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State of Iowa
Board for Vocational Education
Des Moines

F. E. MOORE, *Director*

Changes in
the Occupational Pattern
of Iowa

By
P. G. FRASIER
Research Specialist

Bulletin No. 28
Research Series 2
March, 1938

State of Iowa
Board for Vocational Education
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FOREWORD

The Iowa vocational education act defines the work of the state board for vocational education and specifies that one of the important duties of the board is to "provide for making studies and investigations relating to prevocational and vocational training in agriculture, industrial and commercial subjects, and home economics." Likewise, the vocational rehabilitation act provides that the state board for vocational education is empowered and directed to "study and make investigations relating to the vocational rehabilitation of persons disabled in industry or otherwise and their return to civil employment and to formulate plans for the vocational rehabilitation of such persons."

The importance of research as a major factor in the development of adequate state programs of vocational education and vocational rehabilitation is fully recognized by the state board for vocational education. Therefore, in order that the further expansion of the work may be planned intelligently, the state board has recently increased its facilities for research activities. One of the immediate research services to be performed by the state board is the compilation and publication of important facts and data which will provide essential information for those charged with the responsibility of planning vocational training programs.

Among the important factors which must be considered in any long-time planning of vocational programs are those which involve population and occupational trends. This bulletin on "Changes in the Occupational Pattern of Iowa," represents the second in a series of studies of the major social and economic factors which affect vocational education and vocational rehabilitation programs in Iowa. The material for this bulletin has been prepared by Mr. P. G. Frasier, research specialist for the state board for vocational education.

This bulletin should be of value to school superintendents, high school principals, vocational supervisors and teachers, vocational counselors, and others who are responsible for the planning and the development of vocational training programs designed to meet the needs of young and adult citizens.

F. E. MOORE, *Director,*
Board for Vocational Education

PREFACE

If a program of vocational education in a community is to be basically sound, it must be founded on educational planning which takes into consideration occupational distribution and the changing occupational pattern in that community. Vocational training is primarily an economic service, and consequently the number of persons trained for employment in a given occupation must be based on the need for trained workers in that occupation in the community. It is evident that if a training program is established and there is no restriction on admission, an undesirable economic situation would undoubtedly develop. A random selection of occupations to be included in a training program might also result in neglect to train for occupations in which training is vitally needed.

The present series of studies were undertaken in an attempt to place before those persons interested in vocational education some of the underlying trends which are fundamental to educational planning and to indicate their implications for vocational education.

The first bulletin, which was prepared to present a general background of trends for the series of studies, dealt with "The Population of Iowa," "Some Educational Trends," and "Occupational Trends." The emphasis in this study, "Changes in the Occupational Pattern of Iowa," is placed on (1) the nature and extent of the shift of workers between occupational divisions, and (2) the shift of workers between social-economic levels. Other bulletins in the series which deal with occupational shifts as they relate to specific occupations are:

III Trends in the Production Occupations

IV Trends in the Distributive Occupations

V Trends in the Service Occupations

P. G. FRASIER,
Research Specialist

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Changes in the Occupational Pattern of Iowa

CHAPTER I

INTRODUCTION

The Problem

Available funds for vocational education have been considerably augmented by the passage of the George-Deen Act and should result in a demand for a greatly expanded program of vocational education. If this expansion is to be basically sound it must be founded on planning which takes into account not only the occupational distribution in the state and local communities, but also the changing occupational pattern. To assist school administrators in planning for such an expansion in vocational education service, this study undertakes to identify the important occupational shifts between occupational divisions and occupational levels.

In a previously published bulletin attention has been called to some major population, education and occupation trends. The emphasis in this study is placed on (1) the nature and extent of the shift of workers by occupational divisions, and (2) the shift of workers between occupational levels. In a series of bulletins to follow, this shift between occupational levels will be traced to specific occupations in the production, distribution and service occupations groups.

Plan Used in Presenting Data

To accomplish the purpose of this study it was necessary to develop some method of analysis to identify the occupational shifts which cause an ever-changing occupational pattern. The change in the number of gainful workers in an occupational field may be indicative of the need for a training program, but of more significance is that change in relation to the total number of workers in all occupations.

To this end, each table presents two types of percentages. The first classification shows the percentage of all gainful workers which are found in each occupational classification—the percentages are tabulated in column 2 for 1930 and in column 4 for 1910. Column 5 contains the percentage which represents the difference between the above-mentioned percentages, and is negative or positive depending on the occupational shift during the twenty-year period. The other set of percentages, tabulated in column 6, represents the per cent gain or loss in the absolute number of gainful workers in each classification. A comparison of these two total columns (5 and 6) indicates the significant occupational changes.

In determining the changes in the occupational pattern two methods

of approach are used. First, in Chapter II, an analysis was made of the changes in occupational distribution based on occupational divisions. Second, in Chapter III, workers in all occupational divisions are classified according to social-economic levels and occupational shifts between these levels identified. In Chapter IV, other occupational shifts are discussed. On a basis of the findings of this study certain implications for vocational education are presented in Chapter V. The detailed study of specific occupations will be published in a later bulletin.

Source of Data

Data used in this study were compiled from the United States Census of Occupations for the decennial periods 1910, 1920 and 1930. Because of the changes in classification which were made in the 1910 census report, figures from previous census reports were not comparable and the study of trends was limited to a twenty-year period.

Classification of Occupations

Occupational divisions. The occupational divisions used in this study are those used in the 1930 federal census, except that forestry and fishing were combined with agriculture as agriculture and allied pursuits.

Certain changes in the 1910 and 1930 statistics were necessary to make the reports comparable: mechanical and electrical engineers were classified under professional pursuits in 1930. It was necessary to transfer 225 electrical and 106 mechanical engineers to professional service in the 1910 classification. Advertising agents were classified under trade in 1930 and under clerical service in 1910. Therefore, 696 advertising agents were transferred to clerical service in 1910. Postmasters, 1,179 in number, were transferred from transportation and communication to federal officers under public service, 1930. Also 722 billiard hall, dance hall, skating rink, etc., keepers were changed from domestic and personal service to professional service, 1910.

A difficulty encountered in the classification of workers was found in the duplicate enumeration of 6,039 skilled and semiskilled workers listed in specific occupations under manufacturing and mechanical pursuits in 1910, but not carried in the totals for that division. Regarding this excess the census report states:¹

"In all those cases in which hand trades, through the introduction of machinery, the multiplication of processes, and the division of labor have rather recently developed into factory industries, there was a marked tendency for the operatives to give the old trade names of the specific processes they were performing. In some industries a large percentage of these operatives were returned under these trade designations. This was especially true in bakeries, candy factories, cigar factories, harness factories, shoe factories, and clothing factories. As a result the number of bakers, candy makers, cigar makers, harness makers, hatters, jewelers (factory), shoemakers (factory), and tailors and tailoresses is excessive."

¹United States Census, Occupational Statistics, Vol. IV, pg. 21, 1910.

Because of lack of knowledge of the distribution of this excess to the various occupations, the duplication could not be accurately removed from the study, but was eliminated from the total number of factory operatives since most of the excess fell in this classification. Therefore, the number of skilled workers listed under bakers, jewelers, and tailors and tailoresses contains a slight excess, and the number of factory operatives a corresponding deficit.

Social-economic Classifications

Four main social-economic classifications and three sub-classifications are recognized in this study as follows:

1. Professional persons
2. Proprietary
3. White-collar workers
4. Manual workers
 - a. Skilled and foremen
 - b. Semiskilled
 - c. Unskilled

Professional persons include all persons listed in the professional service division of the census except semiprofessional pursuits, attendants and helpers, and assistants. The proprietary group includes proprietors, managers, and officials. White-collar workers include clerks, clerical, and kindred workers. The classification of manual workers is somewhat arbitrary, but follows very closely the boundaries established by Edwards¹ and Kimball.² A detailed social-economic classification will be found in Appendix A.

Definition of Terms

Occupational division refers to the ten classifications of occupations, 1930 census report.

Occupational groups refer to the combination of occupational divisions as production occupations, etc.

Social-economic levels refer to such classifications as white-collar workers, proprietary, etc.

Occupation refers to a single census classification such as mechanics, etc.

Proportionate representation refers to the ratio which the number of workers in a specific occupation bears to the total number gainfully occupied in all occupations.

¹Alva M. Edwards, Social-Economic Groups of the United States, Quarterly Publication of the American Statistical Association, XV, No. 118, June 1917.

²Bradford T. Kimball, Changes in the Occupational Pattern of New York State, Research Bulletin of the University of New York, No. 2, 1937.

Changes in the Occupational Pattern of Iowa

CHAPTER II

OCCUPATIONAL SHIFTS BY CENSUS DIVISION GROUPS

To facilitate the analysis of occupational trends the census divisions are grouped in three classifications as follows:

Production occupations—agriculture and allied pursuits, extraction of minerals, and manufacturing and mechanical pursuits.

Distribution occupations—transportation and communication, and trade.

Service occupations—public, professional, clerical, and domestic and personal service.

The most significant trend brought out in this study is the consistent decline in the proportion of gainful workers that are engaged in production occupations, and the resulting increase in the proportion of workers finding employment in distribution and service occupations. This trend applies both to the United States and Iowa and varies only in the degree of intensity as shown graphically in Figures 1 and 2.

