

INFORMATION TO USERS

This material was produced from a microfilm copy of the original document. While the most advanced technological means to photograph and reproduce this document have been used, the quality is heavily dependent upon the quality of the original submitted.

The following explanation of techniques is provided to help you understand markings or patterns which may appear on this reproduction.

- 1. The sign or "target" for pages apparently lacking from the document photographed is "Missing Page(s)". If it was possible to obtain the missing page(s) or section, they are spliced into the film along with adjacent pages. This may have necessitated cutting thru an image and duplicating adjacent pages to insure you complete continuity.**
- 2. When an image on the film is obliterated with a large round black mark, it is an indication that the photographer suspected that the copy may have moved during exposure and thus cause a blurred image. You will find a good image of the page in the adjacent frame.**
- 3. When a map, drawing or chart, etc., was part of the material being photographed the photographer followed a definite method in "sectioning" the material. It is customary to begin photoing at the upper left hand corner of a large sheet and to continue photoing from left to right in equal sections with a small overlap. If necessary, sectioning is continued again — beginning below the first row and continuing on until complete.**
- 4. The majority of users indicate that the textual content is of greatest value, however, a somewhat higher quality reproduction could be made from "photographs" if essential to the understanding of the dissertation. Silver prints of "photographs" may be ordered at additional charge by writing the Order Department, giving the catalog number, title, author and specific pages you wish reproduced.**
- 5. PLEASE NOTE: Some pages may have indistinct print. Filmed as received.**

Xerox University Microfilms

**300 North Zeeb Road
Ann Arbor, Michigan 48106**

73-29,734

KURZHALS, Richard Donald, 1940-
INITIAL ADVANTAGE AND TECHNOLOGICAL CHANGE IN
INDUSTRIAL LOCATION: THE FURNITURE INDUSTRY
OF GRAND RAPIDS, MICHIGAN.

Michigan State University, Ph.D., 1973
Geography

University Microfilms, A XEROX Company, Ann Arbor, Michigan

INITIAL ADVANTAGE AND TECHNOLOGICAL CHANGE IN
INDUSTRIAL LOCATION: THE FURNITURE
INDUSTRY OF GRAND RAPIDS, MICHIGAN

By

Richard Donald Kurzhals

A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Geography

1973

ABSTRACT

INITIAL ADVANTAGE AND TECHNOLOGICAL CHANGE IN INDUSTRIAL LOCATION: THE FURNITURE INDUSTRY OF GRAND RAPIDS, MICHIGAN

By

Richard Donald Kurzhals

Grand Rapids, Michigan has long been regarded as one of the major furniture centers of the United States. Its furniture beginnings were little different than those of most frontier communities. Yet, the industry grew and flourished in Grand Rapids. By 1900 the name Grand Rapids signified quality furniture and the city was dubbed the "Furniture Capital of America."

Furniture manufacturing began in Grand Rapids in 1836 with the settlement of a cabinetmaker. As the village grew, other cabinetmakers were attracted to service the expanded market. Although transportation of finished goods was difficult before the railroad, the community was located on the Grand River and shipped goods down river. By 1860 the market area was expanded as goods were shipped to Chicago and Milwaukee. Machines run by power from the rapids of the river were able to produce for the increased

demand. Thus, the city had good accessibility at an early date and was able to capitalize on it. Access, like wood and power, acted as an initial advantage.

The railroad reached the city in 1858 and markets further expanded. With each increase in accessibility, factories were able to increase production. Owners had adopted machine techniques and applied them to furniture production. Thus, by 1865 the industry was small, but one of expanding markets.

An award winning venture by three companies in displaying furniture at the 1876 Philadelphia Exposition gave Grand Rapids a national reputation. Building on that reputation, companies opened a Grand Rapids exhibition and drew dealers to the city to examine furniture. A national market developed and local plants were able to produce for it.

Grand Rapids was an efficient producer at the time that regional and national markets were opened by rail transport. The city had high accessibility in a critical period of expansion. In the 1870's and 1880's many advantages were combined to form a thriving industry. As a result of the Philadelphia and local expositions, a national reputation was won. Production was efficient and could supply furniture for the national market which was accessible by rail. Skilled labor was available to

serve in the expanding furniture factories as the Dutch served as a source of cheap, skilled labor.

Factory owners were inventive and innovative in techniques of production, marketing, and transporting furniture. Initial advantages of accessibility, reputation, and labor were enhanced by the ingenuity of furniture leaders. By 1890 the city was regarded as a leader in the industry. The industry expanded and until the depression of 1929, ranked as one of the foremost in the country.

The depression dealt a severe blow to the industry from which it has not yet recovered. People put off purchases of furniture, and sales lagged. However, even prior to the depression, the industry lost its impetus for growth. The pace of innovations slowed and market areas ceased to expand. The local industry virtually collapsed. Rather than attempting to expand the industry by adopting new production methods or winning new markets, firms sought to survive. The city which had always been known for fine furniture became more committed to quality production. The initial advantages accrued were no longer enough to keep the industry a national leader. By the 1930's furniture centers in the South had risen to prominence and Grand Rapids could not compete with them except in high priced products. Following the depression,

the industry had a slow recovery. Employment levels in 1972 were still not as high as in 1929. The industry had become even further entrenched in the quality line and was known in 1972 for expertise in production rather than quantity. The still viable industry was based on the efforts of early leaders who made use of initial advantages of wood, power, labor, and transportation. It was also based on men who were shrewd and innovative and adopted usable production, marketing, and transportation techniques.

ACKNOWLEDGMENTS

Many people have contributed to the preparation of this dissertation. They have given their time and suggestions for its improvement.

Thanks are extended particularly to the guidance committee of Drs. Jacobson, Vinge, Matley, and Horvath. Their suggestions were many and aided both in formulating a conceptual framework for the study and in revising the manuscript.

Dr. Jacobson, committee chairman, deserves special thanks for the interest that he showed in this research. His patience and constructive suggestions were greatly appreciated.

However, the largest debt of gratitude must go to my wife, Jean. Her efforts in typing and editing the manuscript were most helpful. Moreover, her steadfast encouragement over many years was a source of inspiration. Her sacrifices were many and varied. She agreeably deprived herself in order that her husband could attain a goal culminating with this dissertation.

TABLE OF CONTENTS

	Page
LIST OF TABLES	vi
LIST OF FIGURES	viii
 Chapter	
I. INTRODUCTION	1
Problem Statement and Objectives	1
Methodology	5
Conceptual Base	8
Research Orientation	15
Organization	16
II. FURNITURE BEGINNINGS: 1826-1840	19
Pioneer Furniture	19
Cabinetmakers	20
Deacon Haldane	21
Market Area	25
Initial Advantage	28
Inventions and Innovations	31
III. FACTORY SYSTEM IMPACT: 1840-1860	34
Industrial Revolution	34
Sawmills and Sash and Door Factories	42
Machine Making	44
Transportation	45
Capital	53
Labor	54
Marketing	54
Initial Advantages	55
Location	62
Summary	63

Chapter	Page
IV. INNOVATIONS AND EXPANSION: 1860-1890 . . .	67
Overview	68
Transportation	72
Innovations	80
Exhibitions	92
Marketing	98
Market Area	101
Raw Materials	106
Workers	108
Finance	111
Population	115
Decision Making	116
Summary	117
V. MATURITY: 1890-1929	119
Mechanization	120
Transportation	123
Materials	128
Design, Style, and Carving	130
Grand Rapids and Other Centers	134
Workers	137
Sales	143
Expositions	146
Reputation	151
Growth	153
World War I	154
Impact on the City	155
Human Judgments	156
Summary	157
VI. COLLAPSE OF THE INDUSTRY: 1929-1940 . . .	159
Grand Rapids Expositions	159
Production Losses	160
Response to Financial Crisis	161
Sources of Lumber	163
Southern Competition	165
Labor Force	167
Efforts at Revitalization	168
Furniture and Grand Rapids	169
Summary	170

Chapter	Page
VII. RESURGENCE: 1940-1972	172
World War II	173
Production Trends	174
Labor Force	175
Wholesaling Changes	180
Innovations	184
Types and Styles Produced	186
Changing Materials	189
Competition from Other Centers	192
Spatial Decisions	197
VIII. CONCLUSIONS	199
LIST OF REFERENCES	203
OTHER REFERENCES	214

LIST OF TABLES

Table	Page
1. Population of Grand Rapids	60
2. 1890 Leading Industries	69
3. 1880 Furniture Production	71
4. 1890 Furniture Production	71
5. Birth Place of Berkey and Gay Employees--1886	110
6. National Origins of Grand Rapids Population--1880	111
7. New Furniture Businesses	113
8. Sources of Wood	130
9. Furniture Growth	134
10. Furniture Production 1890-1929	136
11. National Origin of Furniture Workers--1890	140
12. Job Type by Nationality	141
13. Salesmen Attending 1928 Training Session	145
14. Buyers at the Grand Rapids Exposition	148
15. 1925 Exposition Displays by State	150
16. Buyers at the 1925 Exposition	150
17. Furniture Exposition Attendance	160

Table	Page
18. Furniture Woods, 1937	163
19. Sources of Lumber, 1937	164
20. Furniture Output by States, 1929-1935 . .	166
21. Industrial Employment 1929 and 1939 . . .	170
22. Grand Rapids Furniture Output 1929-1967 . .	174
23. Wages in the Furniture Industry, 1965 . .	177
24. Firm Employment, 1959	179
25. 1967 Furniture Production	194

LIST OF FIGURES

Figure	Page
1. Circular and Cumulative Causation	9
2. Furniture Made by Haldane	22
3. Haldane's Workshop, 1837	22
4. Tool Chest	24
5. Woodworking Machinery	24
6. Michigan Forests, 1830's	29
7. Furniture Plants in Grand Rapids, 1856	64
8. Canal Development in Grand Rapids, 1869	74
9. Furniture Plants in Grand Rapids, 1881	75
10. Grand Rapids Rail Connections, 1870	78
11. Bedroom Suite	94
12. 1876 Prize Winning Bed	94
13. Berkey and Gay Plant	124
14. Lumber Storage Area	124
15. Furniture Plants in Grand Rapids, 1929	138
16. Quality Grand Rapids Furniture	183
17. American Seating Trucks	183
18. Furniture Plants in Grand Rapids, 1972	196

CHAPTER I

INTRODUCTION

Furniture specialization began in Grand Rapids, Michigan in 1836 with the establishment of the first cabinet shop. Its furniture beginnings were no different than those of most frontier communities. Yet, the industry in Grand Rapids grew and flourished. Markets were expanded and sales multiplied. By 1850 several cabinet shops were in operation and small furniture factories were beginning to appear.

In 1900 the name Grand Rapids signified quality furniture; the city was dubbed the "Furniture Capital of America." Large furniture operations are to be expected in the large metropolitan centers such as New York and Chicago. However, in 1900 Grand Rapids had a population of only 87,000 of which over 6,000 were engaged directly in furniture manufacturing.¹ It is strange that a city

¹U.S., Department of Commerce, Bureau of the Census, Twelfth Census of the United States: 1900, Manufactures, VII.

as small as Grand Rapids could attain a leadership role in national furniture making.

The Depression of 1929 dealt the local industry a crippling blow from which it has not yet fully recovered. However, positive signs of new growth are now appearing based on non-wood furniture. The immediate future is no longer bleak.

Many reasons have been suggested for the location of a notable furniture industry in Grand Rapids. The most frequently mentioned reason has been the proximity to a variety of different woods. Other writers have proposed the role of leadership in the industry. Still others have suggested the availability of skilled labor and transportation facilities. Regardless of the reasons suggested for the origins and growth of the industry, the explanations seem inadequate and unsophisticated.

Problem Statement and Objectives

The problem of this dissertation is to analyze and determine the origins, processes, and spatial changes of the furniture industry in Grand Rapids. This study traces spatial change in the furniture industry through time from its genesis to the present in an effort to assess its future prospects.

Little of a geographic nature has been written on furniture manufacturing of the city. This writer suggests that geographic changes in the industry are indicative of

changes in local, national, and international patterns and processes. A changing city can be seen through furniture manufacturing. Thus, much of the historical geography of one of the largest cities in Michigan is tied to an important economic endeavor.

However, the research is not all "pure" in nature. Application can be made of the research if the present situation of the industry is analyzed in light of the past. Sauer suggests that both retrospect and prospect are on the same line continuum.¹ Any given time represents only a point on that line. Clark has contended that a major role of historical geography is to project the significance of conclusions forward in time.² Thus, by examining the evolution of the industry from its conception to the present, insight can be gained into future patterns and processes.

The hypothesis of this study is that the origins of the furniture industry of Grand Rapids rest on the initial advantages of the industry enhanced by technological changes in production and transportation. It is contended that Grand Rapids was an efficient producer at

¹Carl Sauer, "Foreward to Historical Geography," Annals of the Association of American Geographers, XXXI (March, 1941).

²Andrew Clark, "Historical Geography," American Geography: Inventory and Prospect, ed. by Preston James and Clarence Jones (Syracuse University Press, 1954), p. 72.

the time that major technologic changes took place, allowing economies of scale and larger market areas to develop.

Early production was non-basic or locally oriented. However, even in the handicraft stage, sales were made to outlying markets and an efficient, infant industry had developed. The initial advantages of the industry were furthered by improvements in transportation and innovations in furniture manufacturing. Agglomeration occurred as furniture firms concentrated in Grand Rapids. As the industry grew in production and market area, capital and labor became easier to obtain. Thus, the growth of the industry became self perpetuating. A multiplier effect occurred encompassing the enlarged industry, new thresholds, and innovations. Growth led to more growth.

The objective of this study is to account for the origins and processes of the furniture industry of Grand Rapids. To totally account for the dependent variable of origins and processes, a multiplicity of independent variables would have to be surveyed. The task of accounting for such independent variables as competition with other furniture centers, style changes, distribution costs, production costs, and savings from agglomeration would be entirely beyond the scope of this dissertation. Therefore, several of the most important variables are

examined in an effort to determine the origins and processes of the furniture industry.

The relationship between the development of the industry and initial advantages enjoyed by the infant industry are determined. The initial advantages are examined focusing upon efficiency of production, use of natural resources, early use of power, market development and the like.

Technological changes in production and transportation that enhanced these initial advantages and spurred the growth of the industry in the city are analyzed. Thus, these variables are looked at in the context of a circular and cumulative process of industrialization.

Methodology

The primary methodology used in this study is that of historical geography. One of the most prominent themes of historical geography is that of origins and processes.¹ The furniture industry of Grand Rapids is a part of the cultural landscape of the city. Thus, this dissertation is a study of the evolution of one part of the cultural landscape--the one appearing to have the greatest impact on the city.

¹Sauer, "Foreward to Historical Geography,"
p. 9.

The cultural landscape is not a static arrangement of objects. It has become what it now is, and is in the process of becoming something else.¹ Two approaches are often suggested for investigating the cultural landscape. The functional approach focuses on short term changes. On the other hand, the developmental approach emphasizes long term processes.² This study is developmental in nature and focuses on cultural processes and cultural evolution of the furniture industry. Origins in time and place are key elements of such a study.³ Therefore, both growth and retrogression of the industry are analyzed.

Sauer suggests that historical geography is the study of a series of changes that the cultural landscape has undergone.⁴ It is hoped that insights into the present role of the furniture industry can be gained by

¹H. C. Darby, "On the Relations of Geography and History," in Cultural Geography: Selected Readings, ed. by Fred Dohrs and Lawrence Sommers (New York: Crowell, 1967), p. 37.

²Edward Ackerman, "Cultural Geography," in Introduction to Geography: Selected Readings, ed. by Fred Dohrs and Lawrence Sommers (New York: Crowell, 1967), p. 341.

³Ibid., p. 341.

⁴Carl Sauer, "The Morphology of Landscape," in Land and Life, ed. by John Leighly (Berkeley: University of California Press, 1967), p. 344.

studying the industry's development through time. Investigation of change through time is a central theme of historical geography.¹

In short this dissertation is a genetic study of how an industry developed. In order to find how the furniture industry came to be where and what it is now, or where it was at a particular time, it is necessary to study the agents causing change and development.² If process is ignored, change is also ignored.³

Static pictures neglect process, assume stages, and put much emphasis on time. Thus, the cross-sectional approach will be avoided. Instead, the evolution of the industry continuously through time is studied. Of particular interest is how it arose from preceding situations, and how its future has been shaped by forces stemming from the past.⁴

¹Roy Merrens, "Historical Geography and Early American History," William and Mary Quarterly, XXII (October, 1965), 545.

²H. T. Prince, "Progress in Historical Geography," in Trends in Geography: An Introductory Survey, ed. by Ronald Cooke and James Johnson (New York: Pergamon Press, 1969), p. 111.

³C. T. Smith, "Historical Geography: Current Trends and Prospects," in Frontiers in Geographical Teaching, ed. by Peter Haggett (London: Methuen, 1970), p. 131.

⁴Jack Eichenbaum and Stephan Gale, "Form, Function, and Process: A Methodological Inquiry," Economic Geography, XLVII (October, 1971), 542.

Economic enterprises are closely associated with the urban areas in which they are found. Interaction between the two is common since industrialization and urbanization are often created by the same processes.¹ The furniture industry of Grand Rapids fits this pattern.

Conceptual Base

Alan Pred has proposed a model of urban-industrial growth that can serve as a conceptual framework for this study. Pred proposes a model showing urban and industrial development as an unbroken circular and cumulative process.²

This writer is not interested in proving the model that Pred adapted to geography right or wrong. The value of the model is in organizing the research and giving the writing a conceptual base. The ideas of circular and cumulative causation are applied as they fit the Grand Rapids situation.

To Pred the period from 1800 to 1840 constitutes a period classified as mercantile-commercial.³ Manufacturing was characterized by handicraft rather than machine techniques. Retailing and wholesaling were often

¹Allan Pred, The Spatial Dynamics of U.S. Urban-Industrial Growth, 1800-1914 (Cambridge: M.I.T. Press, 1966), p. 4.

²Ibid., p. 25.

