

THE STATUS OF INDUSTRIAL ARTS TEACHERS
IN THE STATE OF MONTANA

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CHAPTER I

INTRODUCTION

America, in a few decades, has changed from an agrarian to an industrial nation. This change has resulted in a higher standard of living, but at the same time, it has given rise to many new social and economic problems whose solution requires an intelligent understanding of economic processes. The nation's ever increasing capacity to produce goods and services has resulted in a reduction in the hours per day and days per week of work, has postponed the entrance age of youth into employment, and has shifted population from rural to urban areas. These changes in industry have brought, and are continuing to bring about, far-reaching changes in the way of living that require continuous adjustments on the part of the individual. A knowledge of the tools, materials, processes, productive capacity, and relationships of industry is needed to assist in making these adjustments. This is the function of industrial arts.

Industrial arts consists of instructional shop work which provides general education experiences centered around present-day industrial and technical life. Those who participate in industrial arts programs receive orientation in the areas of appreciation, production, consumption, and recreation through actual experiences in planning, producing, servicing, and repairing various types of consumer goods in common usage. Industrial arts also provides opportunities for exploratory experiences which are helpful in the choice of a vocation. Industrial arts is a non-vocational, general education subject and consequently receives no financial assistance from the federally aided

program of vocational education provided for in the Smith-Hughes Act and other vocational education acts.

Industrial arts is often referred to as a curriculum rather than a course of study. It is presently available on various grade levels from the elementary school through the senior college. Industrial arts is available to both boys and girls and to adults who are not enrolled in school or college. The offering includes shop work in areas such as woods, metals, graphic arts, power mechanics, leather, plastics and ceramics with general drawing and planning included in all of them.

Industrial arts is basically a shop or laboratory subject area, and its purpose is to foster the development of a strong foundation in skills, knowledge and attitudes related to various aspects of American industry. This purpose is accomplished by planning the industrial arts curriculum to include many activities and experiences related to industrial problems and processes. Thus planning is facilitated by the use of a series of objectives to further define the purpose and to assist in the selection of educational experiences for the curriculum. The selection of experiences is made on the basis of the needs of the learner. Youth and adults throughout the nation have many needs in common. This fact has made it possible for industrial arts educators to prepare a suggested list of overall objectives for the industrial arts curriculum. Such a list was prepared in 1953 by the Industrial Arts Policy and Planning Committee¹ of the American Vocational Association in cooperation with industrial arts educators throughout the

¹American Vocational Association, A Guide to Improving Instruction in Industrial Arts, Industrial Arts Policy and Planning Committee, The Vocational Association: 1953. pp. 19-28.

nation. All of these, however, had been listed before by men like Ericson, Wilber, Bawden, Selvidge and others.² The list of these objectives follows:

1. Interest and Industry. To develop in each pupil an active interest in industrial life and in the methods and problems of production and exchange.
2. Appreciation and Use. To develop in each pupil the appreciation of good design, materials, and workmanship and the ability to select, care for, and use industrial products wisely.
3. Self-realization and Initiative. To develop in each pupil the habits of self-reliance and resourcefulness in meeting practical situations.
4. Cooperative Attitudes. To develop in each pupil a readiness to assist others and to join in socially accepted group undertakings.
5. Health and Safety. To develop in each pupil desirable attitudes and practices with respect to health and safety.
6. Interest in Achievement. To develop in each pupil a feeling of pride in his ability to do useful things and to develop certain worthy free-time interests, particularly in the crafts.
7. Habit or Orderly Performance. To develop in each pupil the habit of an orderly and efficient performance of any task.
8. Drawings and Design. To develop in each pupil an understanding of all kinds of common graphic representations and the ability to express ideas by means of drawings and sketches.

²Ibid. p. 5.

9. Shop Skills and Knowledge. To develop in each pupil skill in the use of common tools and machines and an understanding of the problems involved in common types of construction and repair.

Some educators have suggested that industrial arts courses make a greater contribution to vocational guidance than any other school subject. Industrial arts provides the best opportunity afforded by the school for the student to become acquainted with the tools, machines, materials and processes of many industrial occupations. Industrial arts provides superior opportunities for each student to discover his own occupational interests and aptitudes. Industrial arts provides special opportunities for instructors to discover student attitudes and interests such as pride of workmanship, attention to detail, accuracy and respect for rights of others, all of which are essential for success in industrial occupations. Industrial arts teachers, as a rule, are better qualified to counsel with students concerning industrial occupations and to follow them up on the job than other teachers in the school system. These considerations indicate the possibility of a close relationship between industrial arts and vocational guidance, especially in senior high schools. Many of these ideas have been brought out by Roberts.³

The first manual training high school in the United States was established in St. Louis, Missouri. The school, which was a part of Washington University, was founded in 1880 by Professor Calvin M. Woodward, Dean of the Washington University Polytechnic faculty. Professor Woodward had operated courses in shop work at Washington University for two years prior to the founding of the manual training school.

³Roberts, Roy W., Vocational and Practical Arts Education, Harper and Brothers, New York, 1957. pp. 409-410.

Out of the experiences of these courses, Professor Woodward saw the need for a combination of shop work and academic courses for secondary school pupils as a means of supplementing liberal education with manual activity.⁴

A search of the files in the state department of education by William I. King, State High School Supervisor; Lyle Roeseler, State Supervisor of Trade and Industrial Education; and by the writer, failed to find any record of when industrial arts was taught first in the schools of Montana. However, in the review of literature, the writer found that in 1902, W. D. Bannister was engaged to teach science and manual training in the Billings High School.⁵ This, as nearly as the author was able to determine, was the initial course in industrial arts in the state. Since then, however, industrial arts has grown until there are now 147 industrial arts teachers in the state.

The Montana State Department of Education has not published a curriculum for industrial arts teacher training. Their chief requirement for certification is that the person applying have a Bachelor Degree from an accredited institution with a major in industrial arts.⁶

However, the Montana State Legislature, as early as 1911, set up by law the procedure for the establishment of manual and industrial

⁴Bennett, Charles A., History of Manual and Industrial Education, 1870-1917, Chas. A. Bennett Co. Inc., Illinois, pp. 349-359.