Trends in the Production Occupations

Figures from Table I show that there has been a decline in the proportionate number of workers in the production occupations of the United States in the last two decennial periods. In 1910, 63.6 per cent of all gainfully occupied workers were engaged in production, and in 1930 only 52.8 per cent were so employed. This would indicate a decline of 10.8 per cent in *proportionate representation*. In other words, approximately 11 out of each 100 workers gainfully occupied were released from production occupations to find employment in distribution and service occupations. During this period, however, the absolute number of workers in these occupations increased 6.4 per cent as compared with an increase of 27.9 per cent in the number of workers in all occupations.

In Iowa (Table II) the decline in the proportion of workers in the production occupations was not so pronounced as for the United States. In 1910, 63.89 per cent of all gainful workers were engaged in production and in 1930, 56.24 per cent—a loss of 7.65 per cent in *proportionate representation* as compared with a loss of 10.8 per cent in the United States. During the twenty-year period the number of gainful workers in all occupations in Iowa increased 10.5 per cent, but the number of workers in the production occupations decreased 2.8 per cent.

Agriculture and allied occupations. A major portion of this loss in

the production occupations, both in the United States and in Iowa, is traceable to agriculture and allied pursuits. The proportion of all gainfully occupied persons in agriculture and allied pursuits in the United States decreased from 33.2 per cent in 1910 to 21.9 per cent in 1930. This was a loss of 11.3 per cent in *proportionate representation*, a greater loss than for all occupations included in the production group. The number of workers employed in agriculture and allied pursuits decreased 15.2 per cent during the period, an absolute loss of 1,908,000 workers.

TABLE I. Occupational Distribution of Gainful Workers Ten Years of Age and Over by Census Divisions, United States, 1910 and 1930.

Occupational Divisions	In Thousands					
	1930		1910		1910 to 1930 Per Cent	
	Number	Per Cent	Number	Per Cent	Gain or Loss ¹	Change ²
Gainful workers 10 years of age and over -----	48,830	100.00	38,167	100.00	-----	27.9
Production occupations -----	25,817	52.8	24,252	63.6	-10.8	6.4
Agricultural and allied occupations....	10,722	21.9	12,630	33.2	-11.3	-15.2
Extraction of minerals -----	984	2.0	965	2.5	-0.5	1.9
Manufacturing and mechanical pursuits	14,111	28.9	10,657	27.9	1.0	32.4
Distribution occupations -----	9,925	20.4	6,299	16.5	3.9	57.5
Transportation and communication...	3,843	7.9	2,665	7.0	0.9	44.2
Trade -----	6,081	12.5	3,633	9.5	3.0	67.3
Service occupations -----	13,088	26.8	7,617	19.9	6.9	71.8
Public service -----	856	1.8	431	1.1	0.7	98.9
Professional service -----	3,254	6.7	1,711	4.5	2.2	90.1
Domestic and personal service.....	4,952	10.1	3,756	9.8	0.3	31.8
Clerical service -----	4,025	8.2	1,718	4.5	3.7	134.2

¹Gain or loss in percentage of all gainfully occupied, 1910-1930.

²Percentage rate of increase in numbers, 1910-1930.

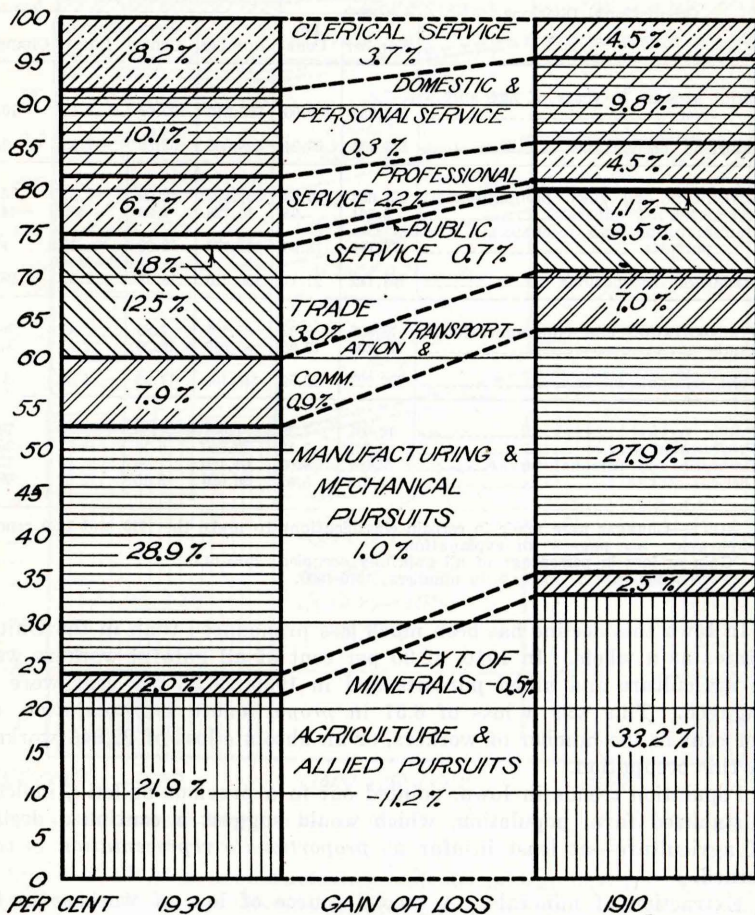


Figure 1. Percentage Distribution of Gainful Workers, United States, 1910 and 1930.

TABLE II. Occupational Distribution of Gainful Workers Ten Years of Age and Over by Census Divisions, Iowa, 1910 and 1930.

Occupational Divisions	1930		1910		1910 to 1930 Per Cent	
	Number	Per Cent	Number	Per Cent	Gain or Loss ¹	Change ²
Gainful workers 10 years of age and over -----	912,835	100.00	826,313	100.00	-----	10.5
Production occupations -----	513,466	56.24	528,003	63.89	-7.65	-2.8
Agriculture and allied occupations----	331,653	36.33	354,499	42.90	-6.57	-6.4
Extraction of minerals-----	8,664	.95	15,728	1.90	-.95	-44.9
Manufacturing and mechanical pursuits -----	173,149	18.96	157,776	19.09	-.13	9.7
Distribution occupations -----	193,142	21.17	150,210	18.18	2.99	28.6
Transportation and communication--	75,836	8.32	65,123	7.88	.44	16.4
Trade -----	117,306	12.85	85,087	10.30	2.55	37.9
Service occupations -----	206,227	22.59	148,100	17.93	4.66	39.2
Public service -----	12,631	1.39	7,061	.86	.53	78.9
Professional service -----	68,732	7.53	50,860	6.16	1.37	35.1
Domestic and personal service-----	73,052	8.00	64,120	7.76	.24	13.9
Clerical service -----	51,812	5.67	26,059	3.15	2.52	98.8

NOTE—Changes were made in certain classifications to make the 1910 and 1930 reports comparable. See page 8 for explanation.

¹Gain or loss in percentage of all gainfully occupied, 1910-1930.

²Percentage rate of increase in numbers, 1910-1930.

In Iowa this decline has been much less pronounced than in the United States as a whole. In 1910, 42.90 per cent of all gainful workers were in agriculture and allied pursuits and in 1930, 36.33 per cent were so engaged. This was a loss of 6.57 in *proportionate representation*, 6.4 per cent in the number of workers, or an absolute loss of 22,846 workers in this occupation.

Population trends in Iowa, pointed out in a previous bulletin, indicate a stabilized farm population, which would suggest a continued decline of agriculture—at least insofar as *proportionate representation* is concerned.

Extraction of minerals. A second source of loss of workers to the production occupations, both in the United States and in Iowa, was in the extraction of minerals occupational division. In the United States there has been a loss in *proportionate representation* of from 2.5 per cent in 1910 to 2.0 per cent in 1930, a loss of 0.5 per cent in *proportionate representation*. But during this period the number of workers in the occupation has increased 1.9 per cent. In Iowa, 1.90 per cent of all gainful workers were engaged in the extraction of minerals in 1910 and .95 per cent in 1930, a decrease of .95 per cent. The trend in this occupation is, no doubt, best shown by the fact that there was a loss of 44.9 per cent in the number of workers during the twenty-year period.