³Ibid., p. 143.

combined, and manufacturing was done in the home. The function of the city was still mercantile, with small population, low market potentials, and lack of capital and labor.

Water power came into use in this commercial era but was an immobile natural resource. Steam power was inefficient and costly and could not be of major proportions until coal could be easily transported.

The 1800-1840 period was characterized by transport diseconomies. Markets could not be extended because of the cost of shipping in this pre-railroad time. Road and turnpike shipping was open only part of the year and was expensive per ton mile. It was much easier to move goods by river or canal. Yet, water movement required a great time involvement which made it difficult for manufacturers to react to non-local demands. In the winter, rivers and canals were blocked by ice. Water transport was seasonal at best.

Thus, even if technology had been advanced enough to provide large numbers of manufactured products, transportation could not cope with long distances. The market area had to be small for transport diseconomies were too great in this pre-railroad period.

Borchert recognizes the same situation. He suggests a sail and wagon period from 1790 to 1830 in which the friction of distance was a barrier to the

movement of goods.¹ The canal boom as an effort to overcome distance was only a temporary and inadequate answer.

The furniture industry of Grand Rapids can be fitted into this mercantile or sail and wagon period. An infant industry had developed based on local resources, limited markets, low production, and inadequate transportation. The river was used for power, a canal was under construction around the rapids, and steamers carried furniture downstream.

By 1860 the industrial-capitalism period of industry had arrived.² This period was characterized by large scale production based on agglomeration economies. Market areas were extended. It was necessary to sell goods and services beyond settlement boundaries.³ A change in approach and attitude was coupled with the stimulus of the Civil War.⁴

All industries are different and the manner in which factors interact is different. Yet, the factors

¹John Borchert, "American Metropolitan Evolution," Geographical Review, LVII (July, 1967), 306.

²Pred, The Spatial Dynamics of U.S. Urban-Industrial Growth, 1800-1914, p. 16.

³Maurice Yeates and Barry Garner, The North American City (New York: Harper and Row, 1971), p. 16.

⁴Pred, The Spatial Dynamics of U.S. Urban-Industrial Growth, 1800-1914, p. 18.

and patterns are the same. The model in Figure 1 is based on the premise that growth leads to more growth. Therefore, expansion takes place in a circular and cumulative process.

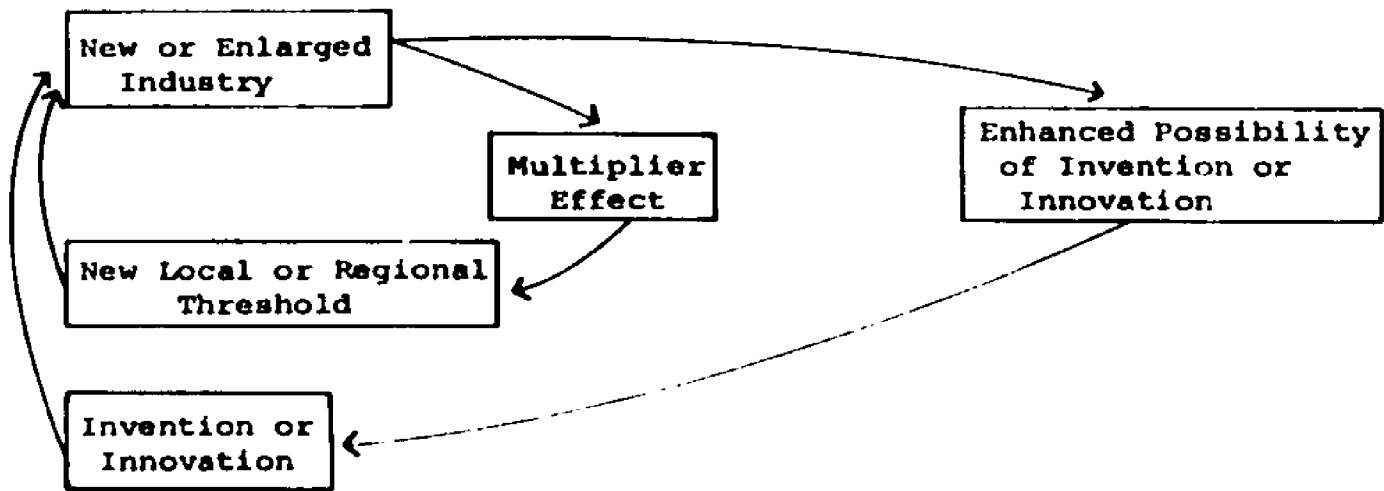


Figure 1. Circular and Cumulative Causation

Source: Allan Pred, The Spatial Dynamics of U.S. Urban-Industrial Growth, 1800-1914 (Cambridge: M.I.T. Press, 1966), p. 25.

Pred's model of urban-industrial growth attempts to analyze the relationships between city and industrial growth by surveying inventions, market areas, and initial advantages.

New or enlarged industries enhance the possibility of more inventions and innovations. Thus, with greater populations more interaction occurs among people. Such interaction increases the likelihood of technologic inventions or innovations. These inventions occur not only in

industry, but also in transportation and marketing. Thus, the cumulative effects of greater technologic efficiency result in a larger industry.

The multiplier effect suggests that as workers gain more purchasing power and spend more, new or enlarged businesses will be created. New industrial expansion stimulates population growth which in turn leads to new thresholds and enlarged manufacturing. When higher thresholds are reached due to transport changes or transportation increases, the whole growth process increases.¹

If the model worked perfectly, if industries were not in competition with each other, and if resources were available, each industry would expand indefinitely. However, some industries grow faster than others because of discrepancies in the forces working on them. One discrepancy is initial advantage.

Some industrial centers create their own conditions for growth through rapid industrialization. Quite often these centers had initial advantages. Transportation advantages are the most important influences on some cities at the expense of others. A close relationship exists between initial advantage and accessibility.²

¹Ibid., p. 28.

²Yeates and Garner, The North American City, p. 51.

The rates of transportation inputs were reduced significantly and the cost of production went down. Market areas could then be expanded, making agglomeration and large scale production more likely. The growth of those centers that were already efficient producers was favored over the inefficient or non-producing centers.¹ Cheap transportation also favored those centers already having large market areas, because the transportation input reduction reduced total costs more. Efficient firms were favored by transport improvements, particularly feeder lines, because their market areas were enlarged. Thus, transportation improvements were very conducive to large scale production. Specialized production occurred and became self-generating.²

Volume rates were available from the railroads. Lower volume rates again favored the initial advantage of efficient producers, and their scale of operations grew.

Innovations in production tended to favor a few cities at the expense of others. The post Civil War innovative period brought great changes in the scale of production. Old plants expanded and new plants were created. Increased size reduced costs, allowed greater output, and expanded markets. Technical advances, by

¹Pred, The Spatial Dynamics of U.S. Urban-Industrial Growth, 1800-1914, p. 50.

²Ibid., p. 51.

reducing per unit costs, favored growth and agglomeration in cities with efficient producers at the expense of inefficient producers.

Those cities with an initial advantage of efficient production, high accessibility, or large market areas were favored at the expense of others. Growth led to more growth.

The furniture industry of Grand Rapids is analyzed in this context. The initial advantages are determined as well as the general developmental process of development involving technologic changes and expanded markets. Thus, the origins and processes of furniture development are analyzed through a circular and cumulative process framework.

The development of the furniture industry was based on decisions made by men--factory owners, retailers, and consumers. Thus, the decision making process had geographic consequences. Man's perception of the physical and cultural environment, his behavior, and his human decisions led to an evolution of the landscape.¹ The furniture industry grew to large proportions.

An effort is made to analyze the development of the local industry in a decision making context. The industry through time was involved in search activities

¹Michael Hurst, A Geography of Economic Behavior
(North Scituate: Duxbury, 1972), p. 1.

through space for raw materials, markets, and information. Information was not given to firms but had to be searched out. Alternatives were weighed by factory owners that would lead to selected aspiration levels. Thus, the two processes of adoption and adaption were involved.¹

Alternatives were not unlimited, but tempered by available transportation, information, and technology. Thus, man's decisions bringing about spatial changes were influenced by the physical and cultural environment and the abilities and personalities of the decision-makers.

Research Orientation

Research studies focusing on Grand Rapids are few in number and primarily historical in nature. Only one research study focuses directly on the furniture industry. The City Built on Wood: A History of the Furniture Industry of Grand Rapids, 1850-1950, by Frank Ransom is a history of furniture manufacturing. The book is not of a geographic nature and is only of limited use in this spatial study. Two articles by James Bradshaw in Michigan History are comparable in scope to the Ransom study.²

¹Ibid., p. 74.

²James Bradshaw, "Grand Rapids Furniture Beginnings," Michigan History, LII (1968), 279-98; and "Grand Rapids, 1870-1880: Furniture City Emerges," Michigan History, LV (1971), 321-42.

Thus, research sources directly related to furniture making in Grand Rapids are limited.

Only one geographic study has been done on Grand Rapids. In 1955 Perry Bailey completed a dissertation entitled "The Role of the Economic-Geographic Factors in the Origin and Growth of Grand Rapids, Michigan." Only a small portion of that dissertation is concerned with the furniture industry. The main thrust of the research is the total economic realm in relation to city growth. Thus, not only are geographic studies on Grand Rapids limited, but so are geographic studies of the furniture industry.

Therefore, much of the data collected has come from local histories, pamphlets, public museum records, historical commissions files, furniture company records, and census data. Field work was carried out using the interview technique. Interviews were conducted with furniture executives who were in a position to know both the past and present furniture industry. With that perspective, this writer hopes to shed light on the present as well as the past furniture activity.

Organization

In as much as the basic methodology of this dissertation is that of historical geography, the organization is temporal in nature. For organizational purposes six periods representative of geographic change in the

furniture industry have been arbitrarily selected. The selection of these periods is not meant to imply that change occurred in stages of time or that the dates are to be rigidly construed. However, from one time period to another important changes in the development of the industry had taken place. These changes in most cases were not sudden but were cumulative in nature. The six periods constitute chapters two through seven. Though organized in a temporal manner, efforts are made in each chapter to survey the circular and cumulative causation process. Thus, initial advantage, inventions, innovations, and market thresholds are items of major emphasis.

The theme of chapter two is the genesis of furniture manufacturing in Grand Rapids. The time span is from 1826 to 1840. During this time furniture was produced in handicraft shops. Sales were restricted to local markets, for the movement of finished goods was difficult.

Chapter three, 1840-1860, deals with the impact of the factory system on Grand Rapids furniture production. Regional markets were developed which resulted in production increases. The foundations of subsequent growth were laid.

The purpose of chapter four is to analyze the 1860-1890 era. An effort is made to survey the innovations in marketing, production, and transportation that led to expansion in the local industry.

From 1890 to 1929 the local industry reached a peak in production. The reputation of Grand Rapids was secure as the "Furniture Capital of America." However, the North Carolina furniture center began to siphon off possible growth. Thus, chapter five surveys the 1890-1929 era.

In 1929 the Depression hit the furniture industry bringing about its virtual collapse. The 1929-1940 span was one of immense hardship and deceleration for the industry and is dealt with in chapter six.

The seventh chapter deals with the resurgence of furniture manufacturing from 1940-1972. Thus, the present industry is evaluated in light of its origins and processes.

The final chapter provides an overview. The main points of the dissertation are briefly summarized.

CHAPTER II

FURNITURE BEGINNINGS:

1826-1840

Furniture making in Grand Rapids dates back to 1826. Even such establishments as the Campau trading post founded in that year and the Baptist mission of 1827 were in need of furnishings. Furniture making began in a period when more Indians than whites lived in the valley of O-Wash-Ta-Nongh.

Pioneer Furniture

The needs of the early pioneers were quite basic-- food, clothing, and shelter. These settlers provided for their own fundamental needs. A cabin was built from forest materials. Crude furniture for the home was fashioned by individual settlers using axes, saws, knives, and augars. The pioneers' survival depended on the skillful use of the ax and other tools. The furnishings of the pioneer cabins were simple, containing three-legged stools, slab benches, plain tables, and square-post bedsteads. This first furniture was rough and crude but matched the home.

Thus, furniture making was necessary from the beginning of settlement. The trip by wagon trail from Detroit to Grand Rapids was difficult and took over two weeks.¹ There was no room in the wagons for heavy, bulky, and ornate furniture. Therefore, transportation difficulties necessitated furniture construction in the local area.

Cabinetmakers

The first local specialists in furniture construction were cabinetmakers. Many of these men had been carpenters and joiners. They arrived in frontier communities across the Middle West as soon as doctors and lawyers.

In 1836 Grand Rapids had a population of 700.² In that year the first cabinetmaker, Deacon Haldane, came from New York via Ohio seeking better economic opportunity. The need for a specialized furniture maker was evident. The once wilderness settlement had grown into a village with commercial features. Home owners were demanding more refined home furnishings. Some furniture was shipped either overland from Detroit or from New York via the Great Lakes. However, the process was slow and expensive.

¹Furniture Manufacturers Association, The Furniture Career of Grand Rapids (Grand Rapids, 1941), p. 2.

²"One Hundred Years of Furniture Making," Furniture World, June 25, 1936, p. 5.

A local source of refined furniture was needed. Thus, Haldane took advantage of the opportunity.

The furniture produced by early cabinetmakers was of simple design and shaped with hand tools. Figure 2 indicates the type of furniture made by Deacon Haldane. Orders were generated by word of mouth and were usually restricted to the local area. Thus, an important consideration to the craftsman was the proximity to customers. The early cabinetmaker was both salesman and craftsman and usually sold his wares in a salesroom adjoining the workshop (Figure 3). Some even worked out of their homes.

While the Grand Rapids area was still wilderness, people were content with crude furniture. However, even in the 1830's enterprising cabinetmakers began using foot lathes to fashion furniture. Mechanization led to furniture with a much better appearance. The community was maturing and was no longer satisfied with crude appearing furniture. Customer dissatisfaction led to progress in furniture construction.

Deacon Haldane

Haldane's arrival in Grand Rapids was followed by the arrival of a second cabinetmaker in 1837. As the community grew in numbers, the number of cabinetmakers also increased. Most of the early cabinetmakers were from New York or New England. This is not surprising since



Figure 2. Furniture made by Maldane. A Windsor arm chair and desk produced by Deacon Maldane in the 1835-1845 era. Both are on display at the Grand Rapids Public Museum.

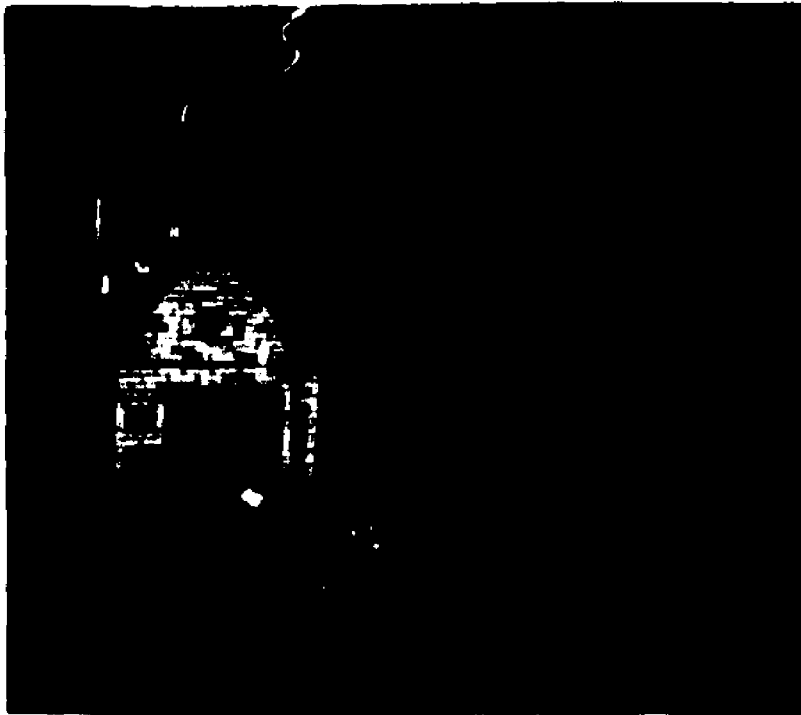


Figure 3. Maldane's cabinet shop, 1837. A scaled reproduction of the shop is displayed in the Grand Rapids Public Museum.

a good proportion of the population entering Michigan was from the east. Of the four cabinetmakers present in 1840 all failed except Haldane, who supplemented his income by making coffins and dealing in real estate. As a coffin maker it was necessary for Haldane to measure the body and construct a coffin to fit its shape. Making a coffin so it would be wide at the shoulders and narrow at the feet required great skill.¹

The latter 1830's were a time when money was scarce. Thus, Haldane often was obliged to accept farm products in payment for furniture.

Haldane and other cabinetmakers of the time designed their own furniture which was built and finished by hand. No machines suitable for furniture manufacturing had been brought to the frontier village. Therefore, early cabinetmakers used edged, hand tools. They had picked their skills up as apprentices and through years of experience. In addition to his hand tools Haldane used a lathe run by a treadle (Figure 4).

The impact of Deacon Haldane on the growth of the initial furniture industry should not be slighted. He was progressive for the time and can be regarded as an innovator. He has been described as industrious, frugal,

¹Arthur White, "The Recollections of an Onlooker," Furniture Manufacturer and Artisan, May, 1911, p. 74.



Figure 4. Tool chest. A master carver's tool chest. Carvers needed 50 to 100 carving tools of different sizes and shapes.



Figure 5. Woodworking machinery. Saws were driven by line-shafting. With the drive-line above, belts could be shifted from the idler pulley. Saws such as this were used until the 1890's.

and prudent.¹ Although Haldane first worked out of his own home, he soon expanded his business and began training apprentices. He was quick to hire several assistants which suggests that business was booming.² Chairs, bedsteads, tables, and bureaus were manufactured for the Grand Rapids area. However, there is no indication that he was interested in sales out of the local area. Nonetheless, this should not be construed to imply that only village dwellers purchased furniture. Farmers sometimes transported furniture home by wagon. Some buyers came from as far as Holland, Grand Haven, and Lowell.³

Market Area

In 1840 the pattern of furniture making in Grand Rapids was not different from that of most frontier communities. Grand Rapids, like most middle west villages, was self supporting.⁴ The stimulus for manufacturing was lacking. The population of the village was small--

¹Arthur White, "Grand Rapids Furniture Centennial," Michigan History, XII (1928), 269.