⁵The Billings Gazette, May 12, 1957.

⁶Personal letter written by Lyle Roeseler to Francis Sprinkle on April 19, 1957.

training. This law was changed in 1913, revised in 1921, and revised again in 1935.⁷

On the qualifications of industrial arts teachers, the state law says that teachers of such courses shall have special preparation for such instruction and shall be holders of special manual training certificates. The superintendent of public instruction is empowered to issue the certificate after ascertaining that the applicant has received a sufficient general education and the professional and technical preparation necessary for manual and industrial training.⁸

There are three institutions in the state of Montana that have a four-year program leading to a major in industrial arts. They are: Montana State College at Bozeman, Northern Montana College of Education at Havre, and Rocky Mountain College at Billings.

The two state schools, Montana State College and Northern Montana College, require a minimum of sixty quarter hours of credit for an industrial arts major. Rocky Mountain College, a private school, requires a prescribed course of fifty quarter hours plus at least twenty more hours in one of the fields of industrial arts. This actually gives the Rocky Mountain trained teacher a minimum of seventy quarter hours of credit in his major field.

Montana State College gives a vocational option to the student who does not plan to teach. With the consent of his class advisor, he may elect to substitute for the courses in education and psychology.

⁷ Ibid.

⁸ School Laws of the State of Montana, 1953. pp. 169-171.

TABLE 1. Industrial Arts Course Requirements.

Courses*	M.S.C.	R.M.C.	N.M.C.E.
Acetylene, Arc & Forge Welding	4	4	4
Automotive Mechanics	10	12	3
Automotive Tune-Up	5	12	0
Cabinet Making or Machine Woodwork	0	12	4
Carpentry	12	0	0
Color Design and Illustration	0	4	0
Descriptive Geometry	0	3	0
Drawing and Perspective	3	0	0
Engineering Drawing	6	6	6
Hand Woodwork	8	12	3
Industrial Arts Education	0	4	0
Industrial Arts Design	3	3	3
Industrial Arts Problems	0	4	3
Industrial Mathematics	8	5	4
Machine Shop	6	12	3
Manual Arts (Crafts)	4	4	3
Millwork	3	0	0
Radio	0	0	3
Sheet and Cold Metal	4	4	3
Shop Electricity	3	8	3
Shop Maintenance	0	0	3
Shop Organization and Management	3	0	4
Teaching Methods, I. A.	3	4	2
Theory & Organization, General Shop	0	3	4
Woodfinishing	3	2	2
Woodturning	0	3	0
Working Drawings	6	0	0

*For the purposes of the study, only shop and industrial arts education courses were used in this table.

The industrial arts course requirements of the three schools are shown in Table 1. It shows that all of the schools require practically the same shop and industrial arts education courses. About the only difference is in the number of credit hours required in certain fields.

CHAPTER II.

STATEMENT OF PROBLEM

The status of industrial arts instructors varies from year to year. Some of the varying factors are the duties of the instructor, salary received, professional background, and experience. Many of these changes are the result of changing economic conditions, new trends in educational policies, and legislative changes within the individual states. It was the desire to secure answers to some of these factors which led to this investigation. This study was made in an endeavor to determine the professional preparation, qualifications, instructional duties and salaries of the Montana industrial arts teachers.

It was hoped that the findings of this study would be of value in planning for the improvement of the status of industrial arts teachers. Industrial arts teachers may use it as a comparison of their own status with others in similar situations or with like qualifications. The findings may also be used in comparison with findings of closely related studies that are being carried on from time to time.

It is a firm hope, also, that the industrial arts teacher training institutions and the Montana State Department of Education might derive some benefit from the results of this study.

Data were obtained on all teachers who were registered as industrial arts teachers in the Montana Annual Reports.¹

Method of Securing Data

Data were gathered concerning the 147 industrial arts instructors

¹Montana Department of Education. Annual Reports Relating to Qualifications of Teachers in Secondary Schools, 1956-57. Helena, Montana. 1956.

teaching in the Montana public schools during the school year 1956-57. The chief sources of data were: The Annual Reports Relating to Qualifications of Teachers in Secondary Schools for 1956-57 on file in the State Department of Education, Helena, Montana, and the United States Census Report.²

Definition of Terms

To facilitate the interpretation of the data presented in this study, certain terms have been defined.

The industrial arts teacher was any teacher listed in Annual Reports Relating to Qualifications of Teachers in Secondary Schools in 1956-57 as having taught one or more classes in industrial arts.

Salary referred to the amount of money paid to the teacher for his services during the year as listed in the Annual Reports.

Enrollment denoted the number of students in the secondary school.

Industrial arts preparation indicated whether an industrial arts instructor had majored in that area, minored in that area, or had neither majored nor minored in that area.

Subject combinations referred to the courses taught by the industrial arts instructor in conjunction with industrial arts.

Class of school referred to the state rating given to the school in the Annual Reports.

Years of experience was the number of years of teaching experience as listed in the Annual Reports.

²U. S. Bureau of the Census. Census of Population. Vol. I, 1950.

Fifteen items of information which were obtained for each of the 147 teachers were checked and tabulated for this study. These were:

- *1. Name of the industrial arts teacher.
- *2. Name of the school in which this instructor was teaching.
- *3. College attended.
- 4. Kind of degree received.
- 5. Number of years teaching experience.
- 6. Salary.
- 7. Population of town or city.
- 8. School enrollment.
- 9. Name of county in which instructor taught.
- 10. Additional classes taught by teacher.
- 11. Number of full-time industrial arts teachers.
- 12. Major work in college.
- 13. Minor work in college.
- 14. County population density per square mile.
- 15. Class of school.

*These items were used in tabulating data and were then disregarded.

CHAPTER III

REVIEW OF LITERATURE

Many studies pertaining to the professional preparation and instructional duties of industrial arts teachers have been made for other states. Several studies have been reviewed in an effort to determine previous investigations done in this area.

Buchanan¹ made a study of the Iowa industrial arts teachers and showed that there was a tendency for teachers remaining in the profession to move into the larger schools. It was indicated that the more academically trained teacher tended to remain in the same school system. Buchanan also found that 25 percent of the teachers teaching industrial arts in Iowa had a master's degree and about one-third of those teachers had majored in this area. Physical education was the subject most frequently taught in combination with the industrial arts subjects.

