered in the school.

The word *class* denotes a group of pupils instructed in one subject at one time by one teacher.

A *unit* represents a year's study in any subject, so planned as to constitute approximately one-fourth of a full year of work for a pupil of normal ability. To count as a unit, the recitation periods shall aggregate approximately 120 sixty-minute hours. Time occupied in shop or laboratory work counts one-half as much as time in recitation and may be substituted for it on that basis. No deduction need be made for the time used in change of classes, if this time does not exceed three minutes.

A *credit* represents the equivalent of one prepared period of work for a year, or two prepared periods for a half year, or one unprepared double period for a year.

The *membership* of the school includes only those who are still members. For definition of membership, see School Register.

XII. SCHOOL LIBRARY

1. Number of volumes exclusive of text books shelved in school library
2. Is there a special library budget?
- Amount?
- (a) Amount spent for books
- (b) Amount spent for periodicals
- (c) Amount spent for binding
- (d) Number of books added by purchase during the current school year
- (e) Number of periodicals added by purchases during the current school year
- (f) Number of volumes bound at a commercial bindery during the current school year
3. Are books ordered monthly? semi-annually?
- annually?
- (a) Does the school subscribe to Readers Guide to Periodical Literature or to Abridged Guide to Periodical Literature?
-
4. Does the library have:
(a) Clipping and pamphlet file?
- (b) Picture file?
- (c) Collection of college catalogs?
- (d) Catalog of slides, film strips, records?
5. Is a trained librarian in charge of school library?
- (a) Name of Library School
- (b) Number of credits in library science
- (c) Indicate number of years spent by librarian in:
School library experience
- Other library experience
6. Does the librarian devote full time to the library?
- (a) If not, what fraction of time is assigned to teaching?
7. Is the school library open to students all of school day?
8. Is systematic instruction given in use of library?
- (a) If so, is it by school or public library?
- (b) How many periods of such instruction per year per pupil?
-
9. Seating capacity of library?
- (a) Of study hall if it contains library?
10. Is the library cataloged and classified according to the Dewey Decimal System?
11. Is the library directly under School Department or administered by the Public Library?
12. How far is the nearest public library or branch public library from the school?
- (a) Approximately how many books did the school borrow from the public library during the current year?
- (b) From the Division of Public Libraries, Department of Education?
13. Indicate by checking the points at which the school library and public library cooperate:
(a) In selecting books
- (b) In selecting periodicals
- (c) In reference work

- (d) In planning publicity
- (e) In inviting the librarian of the public library to visit the school to talk to students on books or libraries

XIII. PHYSICAL EDUCATION

1. Does the school have a gymnasium?
- (a) Size
2. Does the school have a playground?
- (a) Approximate size in acres
- (b) Is it adjoining the school building?
3. How much time is each pupil required to spend each week:
(a) In the gymnasium?
- (b) On the playground?
4. Is time given for setting-up exercises in the school day?
- (a) How often?
- (b) Length of period for exercises
5. Does the school have a director of physical education:
(a) For boys?
- (b) For girls?
6. Are pupils given regular physical examination required by Sec. of Chap. 71 of the General Laws?
7. Are pupils given special physical examination for participation athletics?
8. Which of the following sports and games are carried on in the school:
Football?
- Soccer?
- Baseball?
- Basketball:
For boys?
- For girls?
- Track
- Other sports or activities?
-
9. Which of the above sports are:
(a) Intramural?
- (b) Interschool?
-

XIV. MISCELLANEOUS

1. Home Economics Instruction for Boys:
(a) Name of course
- (b) Average length of course
- (c) Organization:
In mixed groups
- In segregated groups
- (d) General purpose:
Vocational guidance
- Wage earning
- Homemaking

Does the school have an honor society?

What is the name of the society?

Do you have department heads?

Do you have military drill?

Does the school publish a newspaper?..... a magazine?.....

If so, how often?—newspaper..... magazine.....

Do you have student council?

State briefly your program in visual education

Are teachers' meetings held regularly?..... If so, how many?.....

Type?

Do you have a rifle range?

Is there a students' handbook?

Is an accounting system used in your high school activities?.....

Is there a No-School signal?..... What is it?.....

Is there a Parent-Teacher Organization?.....

Are teachers required to sign contracts to teach?

Is there a salary scale?

Is there a program of Religious Education on released time, during school hours?

Please advise as to any procedures in connection with the "core" curriculum

Is credit for graduation given for private music lessons?

Do Seniors make a "Washington" trip? Or elsewhere?.....

XV. BLANKS AND PRINTED MATTER REQUESTED

Please send a set of all the printed blanks used in the administration of the school that have been adopted since 1948-49. These will be assified in this department so as to be available for examination by high school principal or superintendent of schools.

Please send also a list of the textbooks regularly used.

XVI. OCCUPATIONAL GUIDANCE AND PLACEMENT

Does your school have an occupational guidance and placement program as proposed by Chapter 676 of the Acts of 1941?

By whom is your program directed?

Please answer the following questions, if there has been a change since you filled out the 1948-49 survey:

Which of the following cooperate in your occupational guidance and placement program?
(Please Check)

- (a) Teachers
- (b) Counselors
- (c) Dean of girls
- (d) Dean of boys
- (e) Occupational consultants
- (f) Business and industrial leaders
- (g) Local youth organizations
- (h) Civic organizations
- (i) Social agencies
- (j) Public employment office representatives
- (k) Others

4. Which of the following occupational guidance and placement activities are part of your program?

(Please check)

- (a) Courses in occupational information
- (b) Exploratory occupational courses
- (c) Testing
- (d) Educational counseling.....
- (e) Occupational counseling.....
- (f) Placement counseling
- (g) Instruction in job-getting
- (h) Job-hunting campaigns ...
- (i) Employment interview practice
- (j) Employment application letter writing.....correspondence.....and advertising
- (k) Creating the individual vocational survey
- (l) Building the individual inventory prospectusor portfolio.....
- (m) Gathering and using contacts and leads
- (n) Assembly occupational and placement programs
- (o) Community occupational day programs
- (p) Occupational information through motion pictures
- (q) Contacting employers and employment
- (r) Community occupational study
- (s) Part-time placement
- (t) Summer placement
- (u) Full-time placement
- (v) Supervised apprentice placement
- (w) Project placement
- (x) Placement in cooperative programs
- (y) Placement in training programs
- (z) Try-out placement
- (aa) Follow-up of educational placement
- (bb) Follow-up of occupational placement
- (cc) Others

5. If you are not now conducting a program as proposed by Chapter 676, do you contemplate having such a program?

XVII. REMARKS

In this column give remarks regarding any items for which there was not room on the preceding pages, numbering such remarks with the number of the question to which it belongs. Also give any supplementary information which you think is important regarding the school. For example, you might include Educational Progress—such additions or changes which have been made in your school in the past two years. If Grade XIII has been added, or is being considered, please so indicate.

Date

Signature of Principal

Signature of Superintendent