²Helen Aves, "Craftsmanship Built a City," Inside Michigan, Jan., 1952, p. 48.

³Charles Moore, History of Michigan, Vol. 1 (Chicago: Lewis Publishing, 1915), p. 537.

⁴Donal Haines, "Industries of Michigan: Furniture Making," The Michigan Technic, Jan., 1927, p. 17.

approximately 880 in 1840.¹ Therefore, the local market potential was low. Large scale production was not practical from the standpoint of the small local market. Nor, was it possible to greatly expand the market area to encompass regional or national areas. Accessibility was poor. Distance and difficulties of movement were barriers to transportation and the exchange of goods. Moreover, it is doubtful that production could have supplied enough goods for larger thresholds. Large market areas require quick, dependable transportation, speedy production, and large capital outlays.

In the 1836-1840 period it was easier to move goods by rivers and canals than overland. Yet, the time dimension of water movement made it hard to react to the demand of a non-local market.² The steamboat began regular runs between Grand Rapids and Lake Michigan in 1837.³ But, the traffic was seasonal and undependable. The Grand River was obstructed by ice four months of the year and was virtually impassable.⁴ Steamboats did not operate at all in the winter on the Great Lakes.

¹William Etten, A Citizen's History of Grand Rapids, Michigan (A. P. Johnson Company, 1926), p. 1.

²Pred, The Spatial Dynamics of U.S. Urban-Industrial Growth, 1800-1914, p. 163.

³Dwight Goss, History of Grand Rapids and Its Industries (Chicago: C. F. Cooper and Company, 1906), p. 132.

⁴White, "Grand Rapids Furniture Centennial," p. 269.

The difficulties of transportation necessitated the improvement of navigation. The 1830's and 1840's were times of much speculation on canal building. Canal building was thought to be a way of overcoming the problem of long distance movement of goods and people. It was a temporary and inadequate answer. Yet, city growth was spurred to new heights.¹

In Grand Rapids demands were also made for improvement in river transportation. In 1835 a canal was begun on the east side of the river around the rapids. The purpose of the canal was to bypass the mile of rapids and connect the upper and lower parts of the river for steamboat traffic, hence enlarging the market area. The project when finally completed in 1842 represented more of a mill race than a canal. The needed locks were never completed.

The cost of land transportation was enormous as the difficulties of overcoming distance were great. Overland transportation of freight was limited to products more basic than furniture. Furniture was hardly a high priority item. The tastes of frontier Michigan had not evolved to the point where people were willing to pay the costs of specialized furniture production. Thus, little shipping of furniture occurred and each community

¹Yeates and Garner, The North American City, p. 39.

supplied its own unperfected pieces. Market areas in the first half of the 19th century had to remain small. Even if manufacturing technology had been advanced enough to produce at a large scale, transportation was not developed enough to cope with long distances.

Large market areas require sustained, low cost production. Mechanization in 1840 was limited to a few belt-driven lathes and circular saws. Furniture shops could not have supplied products for a large market even if transportation networks could have delivered them. Mechanization demands large outlays of capital. In 1840 this capital was not to be found in Grand Rapids. The only capital available to most cabinetmakers was their set of tools.

Initial Advantage

In the late 1830's Grand Rapids was a growing saw mill center. A good supply of timber, both hard and soft, was available in the area. Grand Rapids was located astride the zone of both types of wood (Figure 6). North and south flowing rivers, tributaries to the Grand, provided vast amounts of saw timber for the mills. Pine was found to the north; and oak, walnut, and other hardwoods to the south of the Grand.¹

¹James Bradshaw, "Grand Rapids Furniture Beginnings," Michigan History, LII (1968), 281.

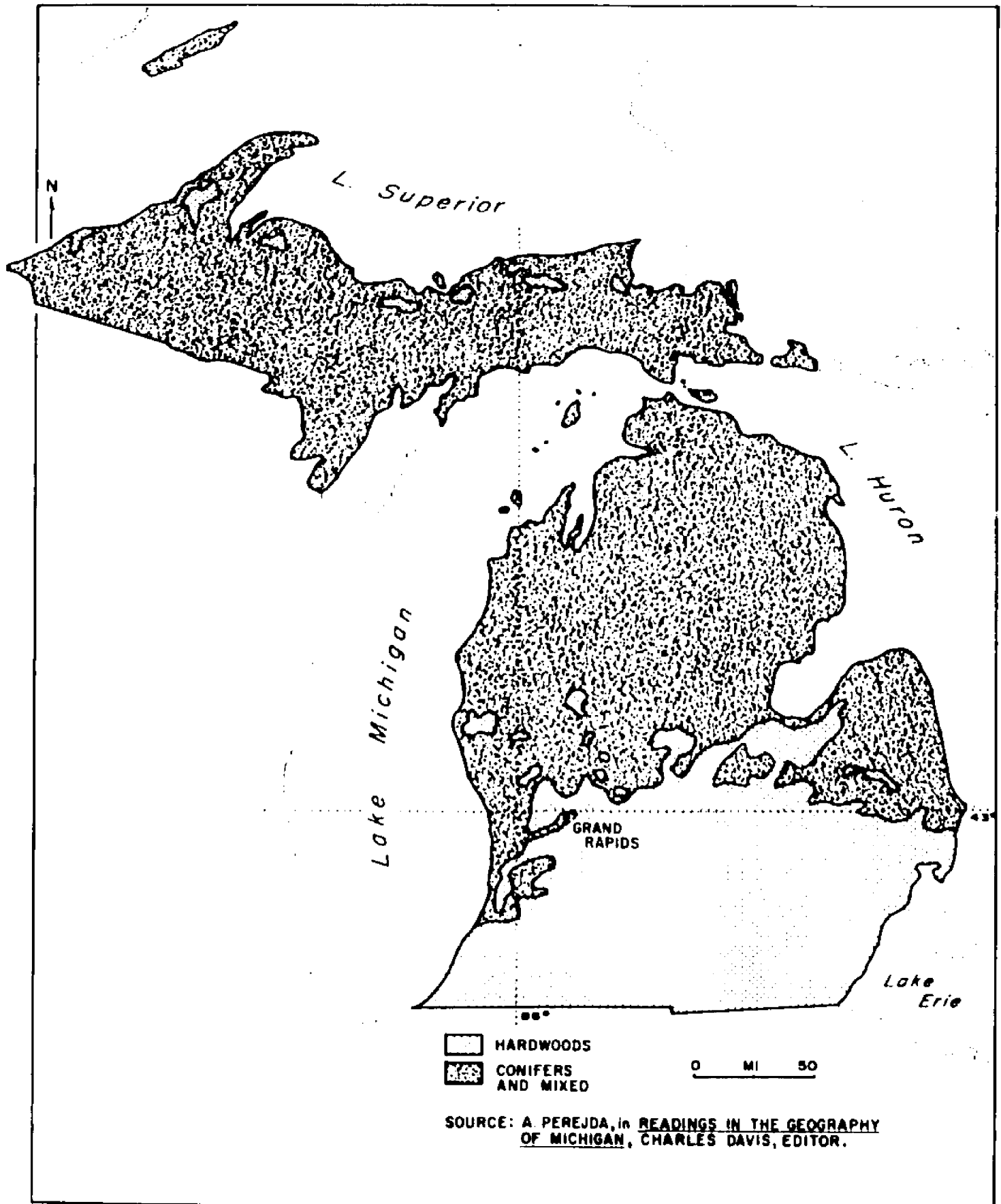


Figure 6. Michigan Forests, 1830's

The city as a focal point of the saw mill industry was an attractive place for furniture manufacturing. Cabinetmakers had access to a variety of woods. Both hard and softwoods were floated down the Grand River to the rapids. In fact, early cabinet shops were often set up adjacent to saw mills.

The great amount of timber in the interior, coupled with the difficulties of transportation and communication helped to stimulate furniture manufacturing in many interior areas. Industry developed with the growth of population, and local resources were utilized.¹

Yet, it would be a mistake to assume that early cabinetmakers located in Grand Rapids because of superior natural resources. Lydens put it in proper perspective:

It would be a fallacy to suppose that Deacon Haldane chose this area because of the great forests. There were forests almost equally great in many middle western states at the time, and in most of them there were many more settlers to buy the product.²

Nonetheless, furniture construction did require wood and without large supplies of it, a dynamic industry could not have developed. The initial advantage of excellent timber supplies was indirect. As a major saw mill center, Grand Rapids became a logical place for furniture manufacturing

¹J. L. Oliver, The Development and Structure of the Furniture Industry (Oxford: Pergamon Press, 1966), p. 55.

²2. 2. Lydens, The Story of Grand Rapids (Grand Rapids: Kregel Publications, 1967), p. 301.

to develop. The two enterprises, saw mills and cabinet shops, often combined. Mill operators frequently produced furniture in their spare time. Thus, in 1840 the initial advantage of a fine timber supply was beginning to have a positive effect on the furniture industry of Grand Rapids. By encouraging saw mill activity, availability of timber on the longest river in the state furthered cabinetmaking.

Other initial advantages were also present in Grand Rapids. Arable land was a resource that counted in developing infant regional economies.¹ Rich, level land flanked both sides of the Grand River. The fact that the better agricultural lands of Kent County were made available by 1833 encouraged early settlement in the Grand Rapids area. The population of the city grew from 75 in 1835 to 880 in 1840.² The increased population encouraged an expansion of furniture making by providing a larger local market.

Inventions and Innovations

Haldane and other early cabinetmakers began by 1840 to face the problem of a seasoned lumber supply. As sales multiplied, greater amounts of lumber were needed.

¹Yeates and Garner, The North American City, p. 36.

²Etten, A Citizen's History of Grand Rapids, Michigan, p. 1.

The quality of furniture was affected by the amount of moisture it contained. To cure lumber, Haldane put support brackets on the ceiling of his shop. The lumber was seasoned as heat from the building rose. An alternate method was to place boards on end around the stove to dry them. However, seasoning in those ways was a slow process. As the need for more lumber increased, such methods proved inadequate. Therefore, furniture was constructed with unseasoned lumber and was of dubious quality.

The need for innovation and invention in the drying process was obvious. Large quantities of quality furniture could not be constructed until the drying was quickened. However, for furniture sales to expand, innovations and inventions in transportation, communication, and production were needed. The physical endowment of the Grand Rapids area was excellent in respect to availability of wood, water transportation, and primitive water power. What was needed were technologic changes to speed production, overcome the friction of distance, and encourage capital outlays.

The possibilities for innovation and invention increase as population increases.¹ As the population of Grand Rapids and the nation grew, technologic changes in

¹Pred, The Spatial Dynamics of U.S. Urban-Industrial Growth, 1800-1914, p. 25.

transportation, communication, and production followed. However, in 1840 manufacturing occupied a subsidiary role dependent on local resources, capital, and markets.

Cabinetmakers of the period were searching for materials, markets, ideas, and technology that would speed production and lessen costs. The search for markets and raw materials was local by necessity. Transportation was difficult and decisions regarding them were limited by the available transport networks. The search for markets was not uniform but in paths along transport routes.

Raw materials were close at hand, but the search for better furniture making techniques was farther ranging. Even though Haldane adopted methods and machines from Ohio, furniture making was tempered by man's inability to cross large areas. Therefore, cabinetmakers chose to produce for a local market.

CHAPTER III

FACTORY SYSTEM IMPACT:

1840-1860

In 1840 furniture manufacturing in Grand Rapids was characterized by handicraft production in small shops. Marketing was local in orientation due to the limitations of production and movement of goods. Between 1840 and 1860 significant changes occurred in production and transportation that altered this pattern.

Industrial Revolution

Furniture making in Grand Rapids was in a transition from workshops to factories. Mechanization of operations was taking place. The transition was a result of the impact of the industrial revolution. After 1800 industry in the United States began to move from a domestic to a factory stage. This change was brought about by technologic changes that permitted industrial relocations. Relocation of the furniture industry, although not as great as in iron and textiles, brought on local

specialization and market expansion.¹ By 1840 machines useful to furniture making began to be found in the Middle West. Crude furniture making machines such as carvers had been invented by 1800 but were not in general use for nearly 100 years.²

Many of the technologic innovations of the furniture trade in Grand Rapids were an outgrowth of saw mills. More powerful saws were invented which made conversion of logs to lumber much faster. These saws were easily adapted to furniture manufacturing. Circular saws, lathes, boring machines, and planers were invented and used. The increase in power driven machinery was spectacular. However, markets were still local and until transportation improved, it was not economically feasible to utilize many of the mechanical techniques available.³

Before 1840 most furniture was made to order, stock was rare and therefore warehouses and display rooms few in number. Machine use changed the industry to a factory basis and increased the degree of specialization. Machines made it economical to specialize by reducing costs

¹Furniture manufacturing has been and still is widely distributed. The industry has traditionally been more oriented toward markets and labor than toward materials.

²Oliver, The Development and Structure of the Furniture Industry, p. 23.

³Ibid., p. 23.

and enlarging market areas. With markets larger, producers were able to specialize in one or two types of articles such as chairs, tables, or bedsteads.¹

Thus, the 1840-1860 period was one of industrial localization and specialization. Regional furniture centers began to emerge and Grand Rapids was one such center. However, innovations and inventions in furniture making did not come as quickly as those in industries such as textiles. Therefore, furniture remained partly handicraft and partly mechanized.

Until the 1840's most furniture in Grand Rapids was hand made using hand tools for shaping and carving. In 1847 power working machinery was installed in several cabinet shops. The first machines were primitive and crude. They were used for sawing, planing, and turning. They produced chairs, tables, primitive rockers, and settees. Thus, early machines produced furniture that was functional and not ornamental.

Two men played important roles in bringing machinery to the cabinet shops. In 1847 William Powers from Troy, New York opened the first woodworking factory in town. Powers rented a room in a sash, door, and blind factory and installed a lathe, circular saw, and boring machine. With one assistant Powers began turning out

¹Victor Clark, History of the United States (New York: Peter Smith, 1949), p. 473.

bedsteads. A close relationship existed between mechanization and specialization. Within a year Powers was able to establish his own factory.

At about the same time Deacon Haldane's facilities could not keep up with the demand. Therefore, he moved his shop to the river bank and installed machinery. Haldane's main product was chairs which he made with the help of a circular saw and turning lathe. The only other furniture factories operating machinery in the West at the time were found at Cincinnati.¹ By 1850 two other furniture factories were in operation in Grand Rapids. One of them became financially secure enough to open a retail store.

Both Powers and Haldane did well under the factory arrangement; by 1849 each employed seven men. The Powers operation contained machinery worth \$400.² Powers and Haldane were undoubtedly farsighted men who saw the future role that machines would play. These men introduced the machine age and factory system to Michigan furniture making.³ Their factories were small by Cincinnati and Boston standards, yet notable for Michigan.

¹Henry Utley and Byron Cutcheon, Michigan: As A Province, Territory and State, the Twenty-Sixth Member of the Federal Union (New York: Americana Press, 1906), p. 280.

²Bradshaw, "Grand Rapids Furniture Beginnings," p. 283.

³Bureau of Labor and Industrial Statistics: State of Michigan: 1900 (Lansing: Robert Smith, 1900), p. 69.

Powers in particular was successful in the furniture venture. By 1850 he constructed a new two-story factory. In the 25 by 100 feet structure he employed 30 to 40 men.¹ That year he visited both New York and Chicago for machinery and business. The following year he began using a shaper machine and filled a 10,000 chair order for a Chicago buyer.² Powers coupled the chair order with an order for McCormick reaper parts and enjoyed a fine year with sales of \$33,000.³ An order of 10,000 chairs was large for a Grand Rapids plant but not for Cincinnati. As the major production center in the West, a Cincinnati firm was producing 180,000 chairs a year.⁴

The Powers factory and business were large for the period when no railroad entered the city. A partner of Powers, E. M. Ball, described 1849 sales in a letter to his family in New Hampshire. Sales in 1849 were above expectations and stock was reduced to a low level. Powers was making business trips across Lake Michigan and was at

¹George Fuller, ed., Historic Michigan, Vol. 1 (National Historical Association, 1924), p. 547.

²Bradshaw, "Grand Rapids Furniture Beginnings," p. 284.

³Moore, History of Michigan, Vol. 1, p. 538.

⁴Bradshaw, "Grand Rapids Furniture Beginnings," p. 284.

a loss on how to handle the increasing business. Even with seven employees he was short handed.¹

Some machines in 1850 were run by small engines but most were belt driven making use of power from the river. In any event, machinery was used to do some of the work previously done by hand. The early factory owners were men of mechanical ability who adapted new tools and techniques to furniture making. They made use of the abundant hardwood supply and were shrewd enough to pursue new markets when technology permitted.

The 1850's brought many men to Grand Rapids who later became famous in the furniture business or other fields. Widdicomb, Matter, Berkey, and Comstock all became well known for their furniture working prowess. In addition the Pullman brothers--of sleeping car fame--and the Winchester brothers spent several years in the furniture business. Thus, men of great ingenuity, capacity, and business awareness were present at an early date. Grand Rapids was fortunate to have a fine collection of innovative people.

The Ball and Powers furniture business experienced problems typical of manufacturers of the 1840's and 1850's. The Powers-Ball business experienced hard times followed by good. The concern was associated with the

¹Frank Ransom, The City Built on Wood: A History of the Furniture Industry of Grand Rapids, Michigan, 1850-1950 (Ann Arbor: Edward Brothers, 1955), p. 4.

lumber business which had great losses and fluctuations. Although the furniture business was more stable, it was not yet stable nor large enough to drop the lumber business. In order to expand furniture sales, Powers and Ball established small branch outlets in the area from which furniture was sold on commission. The two men also maintained a retail store in Grand Rapids.