Manufacturing and mechanical pursuits. In the United States the

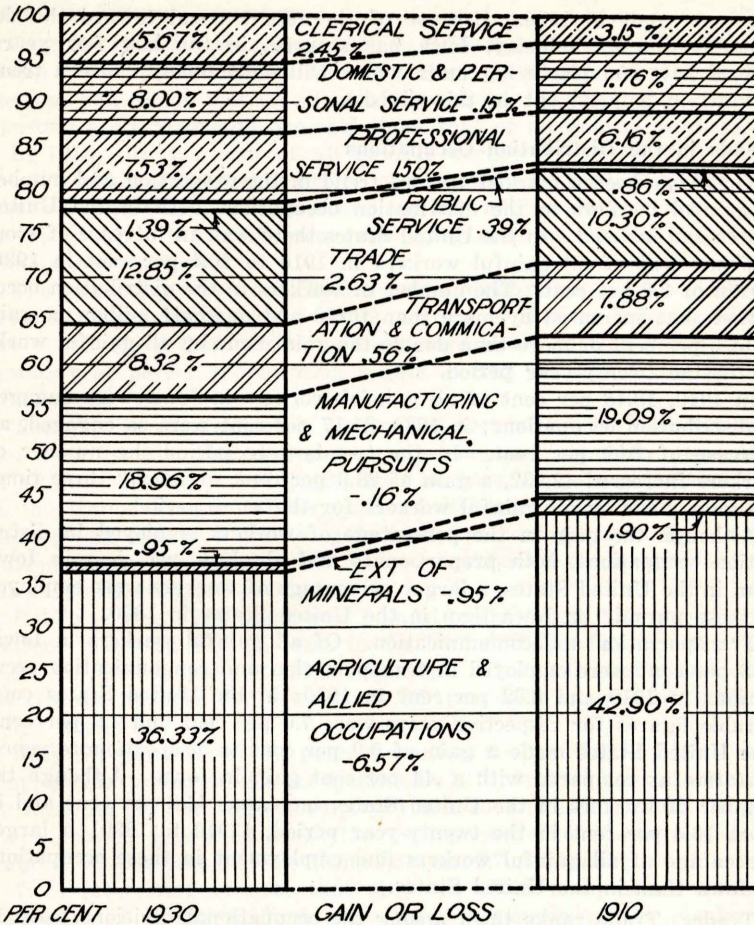


Figure 2. Percentage Distribution of Gainful Workers, Iowa, 1910 and 1930.

occupational division, manufacturing and mechanical pursuits, was the only division in the production occupations group to show an upward trend. The proportion of gainfully occupied persons in this occupational division increased from 27.9 per cent in 1910 to 28.9 per cent in 1930. Although the gain in *proportionate representation* was but 1.0 per cent, the number of workers in this occupational division increased 32.4 per cent during the twenty-year period, which was greater than the percentage gain for all occupied workers.

In Iowa this trend indicates a slight decline in *proportionate representation*, but the percentage increase in the number of workers (9.7 per cent) approximates the percentage gain for all gainfully occupied workers (10.5 per cent). In 1910, 19.09 per cent of all workers were engaged in manufacturing and mechanical pursuits as compared with

18.96 per cent in 1930. Because of the recent trend toward the decentralization of industry, Iowa has secured, in the last few years, several new manufacturing units which will undoubtedly cause a trend upward in employment in this division.

Trends in the Distribution Occupations

There has been a marked upward trend in the proportion and number of gainful workers in the distribution occupations both in the United States and in Iowa. In the United States there was an increase of from 16.5 per cent of all gainful workers in 1910 to 20.4 per cent in 1930, a gain of 3.9 per cent. The number of workers in the distribution occupations has increased by more than three and one-half million, a gain of 57.5 per cent or more than double the gain made by all gainful workers in the twenty-year period.

In 1910, 18.18 per cent of all gainful workers in Iowa were engaged in distribution occupations; in 1930, 21.17 per cent were so engaged, an increase of 2.99 per cent. In the twenty-year period the number of workers increased 42,932, a gain of 28.6 per cent, or nearly three times the gain made by all gainful workers for the same period.

Although the gain in the percentage of workers employed in distribution occupations, both proportionate and absolute, was less in Iowa than in the United States, a larger percentage of workers were employed in these pursuits in Iowa than in the United States in 1930.

Transportation and communication. Of all gainful workers in Iowa, 7.88 per cent were employed in transportation and communication occupations in 1910 and 8.32 per cent in 1930; in the United States comparable figures for respective years were 7.0 per cent and 7.9 per cent. The United States made a gain of 0.9 per cent in *proportionate representation* as compared with a .44 per cent gain in Iowa. Although the number of workers in the United States increased 44.2 per cent and in Iowa 16.4 per cent in the twenty-year period, (1910 to 1930) a larger percentage of all gainful workers find employment in these occupations in Iowa than in the United States.

Trade. Trade ranks third among the occupational divisions, both in the United States and in Iowa, in the number of gainful workers and represents about one-eighth of the total number of gainful workers in each population. This occupational division made the greatest gain of all occupational divisions in *proportionate representation* in Iowa, and was second in the United States where clerical service showed the greatest gain.

In the United States in 1910, 9.5 per cent of all gainful workers were engaged in trade occupations; in 1930, 12.5 per cent were so employed, a gain of 3.0 per cent in *proportionate representation*. During this period the number of workers increased 67.3 per cent; comparable figures for Iowa are 10.30 per cent in 1910 and 12.85 per cent in 1930, a 2.55 per cent gain in *proportionate representation*. There was an increase of 37.9 per cent in the number of workers in this occupation in Iowa, which is nearly four times as great as the gain made by all gainful workers during the same period.

Trends in Service Occupations

Over the twenty-year period, 1910 to 1930, the rate of increase of this group of occupations in the United States was slightly more than two and one-half times that of all gainful workers. In Iowa the gain was approximately three and one-half times that of all gainful workers.

In 1910, 19.9 per cent of all gainful workers in the United States found employment in the service occupations; in 1930, 26.8 per cent were so employed. Nearly five and one-half million workers were added to this group in the twenty-year period, a gain of 6.9 per cent in *proportionate representation*.

The percentage of workers in the service occupations in Iowa increased from 17.93 per cent in 1910 to 22.59 per cent in 1930, an increase of 4.66 per cent. More than 58,000 workers were added to this group in the twenty-year period, representing a gain of 39.2 per cent in the number of workers.

The gain in employment in the service occupations in Iowa has been less than for the United States as a whole, and a smaller percentage of all gainful workers find employment in these occupations in Iowa than in the United States. All occupational divisions in the service occupations group showed a marked gain in the percentage of workers added during the twenty-year period, and each exceeded the growth rate of all gainfully occupied persons.

Public service. The number of gainful workers in public service occupations increased 98.9 per cent in the United States between 1910 and 1930, an absolute gain of 425,000 workers. During the same period the percentage increase for Iowa was 78.9 per cent, an absolute gain of 5,570 workers.

Only 1.1 per cent of all gainful workers in the United States were employed in public service occupations in 1910, and 1.8 per cent in 1930. In Iowa .86 per cent were so employed in 1910, and 1.39 per cent in 1930. Each showed a gain in *proportionate representation*—Iowa recorded a gain of .53 per cent and the United States, 0.7 per cent.

It is interesting to note that only one other occupational division, clerical service, has made a more rapid expansion in the number of workers added in the twenty-year period. Present indications point to a greatly accelerated growth during this decade.

Professional service. Professional service ranks third among the occupational divisions in the United States and fourth in Iowa in the percentage of new workers added. In the United States there has been a 90.1 per cent gain, and in Iowa a 35.1 per cent gain in workers during the twenty-year period, 1910 to 1930. Although the gain for Iowa was less than for the United States, a larger proportion of gainful workers was employed in this division in Iowa than in the United States. In 1910, 4.5 per cent, and in 1930, 6.7 per cent of all gainful workers in the United States were employed in professional service occupations; comparable figures for Iowa are 6.16 per cent in 1910, and 7.53 per cent in 1930.

Domestic and personal service. Although the personnel in this occupational division showed a growth rate in excess of that for all gainful

workers, both in the United States and in Iowa, the gain in *proportionate representation* was the smallest of all occupational divisions. In 1910, 9.8 per cent of all gainful workers were employed in this division in the United States while in 1930, 10.1 per cent were so employed, a gain of 0.3 per cent in *proportionate representation*. The proportion of Iowa workers in this division increased from 7.76 per cent in 1910 to 8.00 per cent in 1930, a gain of .24 per cent.

Clerical service. This occupational division made the most astounding growth in the number of new workers added of any of the occupational divisions. The number of workers in this division in the United States increased 134.2 per cent, and in Iowa, 98.8 per cent during the twenty-year period, 1910 to 1930. In the United States in 1910, 4.5 per cent of all gainful workers were employed in this division; in 1930, 8.2 per cent were so employed, resulting in a gain of 3.7 per cent in *proportionate representation*. In Iowa this gain was from 3.15 per cent in 1910 to 5.67 per cent in 1930, a gain of 2.52 per cent.

United States Summary

There has been a considerable change in the occupational pattern of the United States in the twenty-year period, 1910 to 1930. More than 5,000,000 (11.3 per cent) of all gainful workers were shifted between occupational divisions. Major trends are revealed in a 10.8 per cent decrease in the proportion of workers in the production occupations, and a corresponding gain in the distribution and service occupations which resulted in a 3.9 per cent gain in *proportionate representation* in the distribution occupations and a 6.9 per cent gain in the service occupations.

Production occupations. There was a considerable change in the composition of the occupational divisions in this group. The greatest change which occurred in any occupational division was a 11.3 per cent decrease in the proportion of workers in agriculture and allied occupations. Extractions of minerals recorded a loss of less intensity, being 0.5 per cent. These losses coupled with an increase of 1.0 per cent in the proportion of all gainful workers in manufacturing and mechanical pursuits, accounted for a 10.8 per cent loss in the proportion of all workers who found employment in the production occupations.

Distribution occupations. This 10.8 per cent loss to the production occupations resulted in a 3.9 per cent gain to the distribution occupations. Trade absorbed 3.0 per cent and transportation and communication 0.9 per cent of this 3.9 per cent gain.

Service occupations. The 10.8 per cent loss to the production occupations also resulted in a 6.9 per cent gain in the service occupations. This gain was distributed as follows: 3.7 per cent to clerical service, 2.2 per cent to professional service, 0.7 per cent to public service, and 0.3 per cent to domestic and personal service.