A study of the status of Minnesota industrial arts teachers was made by Knoss.² He found that 346 teachers studied received a median salary of \$3000. He also noted that industrial arts teachers employed in schools with the larger enrollments were receiving higher salaries. About 26 percent of the teachers taught classes in addition to industrial arts with physical education the subject most often taught. Knoss found that 94 percent of the industrial arts teachers had a major in that subject, but less than four percent had completed a master's degree.

¹Buchanan, J. C., Status of Industrial Arts Teachers in 1944. Unpublished M. S. thesis. Ames, Iowa, Iowa State College Library, 1946.

²Knoss, Wayne W., Status of Minnesota Industrial Arts Teachers in 1947. Unpublished M. S. thesis, Ames, Iowa. Iowa State College Library, 1949.

In his study of the status of the North Dakota industrial arts teachers, Meachen³ found that 44 percent of those teaching industrial arts had a master's degree. He also found that the more experienced teachers were teaching in larger schools and were receiving higher salaries. The subject most frequently taught in combination with industrial arts was high school science.

When the Indiana industrial arts teachers were studied by Roberts⁴, it was found that their median salary was \$2800. It was also found that those teachers who taught only industrial arts were receiving higher salaries and were employed in the schools larger than those who taught some other class in addition to industrial arts. Science was the subject most frequently taught in combination with industrial arts. Twenty-nine percent of the teachers had a master's degree, and 55 percent had 20 or more years of teaching experience.

It was determined by Weivel⁵, in his study of the preparation and duties of Iowa industrial arts teachers, that about one-third of the shop teachers had majored in industrial arts. He also found that thirteen percent had received a master's degree. Teachers in the larger schools were found to be more experienced and to receive a higher salary

³Meachen, James H., Preparation and Duties of North Dakota Industrial Arts Teachers. Unpublished M. S. thesis, Ames Iowa. Iowa State College Library. 1946.

⁴Roberts, Thomas M., Status of Indiana Industrial Arts Teachers in 1946. Unpublished M. S. thesis, Ames Iowa. Iowa State College Library. 1943.

⁵Weivel, Bernard F., Preparation and Duties of Iowa Industrial Arts Teachers. Unpublished M. S. thesis, Ames, Iowa. Iowa State College Library, 1943.

than those teaching in the smaller systems. It was noted that there was a significant relationship between salaries and hours of industrial arts preparation, salary and subject combinations taught, and salary and density of population within counties. Science was the subject most frequently taught in combination with industrial arts.

The foregoing studies have indicated that the industrial arts teachers in larger systems tended to have more years of teaching experience, receive higher salaries, and teach fewer subjects in combination with industrial arts than teachers in the smaller schools. Science and physical education were the subjects most frequently taught in combination with industrial arts.

The next concern was the preparation, salary, and experience of industrial arts teachers in the state of Montana. County populations, town populations, enrollment of schools, and classification of schools were other factors brought into this section of the problem.

CHAPTER IV

PREPARATION, SALARY AND EXPERIENCE OF INDUSTRIAL ARTS TEACHERS

This study was divided into several sections for the sake of convenience. Each section treated some major factors in an attempt to determine their effect on the status of the industrial arts teacher.

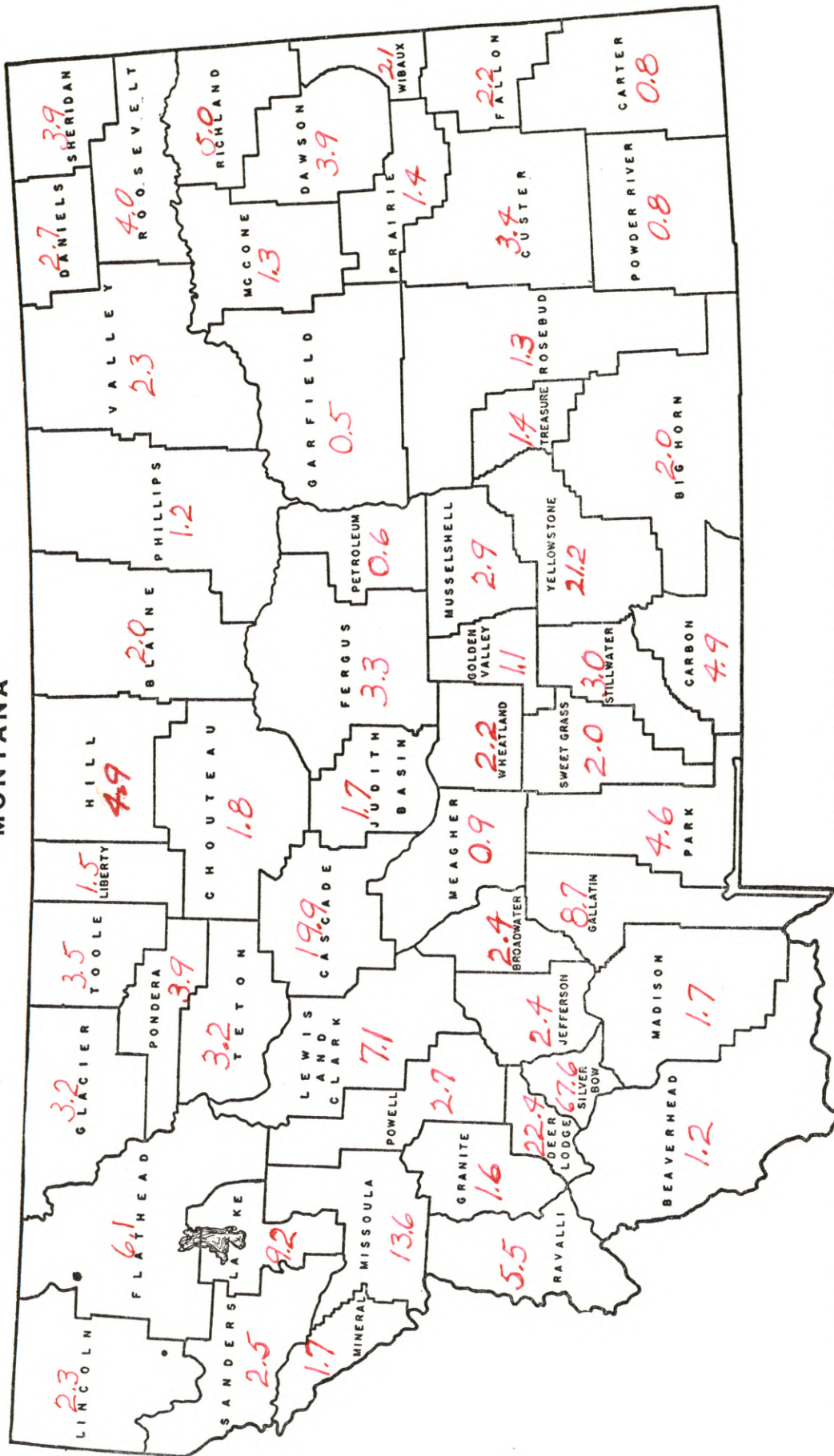
Relationship of Population Density to Salaries
and to Industrial Arts Preparation