The furniture business was beginning to boom just before the Civil War. In the twenty years from 1840 to 1860, the furniture business had been greatly altered. The 1850's were years of increased mechanization and notable innovations. Steam-powered engines started to be used to run shop saws; power plants were installed to power stroke jointers, disk sanders, planers, lathes, rip saws, and cut-off saws.

Once established the industry fed on itself as the art of furniture making was passed from father to son. The requirement of success in the furniture business in 1860 was quite different than in 1840. In 1840 one needed to be a craftsman. In 1860 one had to be a successful businessman, craftsman, and mechanic as well. Men who had started as skilled cabinetmakers became factory operators. Skill in the operation of such factories came from experience and contact with others. However, the transition from small shop to factory was less abrupt in furniture making than in the manufacture

of other products. Much hand craftsmanship remained even after industrialization for most furniture of the 1850's could not be mass produced but required large amounts of hand labor.

George Widdicomb's rise in the furniture trade appears to be typical of many of the early manufacturers. Widdicomb spent several years employed as a workman in a local shop. Then in pre-Civil War times he started his own shop. He successfully combined hand craftsmanship and the latest methods. Many machines were specially designed by Widdicomb to meet the needs of his plant. The attitude was to make the job easier and cheaper but not at the expense of quality.

Those cabinetmakers who were not flexible enough to change to machine operation lost their place in the trade. Dowels and mortises which had once been cut slowly by hand were quickly cut by machines. Forms of bending, boring, and sanding changed. As a result of the machine age, the cabinetmaker had to become a carver, finisher, designer, and assembler of parts. Thus, as specialization occurred, the cabinetmaker was phased out.

The small cabinet shop disappeared. Fine quality workmanship required a great amount of time and made furniture too high priced for most homes. The problem of industrializing the furniture business was to build in quantity without sacrificing too much in quality.

Machinery was invented to do the slower hand tasks without cheapening the product. Thus, the price of furniture products dropped allowing larger markets and profits. This trend had just begun at the onset of the Civil War.

The early factories were largely unplanned and existed in backrooms and upper floors. Even when new buildings were constructed, they were not carefully planned. Owners felt the location of the plant to be more important than the structure. Thus, most plants were located close to the river for the dual purpose of making use of river power and transportation.

The use of machines brought greater output at reduced prices. The great multitude of consumers benefited. Some consolidation of the industry occurred as small shops were combined. Thus, capital and facilities were increased. By 1860 the pioneer period in the furniture industry had passed and an organization period had begun. The growth of industry was a cumulative matter with no single factor causing the local rise. By 1860 the foundations had been broadened.

Sawmills and Sash and Door Factories¹

Much of the woodworking machinery in the early furniture factories can be traced to developments in

¹Sash and door factories made frames for windows and doors.

sawmills and sash and door factories.¹ Grand Rapids was a large saw mill and sash and door center. Thus, the first furniture factories in the city adopted machines of the same type used in saw mills and sash and door factories. One man often owned all three types of establishments.

Deacon Haldane's entry into machine use came as a result of the sash and door business. Haldane's brother operated a sash and blind factory, and Deacon in 1847 began to use his brother's machines and adapt them to the furniture trade.

Another furniture enterprise, Berkey, started as an outgrowth of the sash and door business.² In 1850 Julius Berkey started making furniture in a corner of his brother's factory. At the end of each day Berkey constructed small walnut tables with scalloped edges. Using a lathe and a shaper the "Berkey Table" was made and sold in the community.

Lumber was easy to get. Plenty of maple, ash and walnut were close at hand. Berkey claimed to have filled the village with furniture.³ The furniture met the needs

¹A. P. Johnson and Marta Sironen, Manual of the Furniture Arts and Crafts (Grand Rapids: A. P. Johnson, 1928), p. 379.

²William Nesbit, The Story of Berkey and Gay (Grand Rapids, 1911), p. 3.

³Ibid., p. 5.

of the time. It was sturdy. The inexpensive walnut tables were crude by later standards. Fine craftsmanship was some years off. Yet, the scalloping of table edges indicated an interest in style and an innovation in both machine use and style. The venture was so successful that bedsteads and larger tables were soon produced. As production increased, the sash and door business was dropped in favor of full time furniture manufacturing.

A close relationship also existed between furniture factories and saw mills. Nearly every cabinet shop was at first connected with a sawmill. Thus, logs were cut to proper dimensions and lumber to proper thickness. William Powers found the sawmill business so profitable that he sold his also thriving furniture business to devote full time to his sawmills.

Machine Making

Many furniture machines were in use in the East before 1850. Machine use in Grand Rapids came later. However, by the middle 1850's stroke jointers, disk sanders, planers, lathes, rip-saws, and cut-off saws were in use. In less than 10 years these machines were being made in Grand Rapids by the Buss Machine Works and the Grand Rapids Iron Works. The Iron Works was owned by a furniture man who put his engineers to work constructing furniture machines. By 1857 even water power generators

were produced locally. Oliver contends that "the presence of excillory understanding is a sign of the maturity of the predominant industry."¹ Judging by machine making, the furniture industry of the city was beginning to mature by 1860.

Transportation

During the 1840 to 1860 period manufacturing surpassed the development of a transportation system to move furniture to markets. The ability of man to produce surpassed his ability to transport.

Cabinetmakers and early factory owners produced goods for the local market. Many of these early businessmen maintained retail stores as well as shops. Such retail and manufacturing connections were common when goods were produced in limited numbers and sold in a market limited by transportation difficulties. During this early period wholesaling was limited by the friction of distance.

The railroad was late in coming to Grand Rapids; it was not present until 1858. Thus, movement of furniture had to be either by steamboat via the Grand River to the Great Lakes or by wagon over crude roads. With no railroad present, manufacturing for other than the regional

¹Oliver, The Development and Structure of the Furniture Industry, p. 90.

area was out of the question. New markets could not be opened until transportation improved. With movement of furniture slow and difficult, costs were high limiting markets to the immediate region.

Therefore, before the coming of the railroad each town maintained its own furniture establishments. However, even the 1840's and 1850's brought some regional markets. Chicago and Milwaukee could be reached by steamboat from Grand Rapids as well as other Lake Michigan cities and those along the Grand River. A few cities were connected by roads with Grand Rapids. Thus, several transportation arteries stretched out from the city. The market area to 1858 was local but had several important outliers. The furniture industry sent some \$40,000 worth of produce a year to regional markets.¹

Steamboats ran on a regular basis between Grand Rapids and Grand Haven after 1837, and by 1842 service linked the local community to New York City in 15 days.² They were able to provide inexpensive transportation to the limited river area. By 1856 steamboats left the city on scheduled runs seven days a week.³ However, steamboat

¹Lydens, The Story of Grand Rapids, p. 300.

²Goss, History of Grand Rapids and Its Industries, p. 893.

³Ransom, The City Built on Wood, p. 8.

traffic failed to solve the basic problem of the need for quick, inexpensive connectivity with many areas. In addition there is no evidence to indicate that great amounts of furniture were carried to market on steamers. Yet, until the railroad reached the city in 1858, the Grand River was the best avenue for transportation. However, the basic problem of a seasonal flow of goods remained.

Overland transportation was difficult until 1846. By 1841 Grand Rapids was receiving mail by stage wagons from Kalamazoo. The service depended on the weather.¹ Both passengers and goods were carried by lumber wagons pulled by horses or oxen. Before 1850 these crude vehicles connected Grand Rapids with Ionia, Lansing, Pontiac, Battle Creek, and Kalamazoo. Little furniture was sent overland unless the buyer came to Grand Rapids and transported his own goods. Travel was uncomfortable and the wagons often stuck in the mud. Better roads were needed if transportation was to be improved.

The city was not among the first of Michigan cities to be served by the railroad. The railroad reached Kalamazoo in 1846 with no prospect of being extended to Grand Rapids in the immediate future. For Grand Rapids to make use of the railroad, the 50 miles of

¹Goss, History of Grand Rapids and Its Industries, p. 612.

road to Kalamazoo had to be refined. Therefore, in 1852 a plank road was constructed between Grand Rapids and Kalamazoo. One of the sawmill-furniture enterprises supplied 150,000 feet of lumber for the plank road.¹ Prior to the plank road the journey had taken two days. With the new road travel time was cut to one day. Although the road was smooth at first it quickly deteriorated. Yet, until 1869 the plank road served as the principal route to the south for passengers and freight. Even though it served as a branch off the railroad, only moderate amounts of bulky furniture were transported over it.

Thus, until 1858 only small amounts of furniture were marketed out of the Grand Rapids area. Great expansion of markets had to wait for the railroad. Yet, manufacturers were facing the problem of expanded production outstripping the local demand. C. C. Comstock found in the 1850's that the local market was not large enough to absorb the output.² Therefore, he and other furniture men looked for out-of-state markets. In-state markets necessitated movement by road and were impractical. However, Chicago and Milwaukee were easier to reach and

¹Bradshaw, "Grand Rapids Furniture Beginnings," p. 285.

²Arthur White, "Furniture Making Here Century Old," Grand Rapids Press, Dec. 24, 1927, p. 38.

offered great opportunity for sales. Out-of-state markets were indicated by the 1851 sale of 10,000 chairs to Chicago. However, freight rates were governed by the capacity of the vessel, and the cost of transportation ate up much of the profit. Transportation inequities discouraged much furniture exporting.

New markets could not be opened until transportation improved. In 1858 the Detroit, Grand Haven, and Milwaukee railroad reached Grand Rapids providing good east-west connections. The railroad supplemented the Grand River and the Kalamazoo Road as a means of exporting furniture.

The railroad may well have been the most far reaching invention of the 19th century.¹ However, it did not provide service cheaper than that of water carriers. In ton-miles it was even more expensive. Rail superiority lay in the quality of its service which compensated for the increased rates. A time factor was also involved. Furniture could be rapidly shipped to market, which meant that orders could rapidly be filled. To the furniture industry the railroad meant that the uncertainty of delivery was gone and that the time of arrival could even be estimated. Whereas water and overland transportation were greatly hindered in the winter, railroads

¹Robert Higgs, The Transformation of the American Economy, 1865-1914 (New York: John Wiley, 1971), p. 44.

continued to operate. Thus, furniture orders could reliably be filled regardless of the season. Year around marketing of furniture was essential before the industry could expand its market area. The routes taken by railroads were quite direct. Therefore, trans-shipment was reduced. With the speed and safety of shipments increased, insurance rates went down as well as warehouse rates. In short, marketing of furniture could take place in large sections of the country where water routes did not extend. In particular, the West was opened to the sale of furniture.

Movements of furniture by railroad lowered per unit production costs and favored those cities that were already efficient producing centers.¹ Evidence seems to point to the fact that Grand Rapids in 1860 was an efficient producer of furniture. Even before the advent of the railroad, production was too great for only the local market. Machinery must have been efficient and highly refined for Grand Rapids. One furniture producer contended "that we can almost throw whole trees into the hopper and grind out chairs ready for use."² He also

¹ Pred, The Spatial Dynamics of U.S. Urban-Industrial Growth, 1800-1914, p. 84.

² Ransom, Spatial Dynamics, 1800-1914, p. 84. Wood, p. 5.

suggested that shipments of lumber and furniture were being made to Milwaukee, Chicago, and Albany.

Efficient production centers were also favored by the coming of the railroad because of inertia of movement. In 1860 Grand Rapids had good relative accessibility, a favorable site, and available capital and labor. There was no reason for the infant industry to be withdrawn from the city. The costs of relocation discouraged movement as well as the fact that good opportunities existed in Grand Rapids.

Even with the railroad connecting Grand Rapids with a larger market area, rail connections were in a primitive stage. Inventions and innovation in manufacturing were far ahead of those in transportation. Manufacturing had surpassed the ability of rail facilities to supply natural resources or market finished products. Had transportation facilities been more advanced in 1860, the scale of production could have been higher.

Thus, the furniture business of Grand Rapids in 1860 was in an embryo stage. Nine firms had been established in the city. They employed 53 workers. However, production was not much higher than that of Powers and Ball in 1851.¹ The industry was not of great significance even to Kent County. Furniture manufacturing was

¹Bradshaw, "Grand Rapids Furniture Beginnings," p. 291.

topped by the manufacture of plaster, lumber, flour, and clothing. New York City at that time was turning out furniture valued at over \$6 million whereas production in Grand Rapids amounted to slightly over \$30,000.¹

The furniture industry from 1840 to 1860 was in a stage of transformation. Some plants became mechanized and developed into factories. Industry expanded. Yet, a handicraft element remained. Furniture could not be produced without large amounts of hand labor. Intricate carving and finishing was still done by craftsmen not laborers.

Much of the expansion which occurred in the local furniture business was the result of an increased population within the city. Thus, local demand increased.

Despite the fact that furniture manufacturers had the facilities to produce and market larger amounts of furniture in 1860, the financial depression of 1857 did little to stimulate the industry. Evidence of the number of firms and employees of the 1850-1860 era is lacking.² However, several plants barely survived the Panic of 1857. Those plants which were able to survive the Panic formed the nucleus for later growth.

¹Ibid., p. 291.

²Census data for individual cities in Michigan and their manufactures was not made available until 1870.

Capital

Most early capital had to come from the profits of the business or from local banks. Local banks charged high rates of interest. A 10 per cent interest rate was often paid. Such high rates were maintained until outside capital could be attracted. Fortunately, in the initial stages of the furniture industry only moderate financing was necessary. Factories were small and machines few in number.

The connections that furniture companies had with the lumber industry had financial implications. Ample timber was available to these companies at a reduced cost. The association with saw mills also provided furniture concerns an increased ability to finance expanding operations.

The increased production of the 1850's presented factory owners with a financial problem. Dry lumber was scarce. Lumber had to be cured to remove the sap. Otherwise, furniture warped, came apart, or was deformed. Wood could no longer be cured overhead in small shops. Thus, lumber was stacked with the boards separated by small pieces of wood for four year periods. Owners were financially unable to carry large amounts of lumber for four years. Thus, they used lumber of doubtful condition. Most wood was green and dried out in the home.

At a time when finances were in short supply other items compensated for the capital shortage. Ample power and an adequate labor supply were present.

Labor

In 1846 the Van Raalte Colony of Dutch was founded west of Grand Rapids. Many of these Dutchmen came to Grand Rapids for business and employment. In a typical year 200 to 300 Dutch came to Western Michigan about half of whom settled in Grand Rapids.¹ Thus, the furniture industry had a source of cheap, skilled labor available. These Hollanders were willing to work long hours for low pay. Dutch cabinetmakers began to appear in the area. Many of the Dutch took up collections to help others migrate from New York and the Netherlands. Thus, when the furniture industry was in need of skilled artisans, they were available. But, in 1860 the number of workers needed in the furniture factories was quite small. Therefore, the Dutch laborers were present but not yet of major importance.

Marketing

Furniture advertising first took place by word of mouth. In the period that sales were local, person to person recommendations served the cabinetmakers and early

¹Ransom, The City Built on Wood, p. 41.

industrialists well. However, as the market area expanded in the 1850's to a regional area, it was necessary for factory owners to personally solicit business from other towns. Owners such as Powers, Ball, and Widdicomb made trips to Chicago and Milwaukee to solicit business. By 1853 local firms had begun to advertise in the local paper. Illustrations indicate a variety of furniture from cribs to coffins. As one dealer put it, "furniture of every description" and "coffins made to order on short notice."¹

Much of the early furniture was built after orders had been placed. However, in the 1850's as productivity increased, owners found it profitable to manufacture small quantities of furniture without orders. Since few retail stores were in operation, furniture salesmen packed up wagon loads of goods and peddled them from farm to farm and town to town until all items were sold. The distance that salesmen could travel was severely limited as was the supply and selection of goods. This method of marketing furniture was inconvenient and inefficient.

Initial Advantages

The initial advantages of Grand Rapids as a furniture center can be viewed in more ways than just through the variable of raw materials. Capital, labor, efficiency of production, and transportation connections can all be

¹Bradshaw, "Grand Rapids Furniture Beginnings," p. 286.

assessed as initial advantages of the 1840-1860 period. The process of furniture industrialization was based on several advantages that the community was able to capitalize on. Until 1860 Grand Rapids' commercial aspect was mercantilistic. The furniture business was one of the first in the city to become industrial-capitalistic in nature. The many shops gradually developed into small factories. Whereas shops were able to make only a few pieces of furniture a month, factories produced greater amounts. One factor involved in the increased production was the availability of local wood. Certainly the industry would never have started without wood.

However, the mere location of a material does not mean that industrial use of the resources will occur in the immediate area. Grand Rapids was located close to the northern edge of the hardwood belt. The approximate line of 43°N separated the hardwoods and softwoods zone. The northern zone was one of great pine forests which served as an excellent lumber source but not for wood for furniture. Southern Michigan hardwoods were oak, beech, maple, ash, elm, hickory, and walnut. They were excellent for furniture making. The timber of Southern Michigan, Ohio, and Indiana was similar. Hundreds of cabinet shops sprang up north of the Ohio River.¹ In Michigan alone,

¹Fuller, ed., Historic Michigan, Vol. 1, p. 544.

dozens of towns produced furniture before the Civil War. Yet, around 1860 Grand Rapids began to show signs of developing a dynamic furniture industry.

The small factories used the hardwoods of the area. So much wood was available that it could not all be used. Some of the finer woods such as walnut, cherry, and chestnut were put into production. Black walnut was particularly sought because it was hard, workable, easily seasoned, and beautifully grained. As business increased in the 1850's, the demand for select woods increased. However, it is doubtful that Grand Rapids was any better endowed with hardwoods than dozens of other sites in the Middle West. The location of Grand Rapids at the northern edge of the hardwood belt may have even been a disadvantage.¹

In another sense, the fine supply of timber proved an important initial advantage. A productive sawmill industry began in the city, giving rise to an interconnected potent furniture industry. Furniture executive William Widdicomb may have been too hasty in 1909 when he suggested that Grand Rapids had no original natural advantage.²

¹Ibid., p. 544.

²William Widdicomb, "The Early History of the Furniture Industry in Grand Rapids," Publication of the Historical Society of Grand Rapids, Vol. 1, 1909, p. 74.