The major changes in the occupational pattern of the United States during the twenty-year period were a marked downward trend in the proportion of gainful workers in agriculture and allied pursuits, and a marked upward trend in clerical service, trade and professional service. Other occupational divisions showed a gain of 1.0 per cent or less, except extraction of minerals which showed a decline of 0.5 per cent.

Iowa Summary

Although the changes in the occupational pattern in Iowa were less marked than for the United States as a whole, nearly 70,000 workers, 7.65 per cent of all gainful workers, were shifted between occupational divisions. The production occupations group accounted for the entire loss, and consequently the gain accrued to the distribution and service occupations. Of this 7.65 per cent shift of workers out of production occupations, distribution occupations absorbed 2.99 per cent and service occupations 4.66 per cent.

Production occupations. All of the occupational divisions included in this group showed a loss in *proportionate representation*. The 7.65 per cent total loss was distributed 6.57 per cent to agriculture and allied pursuits, .95 per cent to extraction of minerals, and 0.3 per cent to manufacturing and mechanical pursuits.

Distribution occupations. The major part of the 2.99 per cent gain in this occupational group was absorbed by trade (2.55 per cent) and the balance by transportation and communication (.44 per cent).

Service occupations. The gain of 4.66 per cent in the proportion of all gainful workers was absorbed by the occupational divisions of the service group as follows: clerical service 2.52 per cent, professional service 1.37 per cent, public service .53 per cent, and domestic and personal service .24 per cent.

The major changes in the occupational pattern of Iowa during the twenty-year period were a marked decrease in the proportion of gainful workers in agriculture and a marked increase in trade, clerical service, and professional service. All other occupational divisions showed an increase of 1.0 per cent or less, except extraction of minerals and manufacturing and mechanical pursuits, which showed a decline for the period.

Changes in the Occupational Pattern of Iowa

CHAPTER III

OCCUPATIONAL SHIFTS BY SOCIAL-ECONOMIC LEVELS

A knowledge of the changing occupational pattern insofar as it refers to the shift between occupational divisions is fundamental in vocational education planning. However, a shift of equal and perhaps even greater importance is the shift which occurs between social-economic levels. These two shifts are not reciprocal or mutually correlative. A shift between occupational divisions does not necessarily indicate a shift between social-economic levels, nor is the converse true.

Social-economic grouping, it will be recalled, is entirely different from census divisions discussed in the previous chapter. Census divisions refer to occupational fields, while social-economic levels refer to levels of employment which are based on preparation, financial investment, or nature of the work. The social, economic levels are professional persons, proprietary persons, white-collar and manual workers. Manual workers are classed as skilled, semiskilled or unskilled.

Classification of Workers by Social-Economic Levels

The first step in the classification of workers by social-economic levels was to set up a detailed classification of all workers listed in the United States Census of Occupations. This classification schedule will be found in Appendix A. The second step was to classify all workers in all occupations according to this schedule. A third step was the consolidation of this tabulation in the form in which it appears in Tables III, IV and V, for production, distribution and service occupations, respectively. These tables not only show the distribution of workers in number and percentage in the occupational divisions and levels, but also show the gain or loss in *proportionate representation*, and the actual gain or loss in the number of workers. Figures for the total gain or loss in *proportionate representation* and gain or loss in the number of workers are identical with those presented in Table II.

Analysis of the Social-Economic Composition of Occupational Divisions

The general shift between occupational division groups from production occupations to distribution and service occupations has been discussed in Chapter II. Attention will be given in this chapter to the shift between social-economic levels in occupational divisions.

Production occupations. The most significant fact brought out in Table III is the percentage decrease in the number of workers in prac-

tically all social-economic levels in each division. Decrease in the number of workers vary from 1.1 per cent in the number of proprietary persons in agriculture to a maximum decrease of 46.2 per cent in the number of unskilled workers in extraction of minerals. Only six instances of increases in the number of workers are recorded. The greatest gain, 18.6 per cent, was made by proprietary workers in manufacturing and mechanical pursuits. The smallest gain in the number of workers, 3.8 per cent, was found in the number of unskilled workers in manufacturing and mechanical pursuits. Only three instances of gain in *proportionate representation* are recorded—skilled workers in agriculture and allied pursuits and in manufacturing and mechanical pursuits, and proprietary workers in manufacturing and mechanical pursuits.

TABLE III. Production Occupations, Iowa, 1910 and 1930.

Occupational levels	1930		1910		1910 to 1930 Per Cent	
	Number	Per Cent	Number	Per Cent	Gain or Loss ¹	Change ²
Gainful workers 10 years of age and over	912,835	100.00	826,313	100.00		10.5
TOAL	513,466	56.24	528,003	63.89	-7.65	-2.8
Agriculture and allied occupations	331,653	36.33	354,499	42.90	-6.57	-6.4
Proprietary	212,147	23.24	214,465	25.95	-2.71	-1.1
White-collar workers	1		0			
Manual workers	119,505	13.09	140,034	16.95	-3.86	-14.6
Skilled	1,760	.20	1,372	.17	.03	23.3
Semiskilled	432	.04	439	.05	-.01	-1.6
Unskilled	117,313	12.85	138,223	16.73	-3.88	-15.1
Extraction of minerals	8,664	.95	15,728	1.90	-.95	-44.9
Proprietary	359	.04	345	.04	.00	4.0
Manual workers	8,305	.91	15,383	1.86	-.95	-46.0
Skilled	177	.02	275	.03	-.01	-35.6
Unskilled	8,128	.89	15,108	1.83	-.94	-46.2
Manufacturing and mechanical pursuits	173,149	18.96	157,776	19.09	-.13	9.7
Proprietary	11,370	1.24	9,583	1.16	.08	18.6
Manual workers	161,779	17.72	148,193	17.93	-.21	9.2
Skilled	75,027	8.21	65,868	7.97	.24	13.9
Semiskilled	36,306	3.98	33,735	4.08	-.10	-8.7
Unskilled	50,446	5.53	48,590	5.88	-.35	3.8

¹Gain or loss in percentage of all gainfully occupied, 1910-1930.

²Percentage rate of increase in numbers, 1910-1930.

Agriculture and allied pursuits—This occupational division shows a loss in all social-economic levels except for a meager gain in the number of skilled workers. A total number of workers equal to 6.57 per cent of all gainful workers, were released from this division and transferred to other divisions. The major portion of this shift can be traced to unskilled workers and proprietary persons.

Extraction of minerals—The loss in this division, .95 per cent, based on *proportionate representation*, is large considering the small number of workers in the division. Manual labor is responsible for the entire loss, unskilled for .94 per cent, and semiskilled, .01 per cent. There was an actual loss of 44.9 per cent in the number of workers between 1910 and 1930.

Manufacturing and mechanical pursuits—Although the number of workers in this occupational division increased 9.7 per cent in the twenty-year period, 1910 to 1930, there was a loss of .13 per cent in *proportionate representation*. This loss is a composite of a proportionate loss of .35 per cent in unskilled workers, .10 per cent in semiskilled workers, and a proportionate gain of .24 in skilled workers. Proprietary workers in this group gained .08 per cent in *proportionate representation*.

Distribution occupations. The occupational divisions, transportation and communication, and trade made a gain of 2.99 per cent in *proportionate representation*, and 28.6 per cent in the number of workers between the years 1910 and 1930. A significant fact shown in Table IV is that only one occupational level, semiskilled workers in trade, showed a loss in the number of gainful workers. Only two social-economic levels showed a rate of growth less than that for all gainful workers. All others made a gain of from 14.0 per cent to 71.8 per cent in the number of gainful workers.

Transportation and communication—A smaller proportion of skilled and semiskilled manual workers found employment in this division in 1930 than in 1910; unskilled workers decreased .51 per cent, and skilled workers .10 per cent. This coupled with a gain of .81 per cent in semiskilled workers, accounted for the gain of .20 per cent made by manual workers. Proprietary persons and white-collar workers showed an increase of .15 per cent and .09 per cent respectively in *proportionate representation*.

Trade—The personnel of this occupational division in Iowa has shown the greatest growth of all divisions. This gain was 2.55 per cent in *proportionate representation*, and 37.9 per cent in the number of new workers added. The change in this division was due primarily to an increase of 2.02 per cent in the proportion of white-collar workers, and of .32 per cent in the proportion of proprietary workers. In *proportionate representation*, semiskilled labor decreased .08 per cent, while unskilled workers increased .27 per cent, and skilled workers, .02 per cent. This accounted for a total increase of .21 per cent in the proportion of manual workers.

TABLE IV. Distribution Occupations, Iowa, 1910 and 1930.

Occupational levels	1930		1910		1910 to 1930 Per Cent	
	Number	Per Cent	Number	Per Cent	Gain or Loss ¹	Change ²
Gainful workers 10 years of age and over -----	912,835	100.00	826,313.	100.00	-----	10.5
TOTAL -----	193,142	21.17	150,210	18.18	2.99	28.6
Transportation and communication -----	75,836	8.32	65,123	7.88	.44	16.4
Proprietary -----	6,706	.75	4,921	.60	.15	36.3
White-collar workers -----	12,559	1.37	10,593	1.28	.09	18.6
Manual workers -----	56,571	6.20	49,609	6.00	.20	14.0
Skilled -----	9,420	1.04	9,411	1.14	-.10	.1
Semiskilled -----	26,533	2.91	17,330	2.10	.81	52.1
Unskilled -----	20,618	2.25	22,868	2.76	-.51	9.4
Trade -----	117,306	12.85	85,087	10.30	2.55	37.9
Proprietary -----	42,022	4.60	35,344	4.28	.32	18.8
White-collar workers -----	63,129	6.92	40,493	4.90	2.02	55.9
Manual workers -----	12,145	1.33	9,250	1.12	.21	31.3
Skilled -----	719	.08	467	.06	.02	53.9
Semiskilled -----	4,430	.49	4,712	.57	-.08	-5.9
Unskilled -----	6,996	.76	4,071	.49	.27	71.8

¹Gain or loss in percentage of all gainfully occupied, 1910-1930.