The purpose of this section of the study was to determine whether industrial arts teachers in the more populous areas were paid better salaries during the school year 1956-57 than those in the less populated areas. An attempt also was made to determine whether the school systems in the more densely populated areas required higher qualifications than those in counties with a smaller population per square mile.

County population density and industrial arts preparation. The population density per square mile of each of the 56 counties in the state of Montana are shown on Map 1. The five counties that had the highest population density per square mile are: Silver Bow, Deer Lodge, Yellowstone, Cascade and Missoula with an average population density of 67.6, 22.4, 21.2, 19.9, and 13.6 respectively.

The number of industrial arts teachers who were industrial arts majors, the number who were industrial arts minors, and the number who had neither a major nor a minor in industrial arts within each county are shown on Map 2. Silver Bow county, with the largest population per square mile of all the counties, had four industrial arts teachers. However, only one of these had a major and one a minor in this area. Deer Lodge, the second most densely populated, had three industrial arts in-

MONTANA



Map 1. County Population Density per Square Mile.

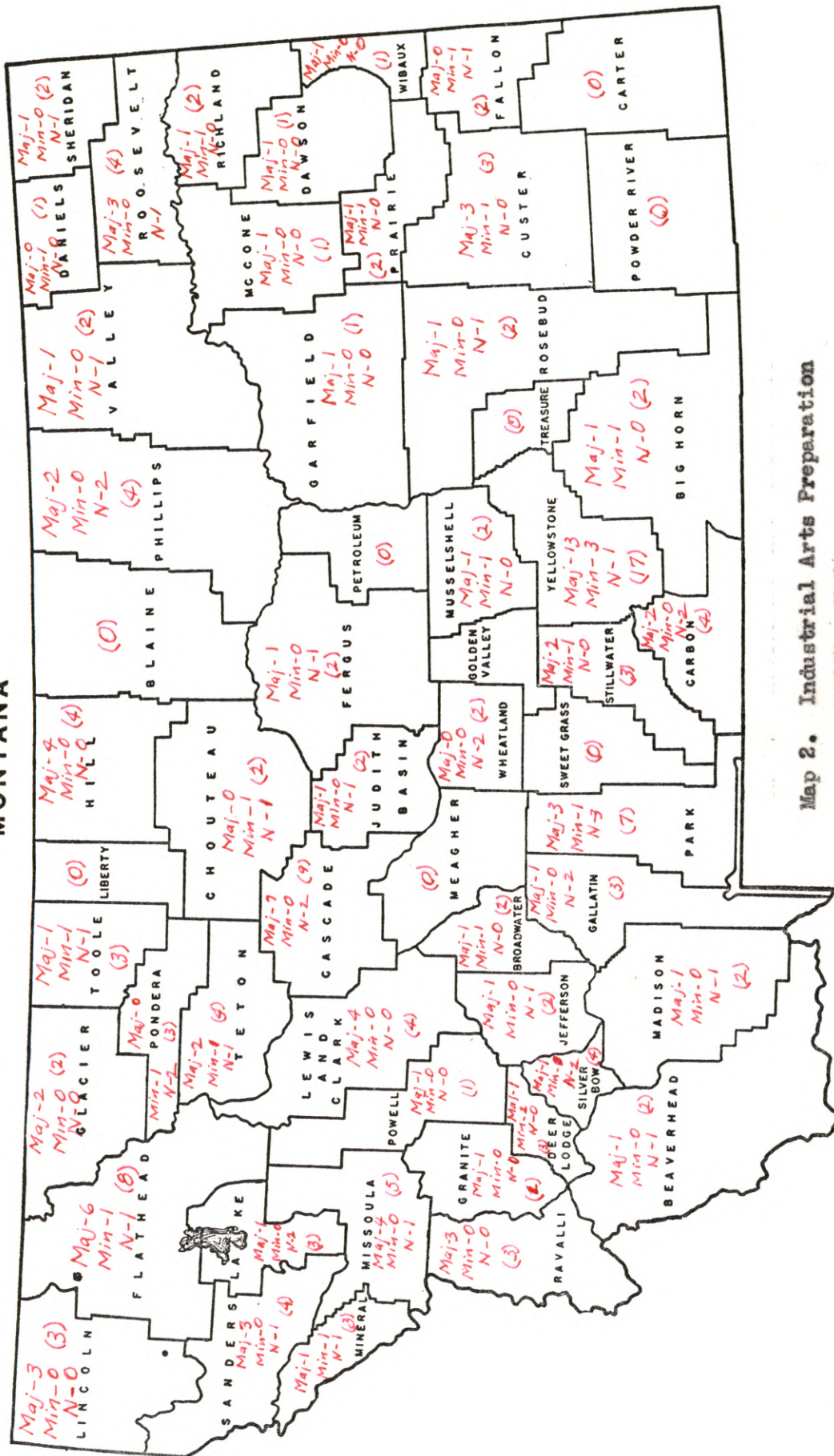
No. 1050 — County Outline Map

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MONTANA



Map 2. Industrial Arts Preparation

Major - Maj.
Minor - Min.
Neither - N.