The Grand River was a great advantage. Not only were logs floated down the river for processing, but the river also served as a source of power. The use of machinery required power. Yet, water power was not exclusive to Grand Rapids. The water power of Grand Rapids was not as good as in some other places in the state or many locations in the Middle West. Yet, the river dropped 18 feet in about a mile and provided a good usable power source. Many streams were present in the Lower Peninsula but few had a "high head" or a fall of more than one or two feet per mile. Thus, most streams had only limited possibilities for power.

The canal building attempt begun in 1835 and completed in 1842 served as an impetus to industry. The completed "canal" was inadequate for transportation since the lockage was never installed. However, the mill race served as a ready source of power along which the infant furniture factories began to locate in the 1840's. At the head of the canal a wing-dam of stones turned the current into the canal channel. Since bordering properties could be used for mill purposes, the canal brought about a movement of infant industries to it.

The first use of the river by factories involved water-turned wheels whose shafts geared directly into the machinery. This method had been effectively used in saw-mills and grist mills before furniture factories developed.

However, water power was an immobile resource. In 1853 Haldane installed steam-driven machines for furniture making. Thus, an alternative to water power was found in Grand Rapids. The uncommonness of these steam-powered machines was illustrated by the fact that pioneers going West drove out of their way to see Haldane's machines.¹ The ingenuity and spirit of early entrepreneurs like Haldane can be considered as initial advantages. The resources, wood and power, of Grand Rapids were not superior to other Middle West locations. However, the early cabinetmakers and entrepreneurs made excellent use of those resources. These men were both inventive and innovative. Industrial development was undoubtedly favored in those cities having water power. But, Grand Rapids was transformed from a lumbering camp into an industrial city not by natural advantages but by men.

Initial advantage had a close relationship to accessibility. Until 1860 favorable city locations were on rivers or water bodies.² Therefore, Grand Rapids during the pre-railroad era had high accessibility as it was located on the longest river in the state and had access to Lake Michigan. Many interior cities were not so

¹Fitch Scrapbook, Grand Rapids Public Library, p. 94.

²Yeates and Garner, The North American City, p. 51.

fortunate and prior to the railroad had developed no regional market area.

The railroad altered the pattern. River towns without rail connections declined in relative importance whereas towns which were a part of the rail system grew. For a short time, the infant furniture industry of Grand Rapids was at a relative disadvantage. The railroad had reached Kalamazoo in 1846 but had not reached Grand Rapids until 1858. However, from 1858 on Grand Rapids could claim easier access to regional markets and resources.

Population in the community grew at a high rate from 1840 to 1860 (Table 1).

TABLE 1
POPULATION OF GRAND RAPIDS

Year	Number
1835	75-100
1837	500
1838	700
1840	880
1845	1,510
1850	2,686
1860	8,085

Source: William Etten, A Citizen's History of Grand Rapids, Michigan (Grand Rapids: A. P. Johnson, 1926), p. 1.

Such population growth was indicative of high access areas. Low access points had small populations and low incomes which discouraged the cycle of inventions, innovations, larger market areas, and large scale production.¹ Low access areas were faced with the problem of shipping goods a further distance at either a greater expense in money or time.

Transportation improvements, such as the railroads, and lower cost production favored those areas of high accessibility over those areas of low accessibility. Grand Rapids benefitted from the initial advantage of high accessibility. The city was not highest in accessibility, yet it was high. It had not been first in wood supply but had more than an adequate supply. Nor did the city have superior water power, but it was high on the list. In short, Grand Rapids ranked high in many categories although not first in any one category.

The location of a viable furniture industry can not be attributed to wealthy industrialists with large amounts of capital. Berkey may have been the wealthiest when he started his shop with \$250.² No capital was available to the early industrialists. They were dependent

¹Pred, The Spatial Dynamics of U.S. Urban-Industrial Growth, 1800-1914, p. 72.

²William Widdicomb, "The Growth of the Industry," The Grand Rapids Furniture Record (December 15, 1900), 177.

on their own resources and ingenuity. They designed their own goods, invented workable processes, tried new machines, and developed new markets. Their initial efforts were crude by later standards. But, as manufacturers they combined all aspects into a successful business. By 1860 the foundations for a successful furniture business had been laid.

The industry was first located at both the market place and at the source of raw materials. By 1860 a change took place as both markets and woods were further distant. Longer hauls were necessary and transportation costs more critical. For Grand Rapids to develop greater accessibility, more than one railroad was necessary. The Detroit, Grand Haven, and Milwaukee ended at Lake Michigan on the west and Detroit on the east. Therefore, Grand Rapids had only regional rail connections. The Grand River and the Lake were the only ties to the growing West.

Location

Before 1845 it was not important where furniture shops in the city were located. The building housing the shop was not important either. Even new buildings were poorly planned. With the increasing use of power machines came locational and structural changes. Buildings were designed to house machines and proximity to the river or canal became necessary. The location shift was necessary for owners to make use of water power, market finished

products, and receive raw materials. In a few years factories were relocated close to the water.

The east side canal in Grand Rapids made water power easier to obtain. The canal was about 2,000 feet long and provided a location for factory development.¹ The original purpose of the canal for navigation was abandoned as it proved a great impetus to manufacturing.

Figure 7 indicates the location of furniture establishments in 1856. A new industry had been firmly established along the east side canal. Both transportation and water power made the location desirable.

Summary

In assessing the factors contributing to the growth of the furniture industry, a distinction must be made between the early and later factors. The factors causing growth of the industry in the early 1840's were raw materials and an expanding local population. As machines began to be used, water power contributed to industrial efficiency. Yet, one cannot discount the importance of skillful entrepreneurs.

With the industrial revolution, more choices were open to furniture makers. The flow of ideas and technical knowledge increased and factory owners searched for

¹John Land, Industries of Grand Rapids: 1882 (Grand Rapids: 1883), p. 50.

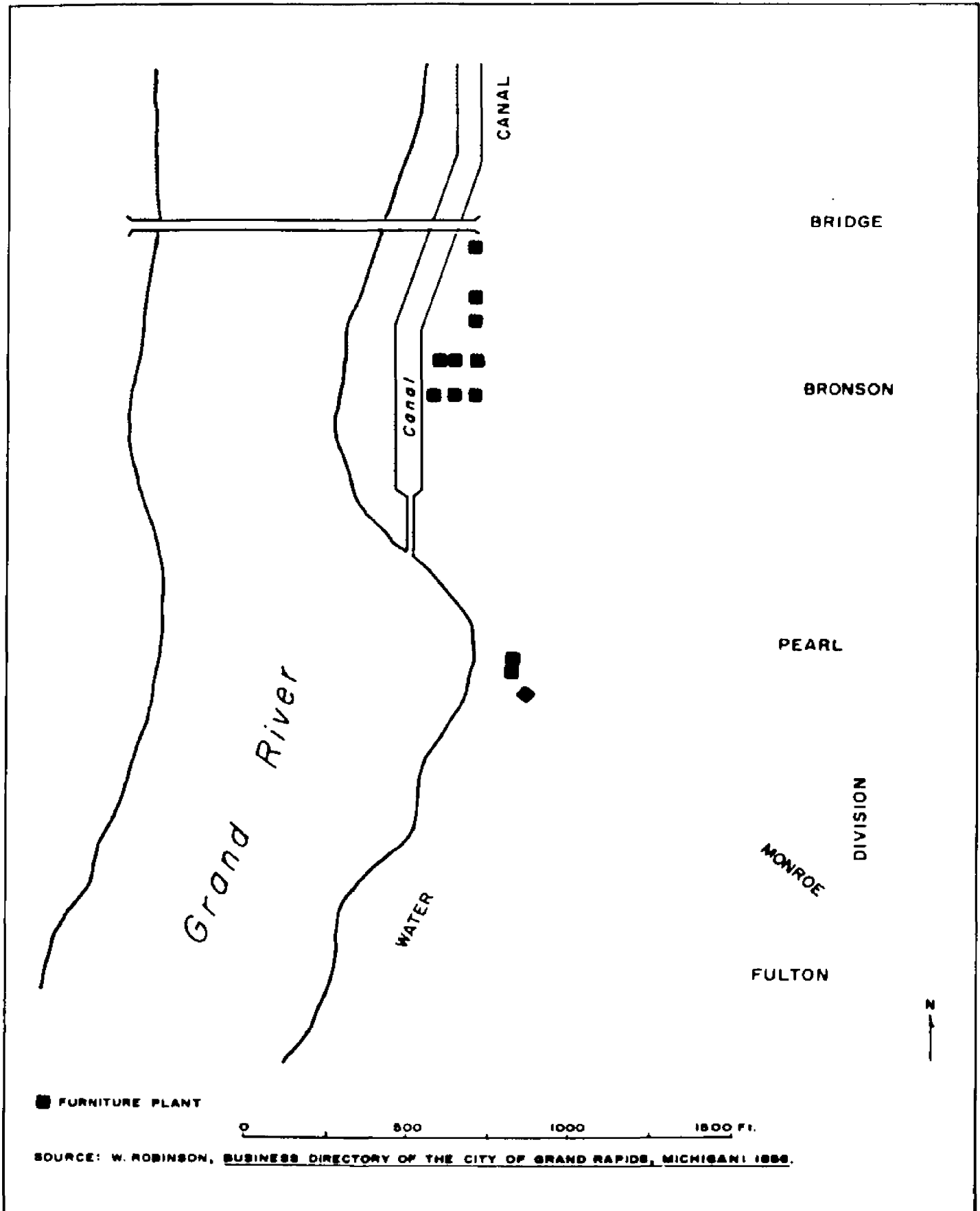


Figure 7. Furniture Plants in Grand Rapids, 1856

ways of increasing production and reducing costs. Processes were selected that insured a satisfactory return.

A firm's survival depended on decision makers' knowledge of the physical and cultural environment and their abilities in sales and production. Man's perception of the environment, the information he received, and the decisions he made were not optimal.¹ However, the performance level in 1860 was high enough to expand sales and market areas. This expansion was based on choices of markets, resources, and technology.

In the 1836 to 1840 period the space searched for materials, markets, and methods was close to Grand Rapids. Between 1840 and 1860 search activities encompassed a greater area as evidenced by the Chicago and Milwaukee markets. The decision to expand markets to these two cities was of prime importance for it laid a base for future growth. The number of paths searched increased as roads were expanded, steamboats traveled the Grand River, and railroads were built. The choices available to manufacturers were not as limited by difficulties of movement.

In the 1850's expansion of the industry was able to take on new dimensions as markets expanded. The

¹Ronald Abler, John Adams, and Peter Gould, Spatial Organization: The Geographer's View of the World (Englewood Cliffs: Prentice-Hall, 1972), p. 492.

railroad encouraged larger markets which could be supplied by machine modified furniture.

The industry developed a self-perpetuating momentum. Tremendous population growth led to greater sales and more inventions and innovations which in turn led to greater production. Market areas were enlarged. Grand Rapids was favored during this 20-year period by a great growth in the regional population and a standardization in production. Even though furniture in its final form was not standardized many of the preliminary stages in production were.

The stable position of the furniture industry in the city was not the result of any one factor. The industry had slowly developed and represented an accumulation of skills based on raw materials, machines, and transportation.

CHAPTER IV

INNOVATIONS AND EXPANSION:

1860-1890

By 1860 the industrial revolution had made an impact on furniture making in Grand Rapids. During the 1860-1890 period, machine assistance in furniture construction intensified. Many innovative techniques and machines were put into operation which expanded production. A spectacular rise in the reputation of the local furniture industry occurred. Although the local industry had only modest production in 1860, by 1890 the city was considered the "Furniture Capital of America."

Growth did not suddenly begin with the end of the Civil War. Substantial growth had occurred twenty years before the war. Thus, a major furniture industry slowly emerged in Grand Rapids hindered by many temporary setbacks. At the beginning of the 1860-1890 period the industry was severely limited by small markets. Urban populations were small and income levels low. Markets were greatly confined by transport and communication limitations.

The high cost of transportation restricted trade to high value products.

Overview

In 1860 signs of prosperity in the furniture industry were noticeable. The 30 years following 1860 brought tremendous furniture industry expansion. The period was one of intense industrial activity. Factories sprang up across the country although many failed and were in existence only a short time. Other factories flourished and were able to expand. The general industrial expansion was stimulated by improved machinery and merchandising methods.

Although the furniture industry was firmly established in Grand Rapids in 1865, many writers failed to anticipate its future growth. Professor Franklin Everett writing in 1865 on Grand Rapids made no mention of furniture manufacturing.¹ One must conclude that the industry was relatively unimportant and too insignificant to mention. Factories of that early period were poorly equipped and most of the work was done by hand. Yet, by 1890 Grand Rapids was to furniture what Paris was to fashion. The cheaper lines of furniture had been cut back; emphasis was placed on style, variation, and quality. The city had developed a world-wide fame. The fame was not a result of

¹Franklin Everett, Memorials of the Grand River Valley (Chicago: Legal News Company, 1878).

the magnitude of production but was based on a reputation for skill and ingenuity in design and construction. Grand Rapids was not the largest furniture producer in the country. It was surpassed by other cities in capital, workmen, and product value. However, the city firms had an unimpeachable reputation for producing the finest quality furniture in the country.

Whereas in 1860 furniture ranked well behind other industries in importance, by 1890 furniture had become the leading industry in the city (Table 2).

TABLE 2
1890 LEADING INDUSTRIES

	No. of Establ.	Employees	Value of Products
Furniture	31	4,347	5,638,916
Lumber and mill products	26	1,079	2,319,495
Flour and grist	10	136	1,558,845
Metal	60	861	1,216,039

Source: Bureau of the Census, Eleventh Census of the United States: 1890, Manufacturers (Washington, 1896).

Furniture production moved westward as population shifted.¹ The furniture industry was first centered in Boston, then Buffalo, Philadelphia, Cincinnati, Columbus,

¹Allen Albert, The Present and Future of Grand Rapids (Grand Rapids: Rotary Club, 1917), p. 10.

Grand Rapids, and then Chicago. Shipping from the established centers to wider markets took place by schooner and steamer. However, the distance was too great to encompass the markets of the West. Therefore, new centers such as Grand Rapids grew to service both local and regional markets.

In the 1860's Boston was the Eastern center for quality furniture. Cincinnati also had a good reputation. However, by 1890 Boston had declined as a furniture center as a result of competition from Grand Rapids and other Western cities. Despite the advantage of established capital, markets, labor, and factories in other cities, the relative position of Grand Rapids rose. Although census figures were not available for 1860 and 1870 for individual furniture centers, the 1880 and 1890 figures point to an amazing increase in production in Grand Rapids (Tables 3 and 4).

Table 4 indicates that Grand Rapids firms had a large output per establishment. It is likely that the local firms turned out a quality furniture, not just large quantities.

By 1860 the pioneer period of the industry in Grand Rapids had ended and the machine and organization periods had begun. The organization period was of extreme importance for it set the tempo of the industry. A superb reputation was developed which allowed the industry to

TABLE 3
1880 FURNITURE PRODUCTION

	Firms	Workers	Value of Production
New York	299	5,938	9,605,779
Chicago	149	4,564	6,177,114
Philadelphia	195	2,821	4,839,853
Cincinnati	119	3,461	4,372,339
Boston	123	2,365	3,867,917
St. Louis	54	1,044	1,979,683
Grand Rapids	11	1,807	1,831,172

Source: Bureau of the Census, Tenth Census of the United States: 1880, Manufacturers (Washington, 1883).

TABLE 4
1890 FURNITURE PRODUCTION

	Firms	Workers	Value of Production
New York	187	6,491	12,922,290
Chicago	149	7,706	12,540,215
Grand Rapids	31	4,347	5,638,916
Philadelphia	79	2,589	4,812,913
Cincinnati	62	3,134	4,208,974
Boston	88	2,125	4,082,476
St. Louis	33	1,563	2,961,404

Source: Bureau of the Census, Eleventh Census of the United States: 1890, Manufacturers (Washington, 1896).

expand its markets, hire the finest craftsmen, and use the newest methods of production. The cycle of increasing and enlarged population, markets, and innovations was evident during this era. Yet, Grand Rapids cannot be examined in isolation. The economy of the country had much to do with changes in furniture. As people became more prosperous, they wanted better furnished homes. Money became available to millions of Americans with which to purchase furniture with greater aesthetic appearance. Thus, production increased and so did the quality and the number of styles.

Transportation

One of the notable changes that took place from 1860 to 1890 was the increasing speed and ease of moving raw materials and manufactured goods. Grand Rapids had long been in need of better connections with the rest of the country. The plank road and the east side canal had been attempts at improving accessibility. One of the early innovators in the furniture business, William Powers, purchased the land along the west side of the river and implemented a plan for another canal. The west side channel, like that of the east, never served as a transportation artery. However, Powers foresaw the role of river location and developed the canal for industrial purposes. Saw mills, flour mills, and furniture

factories were located along the west side canal. Thus, by 1869 two canals, each about a half mile long, served industry by supplying large amounts of water power, easy disposal of wastes, access to the river for transportation, and easy withdrawal of water for industrial use (Figure 8).

Property values along the western canal gave an indication of the worth of the project. Powers built the canal for \$120,000 in 1869.¹ By 1888 an acre of land on the canal was selling for \$2,000 to \$7,000 whereas factory land elsewhere in the city could be purchased for from \$800 to \$1500 an acre.²

Factory relocation along the canals and river had been completed during the 1860-1890 period. Figure 9 indicates plant location in 1881. Yet, before the end of the 30-year era the river had lost its importance as a transporter of products or logs. The change occurred because of competition from the railroad. Factory locations away from the river were made possible by the expanding rail network.

In 1860 only one railroad, the Detroit, Grand Haven, and Milwaukee, provided service to Grand Rapids. Thus, some access to outside markets was provided.

¹Bradshaw, "Grand Rapids Furniture Beginnings," p. 295.

²Ransom, The City Built on Wood, p. 32.