²Percentage rate of increase in numbers, 1910-1930.

Service occupations. Figures from Table V show that the number of workers in all service occupational groups increased 39.2 per cent and that a gain of 4.66 per cent in *proportionate representation* was made by these groups during the period 1910 to 1930. Attention is called to the percentage increase in the number of workers in each social-economic level in this division. Only two cases of loss are recorded—a loss of 14.5 per cent in the number of unskilled workers in domestic and personal service, and 5.6 per cent in the number of soldiers, sailors and marines. Soldiers, sailors and marines under public service and proprietary and unskilled workers under domestic and personal service, are the only levels to show a decline in *proportionate representation*.

Public service—The number of workers in public service increased 78.9 per cent in the twenty-year period, 1910 to 1930, and there was a .53 per cent gain in *proportionate representation*. Except for soldiers, sailors and marines, all social-economic levels showed a gain in *proportionate representation*. Manual workers accounted for .50 per cent of this gain, distributed as follows: unskilled workers .28 per cent, semiskilled .08 per cent, and skilled workers .14 per cent. The proportion of proprietary persons increased .05 per cent.

Professional service—This division ranks fourth among all occupational divisions in Iowa in per cent gain in new workers added, and third in gain in *proportionate representation*. The number of workers increased 35.1 per cent in the twenty-year period, and a gain of 1.37

per cent was made in *proportionate representation*. Approximately three-fourths of this gain in *proportionate representation* can be traced to the gain in professional persons; proprietary and white-collar levels show an increase of .06 per cent and .09 per cent respectively; and manual workers .23 per cent. The gain in proportion of manual workers is about equally divided between semiskilled and unskilled workers. No skilled workers are found in this division.

Domestic and personal service—The gain made by this division is very small when compared with other divisions supplying employment to an approximately equal number of workers. The gain in the number of workers, 13.9 per cent, was only slightly in excess of that for all gainfully occupied workers, and the gain in *proportionate representation* was only .24 per cent. Proprietary and unskilled workers show a decline of .04 per cent and .20 per cent respectively. An increase of .38 per cent for semiskilled workers and .10 per cent for skilled workers, was recorded.

Clerical occupations—Only one social-economic level, white-collar workers, is recognized in this division. The number of workers in clerical occupations nearly doubled in the twenty-year period, 1910 to 1930, and an increase of 2.52 per cent in *proportionate representation* was made. Although trade made the greatest gain in *proportionate representation* of all divisions, clerical occupations were a close second.

Analysis of the Social-Economic Shifts by Occupational Divisions

Proprietary. Proprietary persons are found in eight of the nine census occupational divisions (Table VI). Although the number of proprietary persons has increased from 273,624 in 1910 to 283,288 in 1930, there has been a loss in *proportionate representation* (31.04 per cent in 1910, 33.12 per cent in 1930) of 2.09 per cent. This loss can be traced to 2.71 per cent decrease in agriculture and .04 per cent in domestic and personal service. All other census occupational divisions show a gain in the proportion of proprietary persons, trade showing the most marked gain, .32 per cent.

Professional persons. All professional persons (Table VI) are included in the census occupational division, professional service. Assistants, attendants, helpers, laborers, etc., are not included in this classification. The proportion of professional persons increased .99 per cent between 1910 and 1930.

White-collar workers. White-collar workers are found in five of the nine census occupational divisions. This is the only social-economic level to show a gain in *proportionate representation* and in the number of workers in all occupational divisions. The number of these workers increased by 65.6 per cent, and there was also a gain of 4.72 per cent in *proportionate representation*, clerical service accounted for 2.52 per cent and trade 2.02 per cent of the gain in *proportionate representation*, and professional service, and transportation and communication accounted for .09 per cent each.

Manual workers, skilled. Table VII shows the trend in employment of manual workers. Skilled workers found employment in all occupational divisions except in professional and clerical service. In the last

TABLE V. Service Occupations, Iowa, 1910 and 1930.

Occupational levels	1930		1910		1910 to 1930 Per Cent	
	Number	Per Cent	Number	Per Cent	Gain or Loss ¹	Change ²
Gainful workers 10 years of age and over -----	912,835	100.00	826,313	100.00	-----	10.5
TOTAL-----	206,227	22.59	148,100	17.93	4.66	39.2
Public service -----	12,631	1.39	7,061	.86	.53	78.9
Proprietary -----	3,709	.41	2,956	.36	.05	25.5
Manual workers -----	8,080	.89	3,213	.39	.50	151.5
Skilled -----	3,065	.33	1,572	.19	.14	95.0
Semiskilled -----	1,623	.18	812	.10	.08	99.9
Unskilled -----	3,392	.38	829	.10	.28	309.2
Soldiers, sailors and marines-----	842	.09	892	.11	-.02	-5.6
Professional service -----	68,732	7.53	50,860	6.16	1.37	35.1
Professional persons -----	62,739	6.88	48,700	5.89	.99	28.9
Proprietary -----	1,922	.21	1,158	.15	.06	66.0
White-collar workers -----	1,879	.21	975	.12	.09	92.7
Manual workers -----	2,142	.23	27	-----	.23	-----
Semiskilled -----	1,139	.12	27	-----	.12	-----
Unskilled -----	1,003	.11	0	-----	.11	-----
Domestic and personal service-----	73,052	8.00	64,120	7.76	.24	13.9
Proprietary -----	5,053	.55	4,852	.59	-.04	4.1
Manual workers -----	67,999	7.45	59,268	7.17	.28	14.7
Skilled -----	5,289	.58	4,000	.48	.10	32.2
Semiskilled -----	56,490	6.19	47,997	5.81	.38	17.7
Unskilled -----	6,220	.68	7,271	.88	-.20	-14.5
Clerical occupations -----	51,812	5.67	26,059	3.15	2.52	98.2
White-collar workers -----	51,812	5.67	26,059	3.15	2.52	98.8

¹Gain or loss in percentage of all gainfully occupied, 1910-1930.

²Percentage rate of increase in numbers, 1910-1930.

two decennial periods the number of skilled workers has increased from 82,965 in 1910 to 95,457 in 1930, a gain of .42 per cent in *proportionate representation*. Two occupational divisions, extraction of minerals and transportation and communication, have shown a loss in the *proportionate representation* of skilled workers. All other divisions have shown a gain. The gain in manufacturing and mechanical pursuits was .24 per cent, public service .14 per cent, domestic and personal service .10 per cent, and trade .02 per cent.

Manual workers, semiskilled. There were 126,953 semiskilled workers in Iowa in 1930. These workers were employed in all occupational divisions except clerical service and extraction of minerals. In the last two decennial periods the number of semiskilled workers has increased 14.3 per cent, and has also made a gain of 1.20 per cent in *proportionate representation*. However, there is a trend toward the employment of a smaller number and proportion of these workers in agriculture, manufacturing and mechanical pursuits, and trade. The percent-

age loss in these divisions was .01 per cent, .10 per cent, and .08 per cent in *proportionate representation*, and 1.6 per cent, 8.7 per cent and 5.9 per cent in the number of workers, respectively. Two occupational divisions have shown a marked increase in the proportion of semi-skilled workers employed—transportation and communication, .81 per cent, and domestic and personal service, .38 per cent. These two divisions also showed an increase in the number of workers of 53.1 per cent and 17.7 per cent, respectively. Public and professional service each showed a gain in the proportion and number of semiskilled workers employed.

TABLE VI. Professional, Proprietary Persons, and White-collar Workers, Percentage Distribution, Iowa, 1910 and 1930.

Occupational levels	1930		1910		1910 to 1930 Per Cent	
	Number	Per Cent	Number	Per Cent	Gain or Loss ¹	Change ²
Gainful workers 10 years of age and over	912,835	100.00	826,313	100.00	-----	10.5
Professional service	62,789	6.88	48,700	5.89	.99	28.9
Professional persons	62,789	6.88	48,700	5.89	.99	28.9
Proprietary	283,288	31.04	273,624	33.12	-2.09	3.5
Agriculture and allied occupations.....	212,147	23.24	214,465	25.95	-2.71	-1.1
Extraction of minerals.....	359	.04	345	.04	.00	4.0
Manufacturing and mechanical pursuits	11,370	1.24	9,583	1.16	.08	18.6
Transportation and communication.....	6,706	.75	4,921	.60	.15	36.3
Trade	42,022	4.60	35,344	4.28	.32	18.8
Public service	3,709	.41	2,956	.36	.05	25.5
Professional service	1,922	.21	1,158	.15	.06	66.0
Domestic and personal service.....	5,053	.55	4,852	.59	-.04	4.1
White-collar	129,390	14.17	78,120	9.45	4.72	65.6
Agriculture and allied occupations.....	1	-----	0	-----	-----	-----
Transportation and communication.....	12,559	1.37	10,593	1.28	.09	18.5
Trade	63,139	6.92	40,493	4.90	2.02	55.9
Professional service	1,879	.21	975	.12	.09	92.7
Clerical service	51,812	5.67	26,059	3.15	2.52	98.8

¹Gain or loss in percentage of all gainfully occupied, 1910-1930.