No. 1050 - County Outline Map

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structors, and only one of these had a major in industrial arts. There were nine industrial arts instructors in Cascade county. Seven of these teachers had majored in this work, whereas the other two had neither a major nor a minor.

Yellowstone county had seventeen industrial arts instructors and this was a larger number than any other county. Thirteen of these teachers had a major in this area, while three had a minor and the other had neither a major nor a minor.

Missoula county had five shop instructors. Four of these had a major in industrial arts and the fifth had neither a major nor a minor in this field.

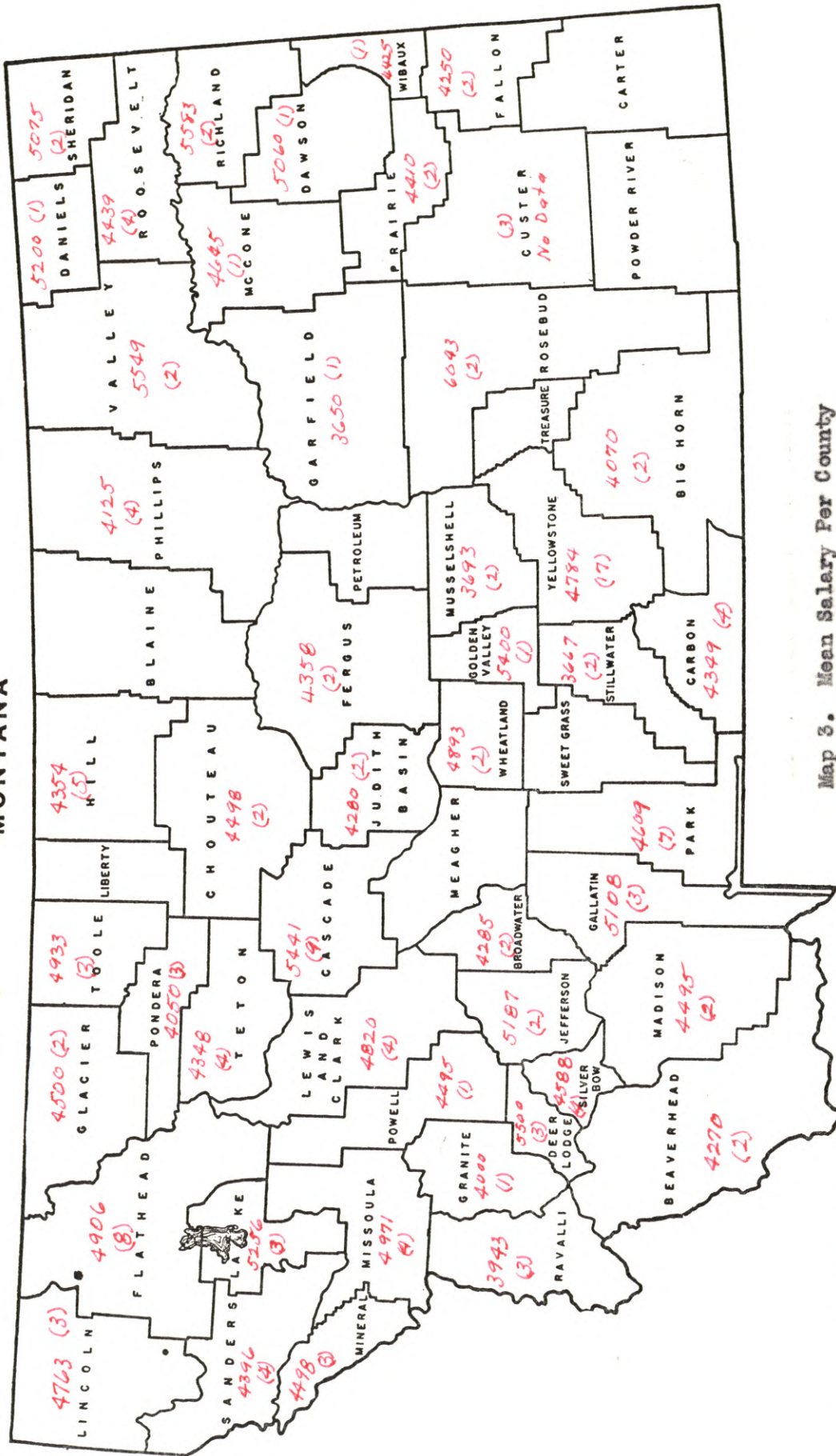
The five counties with the lowest population density per square mile were, Garfield with 0.5, Petroleum with 0.6, Carter with 0.8, Powder River with 0.8, and Meagher with 0.9.

Further inspection of Map 2 shows that Garfield county had only one industrial arts teacher and he had majored in industrial arts. There were no industrial arts instructors in the other four of the least populated counties.

Population density and salary. The mean salary for industrial arts teachers is shown on Map 3. These data were compared with the county population density to determine the relationship that existed between these two factors.

Four counties which had a high population density and had three or more industrial arts teachers and four counties which had a low population density and had three or more industrial arts teachers were selected for this comparison. The more densely populated counties were,

MONTANA



Map 3. Mean Salary Per County

No. 1050 — County Outline Map

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Yellowstone with a population density of 21.2 per square mile, Cascade with 19.9, Missoula with 13.6 and Lake with 9.2. The less densely populated were, Sanders with 2.5, Lincoln with 2.3, Mineral with 1.7 and Phillips with 1.2.

It was deemed necessary to add Table 2 to the study so that the comparison might be a little easier to follow.

TABLE 2. Comparison - Most Populous and Least Populous.

County	Population Density	Instructors	Salary
Yellowstone	21.2	17	\$4,784
Cascade	19.9	9	5,441
Missoula	13.6	5	4,971
Lake	9.2	3	4,906
Sanders	2.5	4	4,396
Lincoln	2.3	3	4,763
Mineral	1.7	3	4,498
Phillips	1.2	4	4,125

The seventeen Yellowstone county industrial arts teachers had a mean salary of \$4,784. Cascade county had nine industrial arts teachers with a mean salary of \$5,441. Missoula county had five men teaching this subject with a mean salary of \$4,971. The three men teaching industrial arts in Lake county had a mean salary of \$4,906. These were compared to the mean salaries of the four less populous counties which had three or more industrial arts teachers.