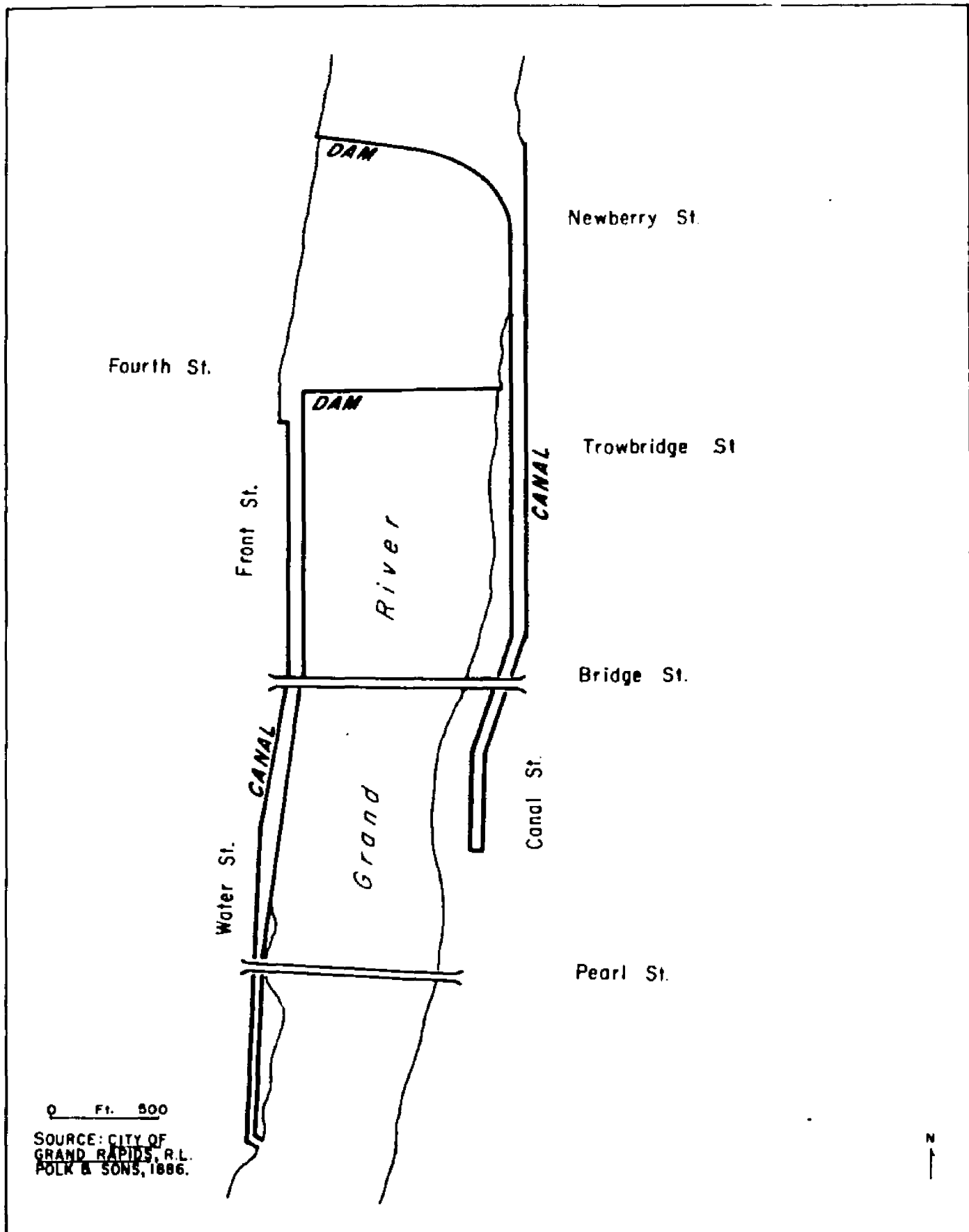


Figure 8. Canal Development in Grand Rapids, 1869

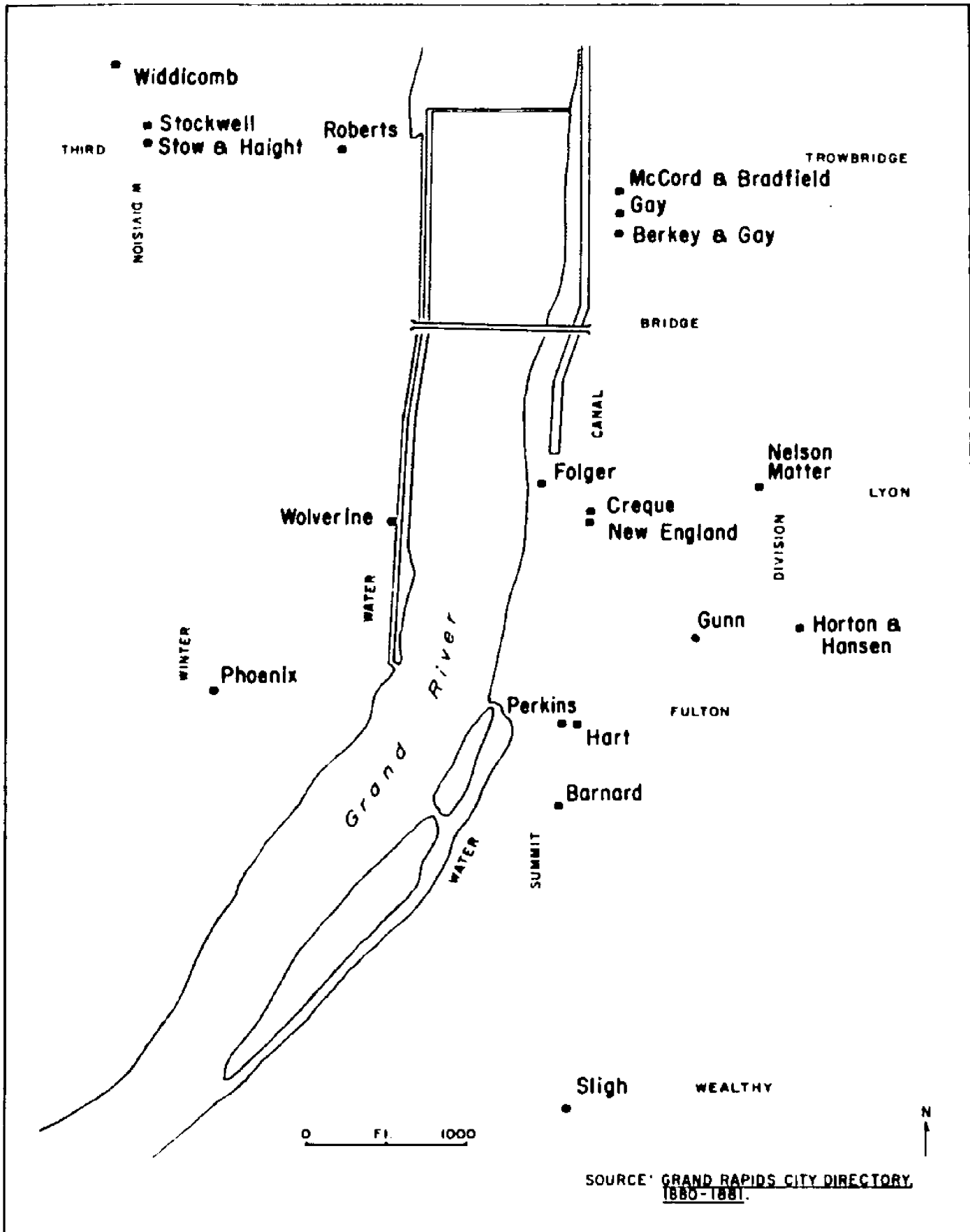


Figure 9. Furniture Plants in Grand Rapids, 1881

However, by 1870 other railroads connected the city with a large number of major Michigan and regional cities. The second railroad to enter the Grand Rapids area was the Lake Shore and Michigan Southern. The rail line came from Kalamazoo via Allegan. The rail line was perceived to be important enough to Grand Rapids to offer a \$10,000 incentive for reaching the city by March of 1869.¹

Two other railways reached the city shortly after the Lake Shore. The Grand Rapids and Indiana railroad came from Fort Wayne in 1870 giving the city more regional connections. Also in 1870, the Grand River Valley rail line provided service between Grand Rapids and Jackson. The big boost that the railroad gave to the furniture industry could be seen in the 1870 production of Berkey and Gay. The company shipped out over \$125,000 worth of furniture.² Yet, most firms in 1870 still marketed in the regional area. Although the industry was changing from handicraft to machine production, little was known of Grand Rapids furniture outside of the immediate area. Eastern buyers were unaware of the production in Grand Rapids and regarded the area as uncultured, a bona fide

¹Goss, History of Grand Rapids and Its Industries, p. 618.

²Lydens, The Story of Grand Rapids, p. 300.

wilderness. The 8 firms of Grand Rapids were minute compared to over 6,000 in the whole country.¹

In 1870 Grand Rapids was well connected within the region (Figure 10). Freight and passengers could easily reach most large cities in the state. Feeder lines had begun to spread to smaller communities and new commercial relationships were formed. To the furniture industry of the city, rail connections brought expanded market areas and increased production. Furniture executive William Widdicomb, writing in 1909, was puzzled by the 1870 expansion of the local furniture business. He observed that railroads shipping to the west, moved furniture through towns with well established furniture shops. The shops in Buchanan and New Buffalo manufactured furniture on a larger scale than Grand Rapids.² LaPorte, Mishawaka, and South Bend each had successful furniture industries. Yet, in the 1870's Grand Rapids surpassed all of these cities in the scale of manufacturing furniture.

Obviously Grand Rapids had to have been an extremely efficient producer at the time that the railroad opened new markets. Innovations in the manufacturing

¹Bradshaw, "Grand Rapids, 1870-1880: Furniture City Emerges," p. 321.

²Widdicomb, "The Early History of the Furniture Industry in Grand Rapids," p. 74.

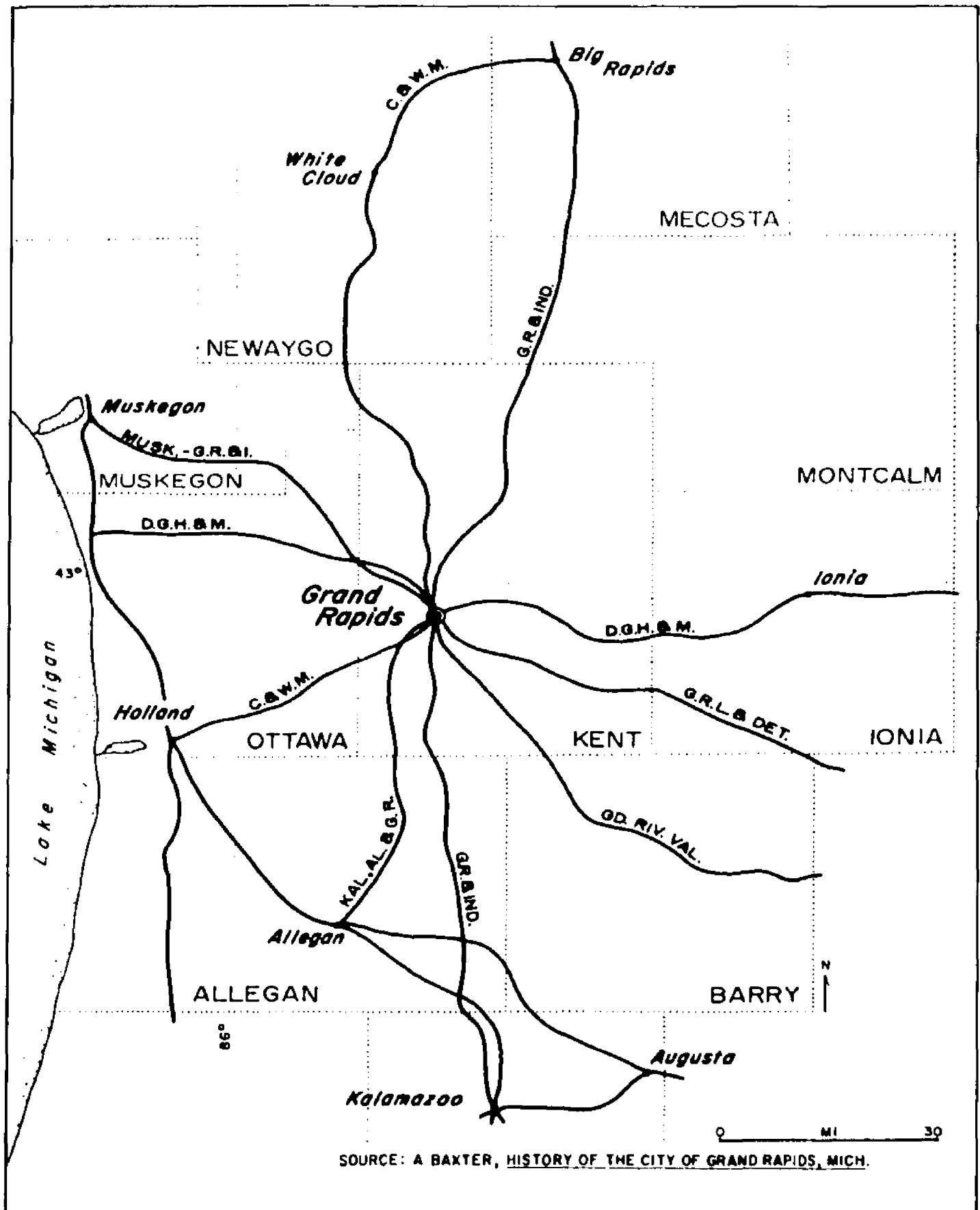


Figure 10. Grand Rapids Rail Connections, 1870

process had been made that gave the community an initial advantage over other centers.

The expansion of rail networks with low transport rates strengthened the initial advantages of efficient producers.¹ It appears likely that Grand Rapids was able to capture both raw materials and markets from less efficient producers and thus enlarge its output. The price reductions in transportation rates gave Grand Rapids opportunity to enlarge its markets and production. Furthermore, it must be noted that at the time of mass rail connections, the community had already developed a large furniture market area. Lower transportation rates favored those businesses already having large market areas. Since more of their expenses were in transportation, overall expenses were lowered significantly.²

As transportation improvements encouraged large-scale production, volume reductions in freight rates were gained which stimulated the growth of new establishments and the expansion of old. Grand Rapids in the 1880's benefitted from such arrangements.

The railroad provided access to new population centers. The North Central portion of the country was rapidly growing in population. In the 1860's alone the

¹Pred, The Spatial Dynamics of U.S. Urban-Industrial Growth, 1800-1914, p. 53.

²Ibid., p. 51.

North Central States grew in potential sales from 9.2 to 13 million.¹ Thus, with the railroad a large regional market was available to Grand Rapids manufacturers. Grand Rapids had a high degree of accessibility to the West for the 1860-1890 period and, therefore, an advantage over other furniture producers.

Innovations

William Widdicomb, of Grand Rapids furniture fame, suggested that it was neither location nor physical advantage that led to the success of the furniture industry in Grand Rapids; it was rather the personality of the men who developed the industry.² The developers of the local furniture businesses possessed characteristics needed for success in the field. They were ambitious and did not easily become discouraged. Early founders such as Berkey and Gay of the 1860's had energy, industry, originality, and business prudence. The great abilities and skills of early furniture entrepreneurs helped to lay a foundation for future growth. Expensive machinery was introduced, original designs produced, markets captured, skilled workers hired, and a national reputation achieved.

¹Bradshaw, "Grand Rapids Furniture Beginnings," p. 292.

²Widdicomb, "The Early History of the Furniture Industry in Grand Rapids," p. 74.

The growth of the industry in the 1860-1890 period reflected national trends in patterns of living and industrialization. The rapid industrialization replaced old craft shops with machine shops. A national market became possible due to changes in transportation and mass production. Although the furniture industry of Grand Rapids never mass produced furniture, it did quicken its pace, and where applicable, used machinery to standardize operations.

Firms like people passed through a cycle which included both adolescence and maturity.¹ While people cannot be rejuvenated, businesses can get a fresh lease on life. The early years of growth in the Grand Rapids furniture industry were based on initial advantages. The industry grew as it adjusted to changes in trading conditions and as it gained large scale production. Many industries lost their impetus and stagnated after early growth as they came to the limits of initial markets. However, others were able to continue expansion by reorganizing, introducing new styles, changing production methods, or modifying their marketing procedures. In short, innovations in the furniture industry were necessary to stimulate growth. As the industry grew, the

¹Victor Parker, Costing in the Furniture Industry (Oxford: Pergamon Press, 1965), p. 102.

length of time that each innovation spurred growth was shortened.¹

Technology was a result of the increase in useful knowledge. The technological revolution in the furniture industry was a result of three processes--invention, innovation, and diffusion. An invention was the conception of an idea while the innovation was its application in production. Innovations diffused or spread from one firm to another. Production techniques were easily converted from one industry to another without major changes. Many of the machines and techniques of the furniture industry were adopted from sash and door factories. Thus, Grand Rapids made good use of linked inventions and innovations.

Many of the machines and techniques used in the local industry were invented elsewhere.² However, Grand Rapids furniture leaders were quick to adopt useful processes and machines. This is undoubtedly what William Widdicomb was referring to when he suggested that the success of industry was based on the personality of its leaders. These leaders introduced the latest machines and discarded the old. Those shops that clung to the old

¹Ibid., p. 102.

²Machines invented elsewhere, but quickly adopted by local manufacturers included carving machines, lathes, borers, and sanders.

ways too long could not compete successfully. Grand Rapids as an efficient producer eliminated many inefficient producers. However, the advantages that accrued by innovative character were not indefinite and a continuing series of inventions and innovations was needed to keep the firms of the city functioning at a high level.

The innovations in furniture manufacturing plants reduced the cost of the product, thereby favoring growth and agglomeration in those centers that were already efficient producers. This expansion was at the expense of inefficient centers. Thus, the reduction of production costs, like advances in transportation, gave advantages to a few cities like Grand Rapids. Many inventions and innovations took place in Grand Rapids. However, major gains in productivity are often a result of many minor improvements. Spectacular advances are often in the limelight, but unspectacular ones are sometimes of greater importance. Some notable improvements were made in Grand Rapids but the furniture industry surged ahead from the cumulative effects of many minor inventions and innovations developed elsewhere.