²Percentage rate of increase in numbers, 1910-1930.

Manual workers, unskilled. The total number of unskilled laborers in Iowa dropped from 236,960 (28.67 per cent) in 1910 to 214,116 (23.45 per cent) in 1930, an absolute loss of 22,844 workers or a loss of 5.22 per cent in *proportionate representation*. Agriculture is responsible for 3.88 per cent of the proportionate loss of 5.22 per cent, extraction of minerals for .92 per cent, forestry .01 per cent, manufacturing and mechanical pursuits .94 per cent, transportation and communication .51 per cent, and domestic and personal service .20 per cent. Trade and public service are using a larger number and an increased proportion

TABLE VII. Manual Workers, and Soldiers, Sailors, Marines, Etc.,
Percentage Distribution, Iowa, 1910 and 1930

Occupational levels	1930		1910		1910 to 1930 Per Cent	
	Number	Per Cent	Number	Per Cent	Gain or Loss ¹	Change ²
Gainful workers 10 years of age and over -----	912,835	100.00	826,313	100.00	-----	10.5
Manual workers -----	436,526	47.82	424,977	51.43	-3.61	1.3
Skilled -----	95,457	10.46	82,965	10.04	.42	15.1
Agriculture and allied occupations...	1,760	.20	1,372	.17	.03	28.3
Extraction of minerals	177	.02	275	.03	-.01	-35.6
Manufacturing and mechanical pur- suits	75,027	8.21	65,868	7.97	.24	13.9
Transportation and communication...	9,420	1.04	9,411	1.14	-.10	.1
Trade	719	.08	467	.06	.02	54.0
Public service	3,065	.33	1,572	.19	.14	95.0
Domestic and personal service.....	5,289	.58	4,000	.48	.10	32.2
Semiskilled -----	126,953	13.91	105,052	12.71	1.20	14.3
Agriculture and allied occupations...	432	.04	439	.05	-.01	-1.6
Manufacturing and mechanical pur- suits	36,306	3.98	33,735	4.08	-.10	-8.7
Transportation and communication...	26,533	2.91	17,330	2.10	.81	53.1
Trade	4,430	.49	4,712	.57	-.08	-5.9
Public service	1,623	.18	812	.10	.08	99.9
Professional service	1,139	.12	27	-----	.12	-----
Domestic and personal service.....	56,490	6.19	47,997	5.81	.38	17.7
Unskilled -----	214,116	23.45	236,960	28.67	-5.22	-9.7
Agriculture and allied occupations...	117,313	12.85	138,223	16.73	-3.88	-15.1
Extraction of minerals	8,128	.89	15,108	1.83	-.94	-46.2
Manufacturing and mechanical pur- suits	50,446	5.53	48,590	5.88	-.35	3.8
Transportation and communication...	20,618	2.25	22,868	2.76	-.51	-9.8
Trade	6,996	.76	4,071	.49	.27	71.8
Public service	3,392	.38	829	.10	.28	309.2
Professional service	1,003	.11	-----	-----	.11	-----
Domestic and personal service.....	6,220	.68	7,271	.88	-.20	14.5
Soldiers, sailors and marines.....	842	.09	892	.11	-.02	-5.7

¹Gain or loss in percentage of all gainfully occupied, 1910-1930.

²Percentage rate of increase in numbers, 1910-1930.

of unskilled labor. Trade has increased .27 per cent and public service .28 per cent in *proportionate representation* in unskilled labor gainfully employed.

Soldiers, sailors and marines—not specifically classified as to social-economic levels, show a loss of .02 per cent in *proportionate representation*.

Summary of Social-Economic Shifts Between Occupational Divisions

A summary of the shift of workers between occupational divisions by social-economic levels is presented in Table VIII and Figure 3. An analysis of the figures presented in this table indicates that 7.33 per cent of all gainful workers in Iowa shifted from one economic level to another during the twenty-year period, 1910 to 1930. The most sig-

nificant trend revealed is the decline in the proportion of unskilled workers. In 1910, 28.67 per cent of all gainful workers were found in this classification, and in 1930 the percentage had decreased to 23.45 per cent, a loss of 5.22 per cent in *proportionate representation* and an absolute loss of 22,844 workers.

During the same period the number of skilled and semiskilled workers showed an upward trend. The absolute number of skilled workers increased 15.1 per cent and semiskilled workers 14.3 per cent, as compared with a 10.5 per cent gain in the number of all gainful workers. Considered from the standpoint of *proportionate representation*, skilled workers showed an increase of .42 per cent and unskilled workers 1.20 per cent. However, when the three classes of manual workers are considered as a composite group, there was a gain of 1.3 per cent in the absolute number of workers, and a loss of 3.60 per cent in *proportionate representation*.

Although the number of proprietors, managers and officials which constitute the proprietary level, showed a gain of 9,664 workers (3.5 per cent) in the twenty-year period, there was a loss of 2.09 per cent in *proportionate representation*. Soldiers, sailors and marines, not included in any social-economic level, showed a loss of .02 per cent.

TABLE VIII. Gainful Workers Classified by Social-Economic Levels, Iowa, 1910 and 1930.

Occupational levels	1930		1910		1910 to 1930 Per Cent	
	Number	Per Cent	Number	Per Cent	Gain or Loss ¹	Change ²
Gainful workers 10 years of age and over -----	912,835	100.00	826,313	100.00	-----	10.5
Professional persons -----	62,789	6.88	48,700	5.89	.99	28.9
Proprietary -----	283,288	31.04	273,624	33.13	-2.09	3.5
White-collar -----	129,390	14.17	78,120	9.45	4.72	65.6
Manual workers -----	436,526	47.82	424,977	51.42	-3.60	1.3
Skilled -----	95,457	10.46	82,965	10.04	.42	15.1
Semiskilled -----	126,953	13.91	105,052	12.71	1.20	14.3
Unskilled -----	214,116	23.45	236,960	28.67	-5.22	-9.7
Soldiers, sailors and marines -----	842	.09	892	.11	-.02	-5.7

¹Gain or loss in percentage of all gainfully occupied, 1910-1930.

²Percentage rate of increase in numbers, 1910-1930.

All other social-economic levels showed a marked upward trend, the most significant of which was the white-collar level. This level showed an increase of 65.6 per cent in the number of workers, or in round numbers 51,000 workers. Only 9.45 per cent of all gainful workers were employed in white-collar positions in 1910 as compared with 14.17 per cent in 1930, a gain of 4.72 per cent in *proportionate representation*.

The number of professional persons in Iowa increased from 5.89 per cent of all gainfully occupied workers in 1910 to 6.88 per cent in 1930, a gain of .99 per cent in *proportionate representation*. The importance of this gain in representation is more significant when coupled with the fact that the number of professional persons increased 28.9 per cent, a rate which is nearly three times as great as that for all gainfully occupied workers for the same period.

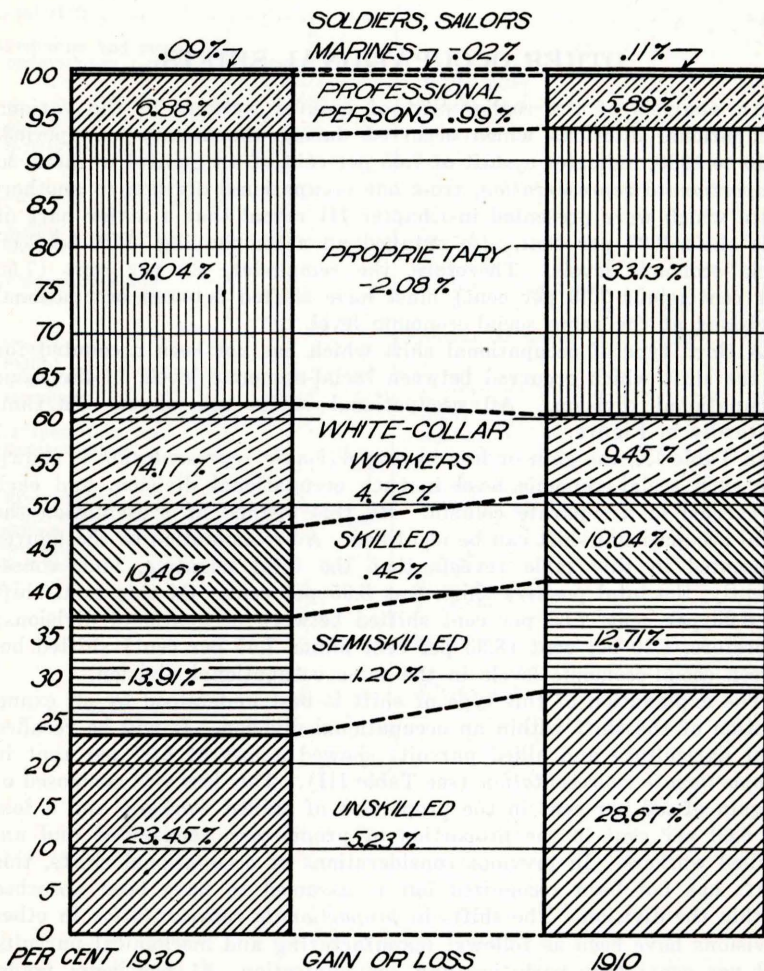


Figure 3. Percentage Distribution of Gainful Workers by Social-Economic Levels, Iowa, 1910 and 1930.