Sanders county had four shop instructors with a mean salary of \$4,396. The three men in Lincoln county received a mean salary of \$4,763. Mineral county's three industrial arts teachers received a mean salary of \$4,498, and Phillips county had four shop teachers who received a mean salary of \$4,125.

This comparison tends to indicate those industrial arts teachers in the more populous areas received higher salaries than those in the less populous counties.

Factors Affecting Salaries

Salary is usually considered as a very important measure when the status of any professional group is studied. Nearly all teachers, as well as those planning to enter the profession, are interested in learning of the factors influencing salaries.

It can be noted in Table 3 that 46 teachers, or about 31 percent of the 147 teachers, were employed in towns having a population of less than 500. Sixty-nine, or about 47 percent were teaching in towns of less than 1000. There were about 13 percent in the 1000 to 2500 population towns, and 25 percent in the cities over 10,000. The remaining 15 percent were distributed in the towns with populations between 2500 and 10,000.

The mean salary received by the 46 teachers in towns of less than 500 was \$4,273, whereas the mean salary for the 35 teachers in the cities with a population of 10,000 and over was \$5,134.

TABLE 3. Distribution of Salary and Population of Town.

Salary Range	Population of town							Total
	0-499	500-999	1000-2499	2500-4999	5000-7499	7500-9999	10,000-up	
5500 - up	2	1	2	1	0	1	9	16
5000 - 5499	6	3	3	3	1	3	9	28
4500 - 4999	9	8	6	4	0	3	11	41
4000 - 4499	13	6	5	6	1	0	6	37
3500 - 3999	15	5	3	1	0	0	0	24
3000 - 3499	1	0	0	0	0	0	0	1
Total	46	23	19	15	2	7	35	147

TABLE 4. Distribution of Salary and School Enrollment.

Salary Range	Enrollment of School								Total
	0-49	50-99	100-149	150-199	200-299	300-399	400-999	1000-up	
5500 - up	1	2	1	0	1	2	2	7	16
5500-5499	4	1	4	2	1	2	9	5	28
4500-4999	2	7	6	5	1	3	8	4	36
4000-4499	6	10	6	3	4	4	5	3	41
3500-3999	8	8	4	2	2	1	0	0	25
3000-3499	1	0	0	0	0	0	0	0	1
Total	22	28	21	12	9	12	24	19	147

As shown in Table 4, 77, or approximately one-half, of the industrial arts teachers in the state were receiving a salary between \$4,000 and \$4,999. Seventeen teachers, or 22 percent of those in this salary range, were teaching in schools with an enrollment of 50 to 99 students; 8 teachers, or 22 percent of the 77 teachers in this bracket, were in the 0 to 49 group. Only one industrial arts teacher in the state received less than \$3500 per year and this was in the 0-49 class. Of the 33 teachers in the 150-399 group, only 5, or 15 percent, received less than \$4000. Sixteen of the 19 teachers in schools with an enrollment above 1000 received salaries of \$4500 up.

From the data in Table 5 it was determined whether the class of school which the industrial arts teacher was working had any bearing on the salary that he had received. The mean salary for all the teachers was computed using the raw-score method. It was found that \$4,685 was the average salary for all of the industrial arts teachers in the state. The average salary was also computed for each class of school. The

mean salary for the first class schools was found to be \$5,154, which was above the state average of \$4,685. The teachers in the county high schools received a mean salary of \$4,782 which was just slightly above the state average. The mean salary for the second class shop teachers was \$4,662, which was slightly below the state average. Teachers in the third class schools received an average salary of \$4,393 which was also below the state average.

TABLE 5. Salary and Class of School.

Salary	Class of School				Total
	First Class	County High School	Second Class	Third Class	
5500 - up	9	1	3	3	16
5000 - 5499	5	9	8	6	28
4500 - 4999	8	5	20	8	41
4000 - 4499	6	6	10	15	37
3500 - 3999	0	2	6	16	24
3000 - 3499	0	0	0	1	1
Total	28	23	47	49	147

A comparison between salary and teacher preparation is shown in Table 6. It was found that of the 84 teachers that majored in industrial arts, 43, or about 51 percent, were receiving salaries between \$4,000 and \$4,999. Eighteen men with industrial arts majors were paid a salary of \$5,500 or above. It is interesting to note that the only teacher in the state receiving less than \$3,500 was an industrial arts major.

Twenty-two teachers, or only 15 percent, had minored in industrial arts. The six men teaching industrial arts on special permits were taking college work towards a major in industrial arts but had not completed the requirements for a bachelor degree. Thirty-five teachers had

TABLE 6. Salary and Industrial Arts Preparation.

Salary	Industrial Arts Preparation				Total
	Major	Minor	Neither	Special Permit	
5500 - up	7	5	4	0	16
5000 - 5499	18	0	8	1	27
4500 - 4999	23	3	11	2	39
4000 - 4499	20	11	6	1	38
3500 - 3999	15	3	6	0	24
3000 - 3499	1	0	0	0	1
No Data	0	0	0	2	2
Total	84	22	35	6	147

no apparent college preparation for teaching industrial arts. Fifteen of these 35 teachers were trained in vocational agriculture and were teaching one or more industrial arts course.

The number of class preparations which the teachers within a certain salary range were required to make are shown in Table 7. For this comparison, two classes taught in the same subject were considered as one class preparation. Study halls, home rooms, and vacant periods were not tabulated. It was found that 55 teachers taught no subjects

TABLE 7. Salary and Number of Subjects Taught in Addition to Industrial Arts.

Salary	Subjects Taught in Addition to Industrial Arts					Total
	0	1	2	3	4	
5500 - up	9	4	3	1	0	17
5000 - 5499	14	4	9	0	0	27
4500 - 4999	17	10	9	5	0	41
3500 - 3999	6	7	8	2	1	23
3000 - 3499	0	0	2	0	0	2
Total	55	37	41	12	2	147

other than industrial arts, whereas 41 instructors taught two other classes, 12 taught three other classes, and only four had four preparations.