The use of power to operate machinery changed greatly over the 30-year span. By 1890 both steam and electric power were used for machine operations. Of the furniture plants in the city in 1884 only 3 were run by

water power and 21 by steam.¹ Electricity was used for artificial lighting of the plants by 1890. Furniture machinery did not make furniture. Instead, individual furniture parts were cut and sized. Furniture that could be completely machine made was not functional, was uncomfortable, and lacked considerable aesthetic appearance. Thus, furniture machines were those that saved production time and labor without detracting from hand made quality. The purpose of machines was to free craftsmen from menial labor. As machines became more accurate, craftsmen were able to spend more time on refinement efforts. The product produced dictated the machinery to be used. It was difficult to standardize operations in furniture production, particularly in quality lines. Buyers demanded unstandardized construction. Thus, factories had to produce variable lines.

The factories were a series of craft shops in the same building. Machinery was used in the preliminary steps for rough cutting, shaping, rough sanding, and gluing. But, hand work still dominated the process. Furniture making was not mass production or low cost construction. Great amounts of hand carving, toning, and finishing were present. Grand Rapids production was

¹Census of the State of Michigan (Lansing: Thorp and Godfrey Printers, 1886), p. 385.

geared to those who wanted and were willing to pay for the best.

The local industry had to solve the problem of rising labor and material costs in addition to the increased demand for furniture. The use of machinery was the answer. Yet, machines were not able to do the majority of the work. Individual craftsmanship was maintained. By contrast, in many industries the worker was no more than a machine operator. In furniture construction machines were a method of reducing toil and drudgery.

It appears that Grand Rapids was among the first furniture centers to introduce fundamental technological changes. Many of the plant owners developed their own machines. William Widdicomb was reportedly brilliant and ingenious. He designed many labor saving devices to meet his own needs.¹ The attitude was to make the job easier and cheaper without sacrificing product quality. Unfortunately, Widdicomb failed to patent his inventions. Workers were credited with inventions such as a device for cutting out four pointed stars previously cut by hand. A sanding machine is also attributed to local plants.² This machine smoothed the surfaces with three

¹Although these machines are unnamed in the literature, mention is made of them by Bradshaw and Ransom.

²Bureau of Labor and Industrial Statistics, State of Michigan, 1900 (Lansing: Robert Smith Printing, 1900), p. 73.

grades of sandpaper. Even gluing machines were constructed. A wheeled truck was also developed that moved lumber into factories. It was called the "Grand Rapids express," one of the many inventions of the industry. The truck complemented a lumber rack, developed by furniture manufacturer Comstock, which took only 30 seconds to unload. Most machines were built within Grand Rapids. In some cases iron works and furniture factories were owned by the same men. Locally made furniture machines displayed at the Kent County Fair in 1879 included an endless bad surfacer, a re-saw machine, and a dovetailing machine.¹

Inventions were matched with innovations. Spindle carving machines were brought from the east and introduced in the Berkey and Gay factory. A notable advancement occurred in 1885 when a furniture worker developed an improved spindle caster.² By 1886 this novel device was adopted by Berkey and Gay which supplied the caster for all customers. Undoubtedly many machine inventions and innovations occurred in Grand Rapids of which no record is available. Many of the improvements must have been of such a minor nature that only the

¹Bradshaw, "Grand Rapids, 1870-1880: Furniture City Emerges," p. 351.

²Arthur White, "Romance of the Furniture Caster," Furniture Manufacturer and Artisan, LXII (July, 1911), 344.

cumulative effects of many advancements were noticeable. In any event, the literature is replete with references to Grand Rapids as an inventive and innovative furniture center.¹

Inventions and innovations occurred in categories other than machines. Changes in design, structure, and movement of goods also took place. Julius Berkey exemplifies the type of manufacturer present in the city. Berkey was a practical manufacturer whose training came from experience. He had a sense of application of designs from one field to another. On an eastern trip he noticed the ornamentation in a railroad car and successfully applied it to chamber suites. Not satisfied with merely the design, Berkey hired the man who had decorated the car ceiling. At a later period in Philadelphia, Berkey was impressed with an ivory shaping machine which he felt would be valuable in woodworking. He immediately hired the machine operator and designer. Success by the Berkey and Gay Company as well as other companies was in part the successful application of techniques from other fields.

Many inventions were made in other parts of the country. Grand Rapids was quick to profit from useful

¹Widdicomb, "The Early History of the Furniture Industry in Grand Rapids;" Klok, A Short History of Furniture Drafting; Johnson and Sironen, Manual of the Furniture Arts and Crafts; and Ransom, The City Built on Wood.

methods or designs.¹ About 1885 the Welch folding bed was invented. Lyman Welch came to Grand Rapids which was already known as a furniture center. The bed was tremendously successful for it folded together with a variety of different fronts such as mirrors, desks, and tables. The city was already profiting from a good reputation and benefiting from agglomeration tendencies.

Changes occurred in the way that furniture was moved to markets. Since the furniture of Grand Rapids was all wooden it could be knocked down to facilitate movement. The city was among the first to pack excelsior around the wood and pack it in burlap bags.

One of the most important advances in furniture making can be credited to a foreman in the Phoenix plant. In 1887 Phoenix decided to make a better line of furniture. Companies had long had a problem cutting curved stock from a paper drawing. Paper either shrunk, tore, or got dirty. Thus, only one or two pieces could be cut from the same drawing. Foreman Koopman came up with a roding method which allowed pattern use on a production scale.² The paper patterns were transferred to a wooden panel which was shellacked. Thus, the panel was readable and not

¹Kenneth Welch, interview, July 10, 1972.

²John Klok, A Short History of Furniture Drafting and Why Grand Rapids Became the Furniture Capital (Grand Rapids: 1934), p. 3.

subject to soiling. Other Grand Rapids manufacturers adopted the technique and were able to speed up production and lower costs. The method was little known out of the Grand Rapids area. As a result of the invention the city was able to produce furniture of higher quality than its competitors. Tolerances within 1/16 of an inch could be obtained.

The curing of large quantities of wood had long been a problem for furniture makers. Wood shrinks or swells by taking on or giving off moisture. Thus, it was necessary to condition wood to home conditions. Most companies were not financially able to stack lumber for four years for the lumber to be cured naturally. An artificial means of curing wood was needed. The first kilns used in Grand Rapids were not satisfactory for they baked the outside of the wood and left sap on the inside. The problem was solved by A. D. Linn and A. Clark Thwing, Grand Rapids men, who perfected a dry kiln process around 1880.¹ The lumber was dried in boxes or corridors with controlled moist, hot air. Local talent had again solved a major problem and spurred production.

The innovative character of the Grand Rapids industry was found in styling and design. Early industrialization led to increased sales. The use of machinery

¹George Fuller, ed., Historic Michigan (National Historical Association, 1924), p. 547.

allowed furniture to be sold to many more people. Previously only the wealthy purchased furniture. With wealth more widely distributed and furniture prices reduced, producers could not keep pace with the demand. In 1872 Grand Rapids firms had more orders than they could fill.¹ The furniture was almost exclusively low priced bedroom furniture. The great output along less substantial lines led to rapidly changing styles. However, this trend was short lived in Grand Rapids for the cost of lumber increased as the forests were cut. As lumber costs increased, the manufacture of cheap furniture decreased and quality lines were produced. Furniture became less a matter of utility and more a matter of style. An inventiveness in styling and design took place in the industry.

Mechanization brought more ornamentation and variety of design. Workmen who previously had spent long hours doing routine crude jobs, could spend this time on carving and designing. The first designs were dominated by straight lines except for carved decoration. These straight lines were well fitted to initial machine use. By 1876 a new style of heavy baroque construction became popular. The baroque type fitted in well with the "robber-baron" type of architecture. In 1877 each Grand Rapids firm had its own specialized designers. These

¹The Great Union Fair of Michigan, 1872 (Grand Haven: Grand Haven Publishing, 1872), p. 59.

designers brought back designs of the seventeenth and eighteenth centuries and made modifications in them. A continual flow of new designs came from the city. By 1880 the city was building good furniture and using styles, designs, and finishes in such a way as to capture extensive markets.

Most early designers were concerned with ornamentation and not fundamental lines. No intensive research into styling had taken place. However, the styles of the 1880's changed as a result of the influence of professional designers, the scarcity of walnut, and the attempt to popularize oak. One of the first designers in the city was David Kendall who came in 1879. Kendall established the importance of designers in the industry and for 15 years served as the leading designer of the city. Under his leadership stains for oak and antique finishes were perfected. Unfortunately Kendall was unable to control patents on the different wood finishes.

In the 1870's the demand for carvers and designers was met by hiring workmen from Europe. Designers came from Denmark, Sweden, Germany, Italy, Netherlands, France, England, and Scotland. Many worked for individual furniture factories whereas others free-lanced for many plants. The largest factories had their own design staff and by 1890 were turning out new designs every year. To insure the needed supply of designers, a design school

was opened in Grand Rapids and headed by Kendall. The local design school was one more piece of evidence that a dynamic industry had arisen in Grand Rapids.

Innovations were of several varieties. Most of the innovations either lessened the price of the product or improved its quality giving Grand Rapids firms an advantage over competitors. The second type of innovation was the type that directly spurred sales by enhancing the industry's reputation or providing a marketing procedure.

Exhibitions

In 1871 Grand Rapids furniture was shown at the Northern Michigan Agricultural and Mechanical Fair. The city firms won first prize indicating that dominance had been established locally and regionally. The quality of Grand Rapids furniture apparently surpassed that of nearby competitors.

The industrial makeup of the city was changed by the 1876 Centennial Exposition in Philadelphia. The exposition was important in making Grand Rapids furniture known throughout the country. Three Grand Rapids firms sent exhibits to the Exposition. The bedroom display of Phoenix, Nelson-Matter, and Berkey and Gay was so well received that the furniture world turned its attention to Grand Rapids. Nearly overnight the city was regarded as an expert on quality furniture. Local furniture became known throughout the country.

The three furniture companies jointly made a special display of chamber furniture. At great expense they presented an attractive, quality display. The artfulness and originality in design created a good image with Eastern buyers. Figure 12 depicts the type of chamber furniture displayed. The highlight of the display was a massive bed covered with hand carved statues. Native American carvings of George Washington, Columbus, and wooden eagles decorated both the head and feet of the bed. All three Grand Rapids firms received medals and were encouraged enough to open warerooms in New York.

Prior to 1876 the weak point of American furniture was the lack of originality in design.¹ American manufacturers had not developed a unique style. Instead they borrowed ideas from the French and British. The style presented by the Grand Rapids firms reversed the pattern. An American style had been inaugurated by using national plants and figures. The 1876 display represented the material and artistic progress of the country. Previously, American furniture makers had been interested in the utility of furniture. Thus, furniture had been plain and serviceable. A new sense of grace, beauty, and design was introduced in 1876.

¹Albert Belles, Industrial History of the United States (New York: Kelley Publishers, 1966), p. 516.



Figure 11. Bedroom suite. A typical 1870 bedroom suite was plain in appearance.



Figure 12. 1876 prize winning bed. Produced by Berkey and Gay for the Centennial Exposition, this bed was sold as a wedding gift in 1877 for \$7,000.

Grand Rapids firms made use of the notoriety received from the Exposition. New showrooms were opened in Grand Rapids. At first buyers viewed furniture at the factories. Furniture was displayed in furnished apartments so that customers could judge purchases in a home setting. This innovative concept or arrangement proved useful. Grand Rapids was the first center in the Middle West to arrange furniture with curtains, carpets, and other furnishings. The new showing method was well received by buyers who were used to furniture stacked or crowded together.

Prior to 1876 Grand Rapids firms had occasionally held special sales and sent out invitations to buyers. However, nothing of annual basis was held. Following the success of the 1876 Exposition, Grand Rapids firms co-operatively advertised a city furniture sale. A good response was received from buyers in November of 1878. The response of buyers was good enough to encourage a second market in May, 1879. Thereafter, Grand Rapids firms held markets on a regular semi-annual basis.

Grand Rapids firms did not make all the accessories necessary for room displays. Thus, the firms invited other manufacturers to contribute. The lamps, curtains, and carpets provided and created a fashionable appearance.

As the number of eastern buyers increased, the market area of Grand Rapids expanded greatly. Eastern firms felt the competition and responded by opening their own displays at the Grand Rapids exhibition. New York dealers began purchasing high quality furniture for high income consumers.

The first market in 1878 brought eleven out-of-town buyers. Buyers came from Chicago, Philadelphia, Boston, Milwaukee, and Toledo. The number of buyers slowly grew in the 1880's to 40-50 a year.¹ Quite often the furniture was viewed "in the white" or unfinished state so that pieces could be finished to the buyer's taste. By 1882 the market had grown to such proportions that Grand Rapids firms found it unnecessary to maintain retail outlets throughout the country. The reputation of Grand Rapids furniture was national in scope and led to an increase in the number of factories and employees. In the fourteen years after the Philadelphia Exposition, Grand Rapids had moved from 7th to 3rd place in furniture production (Table 4).

Eastern firms met the new competition by opening their own displays at the Grand Rapids Market. The first eastern displays consisted only of photographs. Their use however, was quite unsuccessful. Buyers came to see

¹Ransom, The City Built on Wood, p. 22.

furniture, not pictures. Thus, in 1883 manufacturers from other parts of the nation began displaying furniture in the city. Firms from New York, Cleveland, Connersville, Muskegon, Ravenna, Jamestown, and St. Louis were represented at the Market.

Grand Rapids dealers encouraged other manufacturers to show their furniture at the market. More displays meant more buyers and more exposure for Grand Rapids wares. Local firms had a distinct advantage over outside displays. They were able to show furniture at the factories. Space for displays was limited. Outside dealers leased vacant lofts, vacant stores, basements, reading rooms, and billiard rooms. The problem was not remedied until the 1890's when an exhibition hall was completed.¹ All eight floors of the building were leased even before completion.

Grand Rapids had clearly arrived as a capable furniture producer. The local market was the only market outside of New York, Boston, and Philadelphia.² All were large cities compared to Grand Rapids. The location of the semi-annual fairs in Grand Rapids made the city a center for foremen, designers, superintendents, and

¹The exhibition hall became known as the Waters Building and was located on Ottawa Street.

²Hugh Lago, "Fine Furniture: Celebrates Its Diamond Jubilee," Inside Michigan, III (January, 1953), 49.

finishers. As distributing center, the city attracted large numbers of skilled personnel.

In the 10-year period--1876 to 1886--the city became secure in reputation. Railroads and machines had been ready to provide for increased furniture demand. By 1890, 83 outside factories displayed furniture at the Grand Rapids Market.¹ Of the outside firms 19 kept permanent displays in the city. Yet, city firms were able to successfully compete with the other firms. As an example, buyers in the city in July, 1889 placed so many orders that in order to keep pace, factories ran night and day. Late buyers were forced to go elsewhere to have their orders filled.

Marketing

The exhibitions for which buyers came to Grand Rapids brought a change in the relationship between buyer and seller. By developing a national reputation, Grand Rapids furniture became sought after and firms no longer had to cover large territories for business.

Grand Rapids firms were conservative in their sales approach. Styling changes were not drastic. Firms were not involved in whimsical changes that produced only

¹Grand Rapids Board of Trade, Grand Rapids As It Is: 1890-1891 (Grand Rapids: Dean Printing, 1890), p. 49.

short term sales. Basic styles stayed the same with only minor changes that made them more attractive. Local manufacturers produced a quality line and thus were satisfied with limited sales in each locality rather than mass sales to one locality.¹

The great market areas of the local industry were not merely accidents. They may have been the result of good access, a trading instinct of the people, natural resources, financial resources, or general innovativeness. The quality of the items produced also effect market area size. The city was known for the best in the furniture line. Its leadership in quality furniture was unquestioned. The large semi-annual market in Grand Rapids may have been a result of the city producing more high quality furniture than any other city. The exhibition grew from a small start to the best quality exhibition in the country. However, the semi-annual furniture market was but one of several marketing techniques used by the industry. Initially railroad cars were loaded with goods and sent to city side-tracks. Dealers were invited to view the goods. Furniture was sold on the spot and the car sent to another city. The method left much to be desired. In the early 1880's trunks were filled with knocked-down samples and shipped to cities such as New

¹Grand Rapids Chair Company, Reflections (Grand Rapids: 1922), p. 4.

York and Philadelphia. In leased hotel rooms the samples were unpacked and set up and dealers were invited to inspect Grand Rapids furniture.

Furniture, because of its bulk, was much harder to show than other types of merchandise. The difficulties of transporting samples led to the use of sketches, models, and pictures. Penciled sketches of furniture were used as early as 1862 by the Widdicomb Company. Later small scale models of furniture were carried by salesmen to show available styles.

Furniture executive E. Matter introduced the use of the photograph into the furniture industry. Matter met a baby carriage salesman in Jackson, Michigan who was using photographs to promote sales. Matter realized the possibilities for furniture sales and hired a Grand Rapids photographer to photograph bedroom suites. First attempts were less than successful due to lighting difficulties. However, Matter soon came up with good photographs of furniture. Wood models and sketches were discarded and photos came into general use in marketing. The photo technique soon spread to other firms. The use of the photo allowed salesmen to cover larger areas and sell without the limitation of immediate delivery. Whether Grand Rapids firms were the very first to use sketches, models, and photos is not certain. However,

the city was among the first, and displayed an adaptive innovative policy.

The use of the photo brought changes in advertising. Widdicomb issued the first furniture catalogue to display merchandise. By 1880 monthly journals, Michigan Artisan and Fine Furniture, were being printed in the city. Selling by photographs was particularly useful between exhibition seasons when salesmen traveled from buyer to buyer.

Two big marketing developments occurred during the 1860-90 era. The 1876 Philadelphia Centennial Exposition gave Grand Rapids furniture national exposure and an excellent reputation. Following the Exposition furniture firms of the city exploited the reputation they had received and organized semi-annual furniture markets in Grand Rapids. Coupled with photographically induced sales, the market provided local firms with more orders than they could fill.