Changes in the Occupational Pattern in Iowa

CHAPTER IV

OTHER OCCUPATIONAL SHIFTS

An analysis of the realignment of gainful workers in the various occupational divisions which occurred during the twenty-year period, 1910 to 1930, indicates a shift of 7.65 per cent of all gainful workers, in *proportionate representation*, from one occupational division to another. Data which were presented in Chapter III reveal that a major part of this shift, 7.33 per cent, also entailed an accompanying shift between social-economic levels. Therefore, the remainder, .32 per cent (7.65 per cent minus 7.33 per cent) must have shifted between occupational divisions at the same social-economic level.

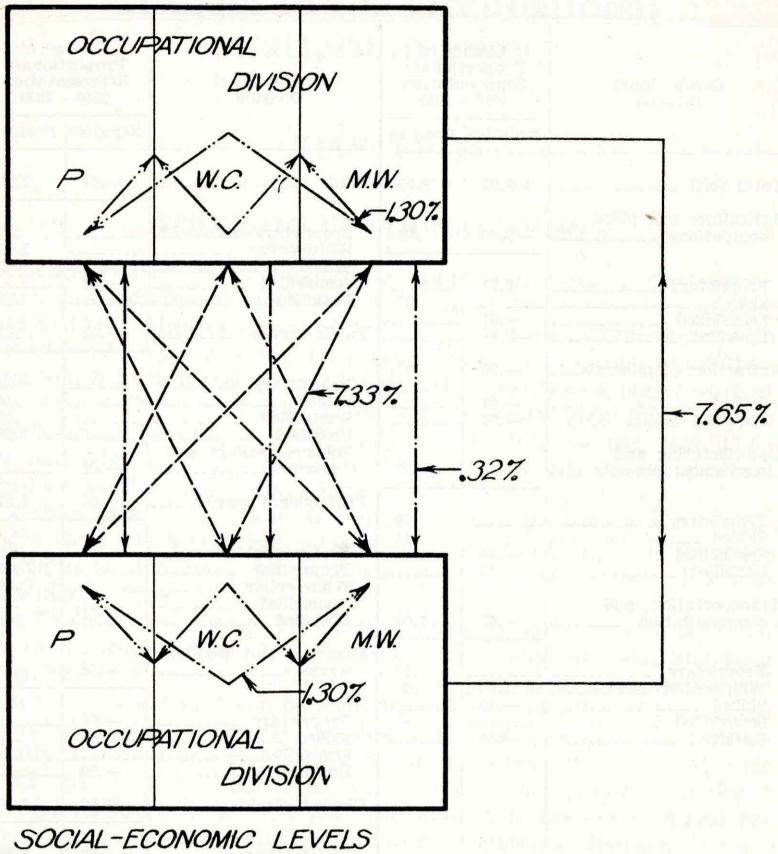
A third type of occupational shift which has not been accounted for is the shift which occurred between social-economic levels in the same occupational division. All occupational shifts are shown diagrammatically in Figure 4.

In Table IX, the gain or loss in *proportionate representation* is shown for each social-economic level in each occupational division, and each is carried in a separate column. By this method of presentation the total occupational shift can be identified. An examination of the figures presented in this table reveals that the total negative, and, consequently, the total positive shift, was 8.95 per cent. Of this total shift of 8.95 per cent, 7.65 per cent shifted between occupational divisions; therefore, 1.30 per cent (8.95 per cent minus 7.65 per cent) shifted between social-economic levels in the same occupational division.

The explanation of this type of shift is best understood by an examination of the shift within an occupational division. It will be recalled that agriculture and allied pursuits showed a loss of 6.57 per cent in *proportionate representation* (see Table III). This loss was composed of a gain of .03 per cent in the proportion of skilled workers, and a loss of 6.60 per cent in the proportion of proprietors, semiskilled and unskilled workers. In previous considerations of occupational shifts, this shift has not been recognized but is assumed to have been absorbed within the division. The shifts in *proportionate representation* in other divisions have been as follows: manufacturing and mechanical pursuits, .32 per cent; transportation and communication, .61 per cent; trade, .08 per cent; public service, .02 per cent; and in domestic and personal service, .24 per cent. Extraction of minerals, professional service, and clerical service show no shifts within the divisions. The exact nature of these shifts cannot be determined from data presented in this study.

TABLE IX. Shift between Social-Economic Levels Within Occupational Divisions, Percentage Distribution, Iowa, 1910 and 1930.

Occupational Division	Change in Proportionate Representation 1910 - 1930		Occupational Division	Change in Proportionate Representation 1910 - 1930	
	Negative	Positive		Negative	Positive
Total shift	-8.95	8.95	Trade	-.08	2.63
Agriculture and allied occupations	-6.60	.03	Proprietary		.32
Proprietary	-2.71		White-collar		2.02
Skilled		.03	Skilled		.02
Semiskilled	-.01		Semiskilled	-.08	
Unskilled	-3.88		Unskilled		.27
Extraction of minerals	-.95	.00	Public service	-.02	.55
Skilled	-.01		Proprietary		.05
Unskilled	-.94		Skilled		.14
Manufacturing and mechanical pursuits	-.45	.32	Semiskilled		.08
Proprietary		.08	Unskilled		.28
Skilled		.24	Soldiers, sailors and marines	-.02	
Semiskilled	-.10		Professional service	-.00	1.37
Unskilled	-.35		Professional persons		.99
Transportation and communication	-.61	1.05	Proprietary		.06
Proprietary		.15	White-collar		.09
White-collar		.09	Semiskilled		.12
Skilled	-.10		Unskilled		.11
Semiskilled		.81	Domestic and personal service	-.24	.48
Unskilled	-.51		Proprietary	-.04	
			Skilled		.10
			Semiskilled		.38
			Unskilled	-.20	
			Clerical service	-.00	2.52
			White-collar	-.00	2.52



*P - PROPRIETARY
 W.C. - WHITE-COLLAR
 M.W. - MANUAL WORKER*

Figure 4. Type and Extent of Occupational Shifts, Iowa, 1910 to 1930.

Changes in the Occupational Pattern of Iowa

CHAPTER V

SUMMARY OF OCCUPATIONAL SHIFTS WITH IMPLICATIONS FOR VOCATIONAL EDUCATION

Summary of Shifts by Occupational Division Groups

The analysis of occupational shifts by census divisions reveals that Iowa follows rather closely the general trends of the United States as a whole. Production occupations are becoming decreasingly important so far as the proportion of all gainfully occupied persons is concerned; distribution occupations become increasingly important, while service occupations show a marked increase in the proportion of gainful workers employed. These trends are all characteristic of a population which is rapidly becoming stabilized. If not affected by outside influences such as depression, war, decentralization of industry, shorter working days, or a reversal of immigration policies, this shift will undoubtedly continue in Iowa until the complete stabilization of population is accomplished. At such time a still smaller percentage of gainful workers will find employment in production occupations, and a correspondingly increased number will find employment in distribution and service occupations.

Comparison of Occupational Shifts in Iowa with Those in the United States

Although Iowa and the United States follow the same major trends in occupational shifts, certain specific differences need to be pointed out. In the United States the number of gainfully employed persons increased 27.9 per cent over the twenty-year period—the production occupations increased 6.4 per cent, the distribution occupations 57.5 per cent, and the service occupations 71.8 per cent. In Iowa the number of gainful workers increased 10.5 per cent over the same period—the production occupations decreased 2.8 per cent, the distribution occupations increased 28.6 per cent, and service occupations increased 39.2 per cent.

Thus it is found that the rate of increase of all gainfully employed workers in the United States was nearly three times as great as for Iowa. The United States shows an increase in the total number of workers in the production occupations while Iowa shows a decrease. The rate of growth of gainfully employed workers in distribution and service occupations in Iowa is about one-half that of the United States.

A study of the gain or loss in proportionate representation reveals the fact that nearly eleven out of each hundred gainfully occupied

workers were released from production occupations in the United States during the twenty-year period. Of this number, four found employment in distribution occupations, and seven entered service occupations. In Iowa 7.65 out of each hundred workers were released from production occupations. Of this number 2.99 found employment in distribution occupations and 4.66 in service occupations.

Out of each thousand gainful workers in the United States in 1930, 528 were engaged in production occupations (219 in agriculture, 20 in extraction of minerals, and 289 in manufacturing and mechanical pursuits); 204 were engaged in distribution occupations (79 in transportation and communication, and 125 in trade); 268 were engaged in service occupations (18 in public service, 67 in professional service, 101 in domestic and personal service, and 82 in clerical service).

In Iowa out of each thousand gainful workers 562 were employed in production occupations (363 in agriculture, 9 in extraction of minerals, and 190 in manufacturing and mechanical pursuits); 212 in distribution occupations (83 in transportation and communication, and 129 in trade); 226 were engaged in service occupations (14 in public service, 75 in professional service, 80 in domestic and personal service, and 57 in clerical service).