There was a slight tendency for the teachers making only one extra preparation per day to receive higher salaries than did those having several extra preparations to make.

It is indicated in Table 8 that 23 teachers were receiving a salary between \$3,500 and \$3,999. Thirty nine percent of these industrial arts teachers had no more than one year of teaching experience.

TABLE 8. Salary and Years of Teaching Experience.

Salary	Years of Experience							Total
	0-1	2-3	4-6	7-10	11-15	16-25	26-up	
5500 - up	0	0	2	3	5	1	7	18
5000 - 5499	1	0	3	6	9	4	3	26
4500 - 4999	1	4	16	9	5	5	2	42
4000 - 4499	2	9	14	4	2	2	3	36
3500 - 3999	9	11	2	1	0	1	0	24
3000 - 3499	0	1	0	0	0	0	0	1
Total	13	25	37	23	21	13	15	147

The \$4,000 to \$4,999 salary group had its greatest concentration in the four to six year bracket with thirty of the 78 teachers in this group. The salary groups above \$5,000 show 86 percent of the teachers in those categories had a minimum of seven years of teaching experience and 65 percent of these teachers had a minimum of ten years of teaching experience. One of these men had given 49 years of his life to industrial arts teaching.

Status as Affected by Experience

Experience within a profession or vocation is usually considered an important factor when studying the qualifications of an individual for advancement. The majority of the school systems in the state compensate for it by granting an annual increment in recognition of its value.

An examination of the data in Table 9 shows that 24, or about 86 percent, of the 28 industrial arts instructors in the first class schools had four or more years of teaching experience; 50 percent had 10 years or more of teaching experience and 32 percent had at least 16 years of teaching experience. In the county high schools, 91 percent of the industrial arts teachers, or 21 out of 23, had four or more years of teaching experience. Of this group, 13 men, or about 57 percent, had eleven or more years of teaching experience.

TABLE 9. Years of Experience and Class of School

Years of Experience	Class of School				Total
	First Class	County High School	Second Class	Third Class	
26 - up	6	4	3	2	15
16 - 25	3	3	3	3	12
11 - 15	5	6	8	3	22
7 - 10	5	3	7	7	22
4 - 6	5	6	16	12	38
2 - 3	4	1	4	14	23
0 - 1	0	1	6	8	15
Total	28	23	47	49	147

Twenty-six teachers in the second class schools had less than six years of teaching experience whereas the remaining twenty-one had seven or more years of such experience. Fifteen of the teachers in the third

class schools had seven or more years experience and the other thirty-four had taught less than six years.

An inspection of Table 10 will show that 52, or about 35 percent of the industrial arts instructors, taught no classes other than industrial arts.

TABLE 10. Years of Experience and Additional Subjects Taught.

Years of Experience	Additional Subjects Taught									
	None	Phy. Ed.	Science	Mathematics	Social Studies	History	Music	Drivers' Training	English	Other
26 - up	6	0	3	1	0	0	1	3	1	1
16 - 25	5	0	1	3	1	1	0	1	1	4
11 - 15	11	2	1	5	0	2	0	2	1	3
7 - 10	10	0	3	6	0	0	0	2	0	2
4 - 6	11	4	6	10	1	2	1	7	1	11
2 - 3	5	2	6	10	1	1	1	0	1	6
0 - 1	3	1	5	3	1	3	0	1	1	3
Total	52	9	25	38	4	9	3	16	6	29

Science and mathematics were the two subjects most frequently taught in addition to industrial arts courses. Drivers' training, physical education, history, English, social studies, and music were also taught by shop instructors in that order of frequency. This would indicate that more industrial arts students should make their minors mathematics and science. It also shows or indicates that industrial arts and physical education are not a good course combination for students training to be teachers.

Effect of Enrollment on Teachers' Status

In the following tables, comparisons were made between enrollment and such factors as years of experience, number of industrial arts teachers employed in the school, and types of degrees held by instructors.

A comparison between years of teaching experience and school enrollment was made in Table 11. This was an endeavor to determine whether the larger schools tended to have teachers with more experience.

TABLE 11. Years of Experience and Enrollment of School

Enrollment of School	Years of Experience							Total
	0-1	2-3	4-6	7-10	11-15	16-25	26-up	
1000 - up	0	0	3	3	7	1	5	19
400 - 999	0	4	6	4	4	5	2	25
300 - 399	0	0	5	3	1	0	2	11
200 - 299	0	2	2	0	3	1	1	9
150 - 199	1	1	6	0	1	1	1	11
100 - 149	5	4	5	3	3	1	1	22
50 - 99	7	4	10	2	1	1	3	28
0 - 49	3	7	3	5	2	2	0	22
Total	16	22	40	20	22	12	15	147

Of the 147 teachers for whom experience data were available, 16 had no more than one year of teaching experience. Seventy-eight industrial arts teachers, or about 53 percent, had less than seven years of experience. Fifty-six of this group of teachers with less than seven years of teaching experience were in schools with fewer than 200 students. Of the 19 industrial arts men in schools with enrollments of 1,000 or more, six teachers had between four and ten years of experience, and five had at least 26 years of teaching experience.

An examination of Table 12 showed that 95, or about 65 percent, of the industrial arts teachers taught in school systems which employed only one industrial arts instructor. Fifty of these taught in schools with less than 100 students. There were four schools with an enrollment between 400 and 1000. Each of these schools employed only one industrial arts instructor. However, there were also six schools in this same range in which each employed two instructors.

TABLE 12. Enrollment and Number of Industrial Arts Teachers Employed.

Enrollment	Number of Industrial Arts Teachers				Total
	1	2	3	4	
1000 - up	0	0	1	4	19
400 - 999	4	6	3	0	25
300 - 399	9	1	0	0	11
200 - 299	7	1	0	0	9
150 - 199	11	0	0	0	11
100 - 149	18	2	0	0	22
50 - 99	28	0	0	0	28
0 - 49	18	2	0	0	22
Total	95	24	12	16	147

It was also noted that in the five schools with more than 1000 students there was one that employed three shop teachers, and four that employed four shop teachers.