In resumé, attention is called to the expanding opportunities for gainful employment in service and distribution occupations. This is especially true in the case of clerical, public and professional service in the United States and in Iowa, which have shown a marked growth both in *proportionate representation* and in the gain in numbers actually employed.

Summary of Shifts of Workers Between Social-Economic Levels and Occupational Divisions

Data presented in Chapter III reveal that there has been a decided shift of workers between social-economic levels. The major changes have been in the marked decrease in the proportion of unskilled workers (5.22 per cent) and conversely the marked increase of white-collar workers (4.72 per cent). The proprietary level showed a decrease (2.09 per cent), and professional persons (.99 per cent), skilled workers (.42 per cent) and semiskilled workers (1.20 per cent) showed a gain. The total social-economic shift between occupational divisions affected 7.33 per cent of all gainful workers.

There was a marked decrease in the number and proportion of farm owners and tenants, and a slight decrease in proprietary persons in domestic and personal service. All other occupational divisions showed an increase in proprietary persons, trade being responsible for the greatest increase.

Professional persons made a decided gain in *proportionate representation*, as well as a gain in the number of workers.

The increased proportion of white-collar workers is traceable primarily to trade and clerical occupations.

A smaller proportion of skilled workers was used in extraction of minerals and in transportation and communication. Other occupational divisions, except professional and personal service, furnish employment

for a larger proportion of skilled workers. Manufacturing and mechanical pursuits lead in this gain.

There was a decreased demand for semiskilled workers in fishing, manufacturing and mechanical pursuits, and trade. At the same time there was an increased demand for these workers in transportation and communication, public, professional, and domestic and personal service.

Only two of the occupational divisions—trade and public service—have shown an increase in the use of unskilled workers, both as to number and proportion of workers. All other occupational divisions show a decrease.

Summary of Other Occupational Shifts

Other shifts affecting a smaller proportion of gainful workers were the shifts of workers between occupational divisions at the same social-economic level (.32 per cent), and the shift of workers between social-economic levels in the same occupational division. These shifts cannot be specifically identified by information given in this study.

IMPLICATIONS FOR VOCATIONAL EDUCATION

The changing occupational pattern in Iowa, inasmuch as it indicates changes in occupations for individuals, has implications for vocational education, and perhaps to a lesser degree for general education.

1. As a part of their guidance program pupils in school should be made aware of occupational distribution and occupational changes.
2. The changing emphasis in vocational education should be based on occupational changes.
3. Since the occupational pattern is constantly changing, vocational courses should not be narrow and specialized.
4. Prevocational pupils should be given a wide variety of experiences indicative of occupations.
5. The increased demand for workers in public service occupations implies a need for training in that area.
6. The rapid increase in the number and proportion of all gainfully occupied persons in trade occupations indicates the need for a much more extensive program of training in the retail selling trades.
7. The increase in the demand for workers in clerical service and the nature of the demand suggests that there is not only a need for an extensive program of training for these workers, but that more students should be trained for a variety of clerical jobs rather than for stenography and typing.
8. Although there is a decreased demand for workers in the production occupations, the fact that more than 56 per cent of all gainful workers found employment in these occupations in Iowa

in 1930 determines the need for an extension of all programs of vocational education in these occupations.

9. The decrease in the number and proportion of unskilled workers and the increase in skilled and semiskilled persons indicate that even in declining occupations there is a need for more trained workers.
10. Technological progress, generated by science and invention, is continually changing the character of occupations and developing new occupations.
11. Present trends in occupations point to a diminution of the importance of strength and manual ability and an increase in the demand for intelligence, technical understanding, resourcefulness, morale, and the ability to get along with people.
12. Only 6.88 per cent of all gainfully occupied persons in Iowa were professional persons. This would indicate the need for a shift in the emphasis of general education.

Changes in the Occupational Pattern of Iowa

APPENDIX A

SOCIAL-ECONOMIC CLASSIFICATION

Professional Persons

Follows census classification, except that it does not include semi-professional and recreational pursuits, or attendants and helpers.

Technical engineers: Includes 225 electrical engineers and 106 mechanical engineers transferred from manufacturing and mechanical pursuits (1910). Number of electrical engineers was approximated for 1910.

Proprietary

Farmers (owners and tenants)

Forestry: Proprietors, foresters, etc.

Mining: Managers, officials, and operators

Manufacturing and Mechanical Industries:

Builders and building contractors

Manufacturers, managers, superintendents, and officials

Transportation and Communication:

Water Transportation: Captains, mates, and pilots

Road and Street Transportation: Officials of garages, truck and cab companies and livery stable keepers

Railway, Steam and Street: Officials, superintendent, and conductors steam railroads

Communication Agencies: Officials telegraph and telephone companies. 1,179 postmasters (1930) transferred to "Federal Officials and Inspectors—Public Service Occupations"

Others, including Air Transportation: Proprietors, managers and officials (N. O. S.) air transportation and "other transportation and communication pursuits"

Trade

Bankers, brokers, money lenders

Retail dealers

Wholesale dealers

Insurance Company Officials

Undertakers

Other proprietors and officials—proprietors (not otherwise specified) in trade

Public Service

Federal officers, officials and inspectors (including postmasters)

State, County and City Officials

Professional Service

Billiard rooms, dance halls, etc. (listed under "Domestic and Personal Service 1910")

Keepers of Charitable and Penal Institutions

Keepers of Pleasure Resorts

Theatrical owners, managers and officials

Radio announcers, directors, etc.

Domestic and Personal Service

Hotel keepers and managers

Laundry officials

Restaurant, lunch room keepers

Saloon keepers

Cleaning, dyeing and pressing shop

White-Collar Workers

Forestry: Inspectors, surveyors, etc.

Transportation and Communication**Railway, Steam and Street:**

Baggage and freight agents

Ticket and station agents

Agents—express companies

Express messengers and railway mail clerks

Communication:

Mail carriers

Telegraph messengers and operators

Radio operators

Telephone operators

Trade

Salesmen, saleswomen, clerks (in stores), and commercial travelers

Insurance agents

Real estate agents and officials (not classified separately 1910)

Decorators

Inspectors

Newsboys

Professional Service

Abstractors, notaries and justices

Officials of lodges, societies, etc.

Other semiprofessional occupations

Others: architects, designers and draftsmen apprentices; apprentices to other professional persons; technicians and laboratory assistants; dentists' assistants and attendants: librarians' assistants and attendants; physicians' and surgeons' attendants

Clerical Service

Advertising agents (transferred from Trade 1930)

Agents, collectors, etc.

Bookkeepers, cashiers, accountants

Clerks (except in stores)

Messengers, and office boys and girls
Stenographers and typists

Manual Workers

Skilled

Agriculture: Farm managers and foremen

Forestry: Foremen, log and timber camps

Mining: Foremen, overseers and inspectors

Manufacturing and Mechanical Industries

Building and related trades

Machine and related trades

Printing trades

Shoemakers (N. O. S.) in factory

Tailors

Other skilled trades not included above

Skilled occupations (N. O. S.)

Transportation and Communication

Road and street transportation: Foremen and inspectors

Railway, Steam and Street:

Conductors on street railroads

Foremen and overseers on railroads

Locomotive engineers and firemen

Inspectors—steam and street railroads

Communication: Foremen and inspectors

Others: Aviators and foremen and inspectors—air and other transportation and communication pursuits

Trade: Floorwalkers, foremen, and overseers

Public Service

Firemen (fire departments)

Policemen

Sheriffs, marshals, etc.

Domestic and Personal Service

Cooks

Others—foremen and overseers in cleaning, dyeing and pressing establishments; and in laundries

Semiskilled

Fishing: Fishermen and oystermen

Manufacturing and Mechanical Industries

Dressmakers (not in factory)

Milliners

Apprentices to dressmakers and milliners

Factory Operatives

Enamelers, lacquerers, and japaners

Painters, glaziers and varnishers (factory)

Dyers

Buffers and polishers

Grinders

Factory operatives (not elsewhere specified)

Part in factory and part other

- Apprentices
- Bakers
- Filers
- Oilers of machinery

Transportation and Communication

Water Transportation

- Boatmen, canalmen and lockkeepers
- Sailors and deckhands

Road and Street Transportation

- Chauffeurs, truck and tractor drivers
- Draymen, teamsters and carriage drivers
- Others—Road and street building and repair, etc.

Railway, Steam and Street:

- Boiler washers and engine hostlers
- Brakemen, motormen, switchmen
- Apprentices
- Other occupations, railway, steam and street

Communication

- Telegraph and telephone linemen
- Apprentices

Others, including air transportation

- Apprentices
- Other transportation and communication pursuits

Trade

- Deliverymen for bakeries and stores
- Other: Apprentices and other pursuits in trade

Public Service

- Guards, watchmen and doorkeepers
- Other public service pursuits

Professional Service: Other semiprofessional occupations; attendants in pool rooms, bowling alleys, etc.; helpers in motion picture productions; theater ushers; other attendants and helpers

Domestic and Personal Service

- Janitors, servants (not including cooks) and waiters
- Barbers, hairdressers, etc.
- Boarding and lodging housekeepers
- Launderers and cleaners
- Nurses (not trained)
- Other pursuits: Cemetery keepers, hunters, trappers and guides and other occupations

Unskilled

- Farm Laborers
- Forestry: Laborers
- Mining: Mine Operatives

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