It can be noted in Table 13 that 99, or about 68 percent, of the 147 industrial arts teachers had received a bachelor's degree, 26 percent had a master's degree, and 6 percent were teaching on special permits.

TABLE 13. Enrollment and Type of Degree.

Enrollment	Type of Degree			Total
	Bachelor's Degree	Master's Degree	Special Permit	
1000 - up	11	3	2	21
400 - 999	15	7	2	24
300 - 399	7	3	0	10
200 - 299	5	2	2	9
150 - 199	8	2	1	11
100 - 149	19	2	1	22
50 - 99	21	7	0	28
0 - 49	13	8	1	22
Total	99	39	9	147

Eighteen of the 39 teachers with master's degrees were teaching in schools which had an enrollment of at least 300 students, and fifteen taught in schools with less than 100 enrollment.

Shop teachers in schools of less than 100 were usually employed as a school administrator along with their shop instruction.

Five of the nine teachers teaching industrial arts on special permits were located in schools with an enrollment under 300. The other four special permits were distributed equally in the 400-999 and 1000-up brackets.

Status as Affected by Classification of School

The classification of school may have an effect on the status of the industrial arts teacher.

In Table 14 an attempt was made to show more clearly the distribution of men with industrial arts preparation throughout the schools of Montana. It was found that 20 of the 28 men in the first class schools had majored in industrial arts in college, four men had minored in

industrial arts, three had neither a major nor a minor in this area, and one was teaching on a special permit.

TABLE 14. Industrial Arts Preparation and Class of School.

Industrial Arts Preparation	Class of School				Total
	First Class	County High School	Second Class	Third Class	
Major	20	16	28	26	90
Minor	4	2	7	4	17
Neither	3	3	11	18	35
Special Permit	1	2	1	1	5
Total	28	23	47	49	147

There were 23 industrial arts teachers in the county high schools. Of these, sixteen had industrial arts majors, and two had minors. Three had neither a major nor a minor, and two were teaching on special permits.

Twenty-eight of the 47 instructors in second class schools had majored in industrial arts work, seven had industrial arts minor, eleven had neither a major nor a minor, and one was teaching on special permit.

There were 49 industrial arts teachers in the third class schools. Twenty-six of these had industrial arts majors, four had industrial arts minors, 18 had neither a major nor a minor, and one was teaching on a special permit.

The subjects which were taught in addition to industrial arts in the various classes of high schools are shown in Table 15. There were 51 instructors who taught only industrial arts subjects. Of the 28 instructors in the first class high schools, twenty-one taught no other class, two taught physical education, three taught mathematics, one

taught drivers' training, and one indicated that he taught some course other than those tabulated.

TABLE 15. Class of School and Additional Subjects Taught.

Additional Subjects Taught	Class of School				Total
	First Class	County High School	Second Class	Third Class	
None	21	12	13	5	51
Phy. Ed.	2	0	0	7	9
Science	0	2	5	20	27
Math.	3	3	11	19	36
Social St.	0	0	0	3	3
History	0	1	1	8	10
Music	0	1	0	2	3
English	0	0	2	4	6
Dr. Training	1	3	8	3	15
Other	1	3	12	12	28
Total	28	25	52	83	188

Classes taught in addition to industrial arts in the county high schools were ranked in the following order: twelve taught no other subjects; three taught mathematics; three taught drivers' training, three taught courses other than those tabulated; one taught history; and another taught music.

In the second class high schools, 13 instructors taught no classes in addition to industrial arts. In order of rank, other subjects taught in addition to industrial arts were: fields other than those tabulated by 12; mathematics taught by 11; drivers' training by 8; science by 5; English by 2; and history by one.

On the average, the third class high school industrial arts teachers had a larger number of preparations to make than did those of any other class of schools. Only five taught straight industrial arts

courses. Twenty teachers taught science and nineteen taught mathematics. These two led the list of additional subjects which were taught most frequently. History was taught by industrial arts teachers in eight of the schools. Next in line was physical education with seven. Four taught English; three social studies; three drivers' training; and two taught music.

CHAPTER V

SUMMARY AND CONCLUSIONS

Summary

This study was made in an effort to determine the status of the industrial arts teacher in the state of Montana for the school year 1956-57.

The trends and a brief history were presented first to give the reader an understanding of the background.

It was found that certification was prescribed by school law and was administered by the Montana State Department of Education.

The studies in the review of literature indicated that science and physical education were the subjects most frequently taught with industrial arts in other states. It was also shown that the industrial arts teachers in the larger systems tended to have more years of teaching experience, received higher salaries, and taught fewer subjects in addition to industrial arts than did those in the smaller schools.

In the study of the status of Montana industrial arts teachers, sixteen items of data were collected on all 147 teachers in the state. These items were gathered from the records on file in the offices of the Montana State Department of Education.

The breakdown on the Montana study is shown as follows:

Experience. The average number of years of teaching experience for each man was found to be 10 years. In the first class high school the average was 16 years; in the county high school, 14 years; in the second class high school, 8 years; and the third class high school, 7 years.

Salary. The mean salary of all industrial arts teachers in Montana was found to be \$4,685. Teachers in the more populous areas of the state received higher salaries than those in the less populous areas.

Subject Combinations. Science and mathematics were the subjects most frequently taught in combination with industrial arts.

Qualifications. Although 94 percent of the industrial arts teachers in the state had a master's or bachelor's degree, only 73 percent of them had a major or minor in the industrial arts area. The remainder either had no formal training in the area or were lacking the necessary credits for a degree.

Preparations. About 90 percent of the shop teachers in the third class schools had from one to four subject preparations in addition to industrial arts. On the other hand, only 25 percent of the industrial arts men in the first class schools had other subject preparations.

Conclusions

There was a tendency for the man with the most years of teaching experience to move either to the first class or to the county high school. On the average, these are the more populous areas.

The highest salaries were found in the larger school systems, thus giving a man an incentive to move to the more populous areas.

In the matter of subject combinations, one of two things can be concluded. The public school superintendents are demanding minors in these areas or the industrial arts man has a more scientific training.

Since only 73 percent of all of the industrial arts instructors in the state have a major or minor in this area, it shows a considerable shortage of men in this area. It also implies certain laxities in subject assignment and certification.

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