Market Area

Some furniture was shipped out of the Grand Rapids area before the Civil War. Thus, the business as known in 1890 began about 1860. The main markets being produced for in the early 1860's were Chicago and Milwaukee. As furniture output increased, local and suburban markets were insufficient to absorb the produce of the growing industry. Local manufacturers, in order to sustain growth,

were forced to look for outside markets.¹ One manufacturer, Comstock, studied the situation and concluded that St. Louis and Peoria were fine distribution points for the Middle West. Comstock felt his firm could not survive without outside markets. In 1861 he opened furniture show rooms in St. Louis and Peoria and began sending goods to Grand Haven, Milwaukee, and Chicago. The venture was so successful that the firm doubled its output in a single year.² The first shipments were of inexpensive lines. But, the response from buyers was good and higher quality goods were soon marketed. The wholesale marketing of furniture was new and attained great importance after the Civil War. Comstock was a successful businessman for he realized the necessity of changing from local to regional markets. The regional markets of the North Central States were growing at a tremendous pace. By the end of the 1860's Comstock was selling furniture as far west as Iowa and Minnesota.

Other Grand Rapids firms also expanded their sales areas. Both Widdicomb and Berkey and Gay understood that more than a local base was necessary for industrial growth. Following the Civil War expansion took place in the local

¹White, "Grand Rapids Furniture Centennial,"
p. 273.

²Bradshaw, "Grand Rapids Furniture Beginnings,"
p. 292.

industry as it responded to increased demands. The rapid increase in the number of buyers was a result of the fast rising incomes. The buyers rose in number more quickly than the ability of the industry to produce the quality, artistic furniture. Grand Rapids was fortunate to be an efficient producer at the time that people had the money to buy quality furniture. The local industry expanded on the basis of this initial advantage.

Fast growing industries are often able to take over market areas of slowly growing industries.¹ The Grand Rapids furniture industry expanded rapidly following the 1876 Exposition and captured markets of other centers. In addition new markets were being created by increasing population and the newly accumulated wealth of the American worker. Furniture was one of many manufactured goods that profited from higher incomes.

By the 1870's the reputation of Grand Rapids firms had spread to the point that Chicago dealers came to the city to make purchases. One Chicago firm even rented an office and drafting room in the city. Grand Rapids firms were attempting to market in the East. George Gay made trips to both Boston and New York selling several carloads of furniture.² Thus, just prior to the 1876 Exposition,

¹Pred, The Spatial Dynamics of the U.S. Urban-Industrial Growth, 1800-1914, p. 82.

²Wilbur Nesbit, The Story of Berkey and Gay (Grand Rapids: 1911), p. 7.

Grand Rapids was known throughout the Middle West for furniture production. The market area lay in a semi-circle from Lake Erie through Ohio across Indiana and Illinois to St. Louis and then Chicago and Milwaukee.¹ Some sales were even made beyond this area. As an example, Berkey and Gay in 1873 claimed to have shipped \$300,000 worth of furniture to New York, Pennsylvania, Ohio, Indiana, Illinois, Wisconsin, Iowa, Minnesota, Nebraska, Kansas, Missouri, and Colorado.² The railroad was obviously having an effect on long distance marketing. Every furniture manufacturer in the city was able to enlarge its plant between 1872-1874.³ It is clear that the furniture industry of Grand Rapids was viable and dynamic even before 1876. Some local historians were even able to perceive the role the industry would play in the future. Dillenback writing in 1874, observed that the industry had sprung up in 10 years and yet was only in its infancy. The building of an extensive factory system led Dillenback to write, "Grand Rapids will, at no distant day, be as famous for its manufacturers of wood as Pittsburg is for its iron."⁴

¹Furniture Manufacturers Association, The Furniture Career of Grand Rapids, p. 7.

²Ransom, The City Built on Wood, p. 15.

³Ibid., p. 15.

⁴J. D. Dillenback, Grand Rapids in 1874 (Grand Rapids: Daily Times, 1875), p. 39.

The Exposition of 1876 provided Grand Rapids with the impetus it needed for a national reputation. The Grand Rapids display compared favorably with eastern products. In spite of the fact that elite eastern competitors gave the display such titles as "Gargantuan," "Granite Renaissance," and "Colossus Americanus," the new style was quickly accepted by the public and eastern manufacturers.

Furniture making was found in almost all large cities. The larger cities made decorative types of furniture, while the smaller cities made more utilitarian types.¹ Grand Rapids was an exception to this tendency for by 1883 it had been proclaimed second to no city in quality and reputation.² Local firms were shipping to the leading markets of the country and the world. The fact that firms from other states and countries exhibited at the Grand Rapids Exhibition illustrates the national status of local manufacturing. The quality not quantity operation led to an international trade by 1890 with England, France, Netherlands, Turkey, Egypt, South Africa, China, and South America. Grand Rapids was recognized for perfection in construction and finish.

¹George Wallic and Joseph Whitworth, ed., The American System of Manufacturers (Edinburgh: Edinburgh University Press, 1969), p. 294.

²Land, Industries of Grand Rapids: 1882, p. 51.

The expanded markets led to more specialization and greater productivity. The firms of the city prospered by this specialized production. The history of industry suggests that a successful industry encourages other plants to locate near and that a multiplication of plants is an advantage to all. The attractions of labor, raw materials, power, and transportation make agglomeration a desired factor. By 1890 agglomeration had occurred in Grand Rapids with some 31 plants present. These plants received benefits by being linked for supplies of materials, selling, packing, and moving finished products. The competition was great between these companies. Yet, they were able to use each other and develop a city reputation.

Raw Materials

Writers have often suggested that the location of the furniture industry in Grand Rapids was a result of the fine supply of timber in the area. It is doubtful that a local lumber advantage even existed. Lumber was equally available in many other places. However, by 1890 the rich supply of timber had been logged off. The walnut was gone, and manufacturers were using maple, oak, and birch. Firms had begun to import tropical woods such as mahogany.

The fine hardwoods of Michigan in 1870 were regarded as inexhaustible. Even in the 1880's optimistic reports suggested that the Grand Rapids and Indiana railway

provided Grand Rapids with an inexhaustible supply of wood. Firms were obtaining wood from 30 different counties in the state.¹ The result was clear by 1890. The forests of Michigan had been seriously depleted. In 30 years the timber of the Lower Peninsula had been cut and if Grand Rapids ever had a resource advantage, it was gone by 1890. Walnut was the first wood to be depleted. Walnut was in great demand in the 1860's and 1870's. By 1880 walnut trees were scarce. Old walnut rail fences and stumps were scavenged and sent to Grand Rapids. Other woods were substituted for walnut. Companies began to advertise for basswood, maple, oak, beech, and hickory.²

Grand Rapids firms turned to other states and countries for wood. Cuba, Central America, and South Africa proved to be important sources of mahogany. Yet, the furniture city was more fortunate than many production centers. The Grand Rapids production was low in the amount of wood used. Production was noted for the high value added by manufacturing. Thus, craftsmanship and low amounts of lumber characterized local furniture making. To insure supplies of wood for future operations manufacturers began to invest in plots of timber acreage.³

¹R. Baker and H. Creswell, The City of Grand Rapids: Manufacturing Advantages--Commercial Importance (Grand Rapids: Dean Printing, 1889), p. 69.

²Ransom, The City Built on Wood, p. 24.

³Lydens, The Story of Grand Rapids, p. 307.

Workers

Few cities of the world have been renowned for doing one thing particularly well, but Grand Rapids was. Grand Rapids had a long period of supremacy and excellence in performance in furniture making. The excellence of production must be attributed to the craftsmen. The workers were artists in their own way. They displayed patience, fondness for work, love of wood, and gave attention to detail. One writer viewed the role of the craftsman as follows: "It has been quite truthfully said that furniture such as is made and sold here, is made of brains."¹ Following the 1876 Exposition designers and craftsmen came to the city from all over the world. The center of originality shifted from the East to Grand Rapids. Craftsmanship was looked upon as a tradition not an occupation. The trade was passed from father to son. Once established the industry fed on itself by supplying a family labor source. Few furniture workers left the city. Grand Rapids was a reliable source of employment. The employment was steady and the worker was not subject to lay-offs.

Grand Rapids furniture companies met the period of American materialism and mass production and retained quality production. Machines could not do the majority

¹Grand Rapids Market Association, The Grand Rapids Market (Grand Rapids: 1925), p. 1.

of the work. Machines were used only in the rote, rough stages of furniture development. Thus, the craftsman who took a pride in his work remained. Furniture was less subject to machine manipulation than most products. Tools were few and simple but the furniture produced was beautiful.

Grand Rapids firms never wanted for skilled labor. Great numbers of Dutch settled in the area and were employed in the furniture factories. Many writers have supposed that they were attracted by the furniture industry. However, most were drawn by the original Zeeland settlement and friends and relatives. Moreover, few had any background in woodworking. Nonetheless, the Dutch immigrants made fine furniture workers as they were known for thoroughness and dependability. As one writer put it, "In the main they are thrifty, steady and home-loving people, who can be depended upon not only for a high quality craftsmanship, but also for industry and application."¹ The immigrants did find work in the factories and were noted for the personal trait of excellence. They put emphasis on how well a piece was made, not how quickly.

Not only were Hollanders available as a skilled labor source but they were hired at a low wage.

¹Furniture Manufacturers Association, The Furniture Career of Grand Rapids, p. 7.

Traditionally Dutch workers were paid a \$1 a week less than their counterparts.¹ The Berkey and Gay Company employed large numbers of Dutch. Table 5 indicates that in 1886 Berkey and Gay employed 255 employees of which 173 were foreign born and 97 were Dutch.

TABLE 5

BIRTH PLACE OF BERKEY AND GAY EMPLOYEES--1886

Birth Place	No.	Birth Place	No.
United States	82	Austria	2
Netherlands	97	Denmark	2
Germany	31	Belgium	1
Canada	13	Russia	1
Sweden	9	Scotland	1
England	8	Wales	1
Norway	4		
Ireland	3		
		TOTAL	255

Source: "Berkey and Gay Statistics," Telegram-Herald, May 24, 1886, p. 1.

Thus, over one-third of the Berkey and Gay employees were Dutch. The national origin structure of the community was nowhere near one-third Dutch (Table 6). The Bureau of Labor figures for 1886 confirm a like situation in other furniture factories. The city furniture firms employed 531 native Americans and 596 foreign

¹Ransom, The City Built on Wood, p. 39.

TABLE 6

NATIONAL ORIGINS OF GRAND RAPIDS POPULATION--1880

National Origin	Number
Netherlands	5,186
Canada	4,312
Germany	2,511
Ireland	2,236
England	1,400
Total Population	72,253

Source: Bureau of the Census, Tenth Census of the United States: 1880, Population (Washington: 1883).

born persons.¹ The immigrants from Northwestern Europe were typical 19th century craftsmen that had accuracy, stability, and took pride in their work. The availability of cheap, dependable labor acted as an initial advantage at a time when the furniture industry expanded in Grand Rapids.

Finance

Growth was not continuous. The growing furniture industry was forced to meet a financial crisis in the 1870's. The financial Panic of 1873 put a heavy strain on the local industry. Only the most efficient firms survived. Furniture purchases were put off during periods

¹Bureau of Labor and Industrial Statistics, State of Michigan, 1886, p. 236.

of hard times. So many purchases were delayed that only three firms survived the panic. The local and national market was destroyed for Grand Rapids firms. Thus, they turned their attention to Canada to prevent bankruptcy. Canada was in better economic condition and local firms could sell for cash. The Canadian market may well have saved Grand Rapids firms from financial disaster. The admission of American furniture duty free opened the Canadian market on a permanent basis.

Little capital was available to the furniture industry initially for success was too uncertain. People in the city put their money into the more reliable lumber business from which furniture received indirect assistance. However, new machines and techniques required large capital investments. Some eastern capital became available when Grand Rapids became serviced by railroads and was able to extend its markets. A Boston capitalist, John Converse, who financed railroads of the Grand Rapids area also supplied financial loans to several furniture plants.¹ As shops were converted to factories, new sources of capital were found. Stock was sold in an effort to raise capital and finance expanded operations. Workmen were even encouraged to buy shares in the companies.

¹ Arthur White, Grand Rapids on Parade (Grand Rapids: Herpolsheimer Company, 1926), p. 17.

By the 1880's Grand Rapids companies were introducing the latest machines and discarding the old. Those firms that kept the old too long could not compete successfully. Every few years a revolution in machinery occurred. Although changing machines was expansive, local firms were able to change for they were growing at a tremendous rate.

Many concerns had a brief existence as the competition was severe. The number of new concerns was surprisingly high (Table 7).

TABLE 7
NEW FURNITURE BUSINESSES

Year	Number
1876	0
1877	1
1878	1
1879	3
1880	8
1881	3
1882	5
1883	4
1884	2
1885	2
1886	5
1887	5
1888	1
1889	6
1890	5

Source: Grand Rapids Centennial Furniture Festival (Grand Rapids: 1936), p. 5.

The failure of so many furniture concerns can be attributed to poor working relationships between partners. Yet, many companies survived as indicated by the 31 firms present in 1890. Oddly enough many businesses were formed by 5 or 6 workmen forming their own companies and were successful in Grand Rapids whereas they failed in other sections of the country. The focus of production on quality not quantity was an advantage to smaller concerns. Therefore, although stock in local firms was sold, most stock was held by a few men intimately involved in the business.

Business control underwent several changes during the 1860-1890 period. Single proprietorships were common as long as businesses remained small. In a proprietorship the owner had complete control over the business and operated as he saw best. When financial problems occurred, partnerships were formed. Partnerships required trust and understanding between the partners. Because of the legal liability of partnerships, corporations were formed that extended business life beyond the life of the stockholder. Although all three forms of business arrangements were used in Grand Rapids, most firms were dominated by one or two individuals. Proprietors or partners may have changed to corporations but they maintained control of the stock and exerted personal control of the business.

Small and medium sized furniture plants were maintained in the 1880's in spite of the city's national reputation and market. Quality furniture was not mass-produced and close employer-employee relationships were maintained. Employers had grown up in the business, knew how to run the machines, had a rapport with the employees, and personally directed the factory operations.

Population

Following the Civil War, urban centers grew rapidly. Grand Rapids was no exception and grew from a population of 8,085 in 1860 to 60,278 in 1890. Urbanization and economic growth were dependent on each other, one increasing the other. Population concentration increased the likelihood of inventions which in turn fostered production increases and market area extension. In general, ideas spread quickly in urban areas making inventions and innovations more likely.

However, Grand Rapids was not a large city in 1890 by national standards. Most large producing furniture cities had populations in excess of 500,000, such as New York, Chicago, and Philadelphia. However, Grand Rapids was regarded as a furniture specialist making fancy tables, elite bedroom suites, and setting styles for the country.

Decision Making

Individual and collective decisions were made that had geographic ramifications. Search activities through space were enlarged as the industry grew and decisions were made to increase production, sales, and markets.

Decisions to expand and seek new markets came about as railroads opened new opportunities. The market search was more uniform and less haphazard than in previous periods. The initial patterns of random search became more settled and predictable as connections between places improved. Flows of information from which decisions were made increased as accessibility increased.

The decisions of factory owners to make use of their newly won reputation from the 1876 Exposition were noteworthy. The furniture exhibitions held in Grand Rapids drew dealers to the city rather than Grand Rapids having to search the country for buyers. The personalities of the factory owners was such that cooperation was possible. Thus, the decision to cooperate and enter a joint exhibit at Philadelphia was followed by cooperative exhibition ventures. As a result, sales increased and markets expanded.

Decisions by buyers to attend the Grand Rapids exhibition were influenced by their perception of Grand Rapids as a furniture center. By 1890 the city was regarded as the "Furniture Capital of America." Buyers

in mental maps regarded Grand Rapids as a major furniture center.

Summary

Between 1860 and 1890 few advantages were received in the furniture industry from a superior location based on wood or power. There was little in the "natural" environment that made Grand Rapids a furniture center. William Widdicomb, furniture executive, suggested that much of the furniture success was due to the personality of the men who developed the furniture business.¹ Early leaders had characteristics needed for success in the field. They had "energy, originality, and business prudence." Widdicomb suggested: "I doubt whether Julius Berkey knew the meaning of the word discouragement and perhaps I was equally dense in my ignorance, and I shall give this perservance, combined with ingenuity and unflagging industry, as the forces developing the business which sustains our city, for mind you the men who came in later years brought to the business the same characteristics or they would have fallen from the ranks as the years went by, for our business will tolerate no negligence or incompetence."²

¹Widdicomb, "The Early History of the Furniture Industry in Grand Rapids," p. 74.

²Widdicomb, "The Growth of the Industry," p. 177.

Those firms prominent in 1890 had begun in a small way in an infant industry. By tremendous effort they prospered. They built not a company reputation but a city reputation by advertising the city as well as the firms. With an inventive and innovative effort they obtained national and international markets. In 1890 Grand Rapids was regarded as the "Furniture Capital of America," not because of the magnitude of production but on the quality of it manufactured.

CHAPTER V

MATURITY: 1890-1929

The furniture industry had not one origin but many. The processes stimulating the industry were modified as local and national needs changed. The period from 1860 to 1890 was one of tremendous increases in production. Factories were combined and production speeded up. The industry was caught up in rapid, national industrialization.

The 1890-1929 period brought changes in the ways that the local industry developed. Methods of transporting goods to market were perfected but not basically altered. Machinery was refined, not radically changed. Sales techniques by expositions were enlarged. The most radical changes occurred in styles and designs of furniture. Thus, maturity in the local industry brought an emphasis on craftsmanship and an innovativeness in appearance.

Mechanization

The advantages accrued to the local industry were not indefinite. Modifications were continually made so that the firms of the city could hold their dominant position. Mechanical improvements were necessary so that Grand Rapids could continue to successfully compete with other furniture centers. During the 1890-1929 era, factory operations became more mechanized. However, machines did not lessen the skill that the worker needed in furniture production. In a period of mass-production and standardization, craftsmanship remained an important part of the furniture operation. Furniture manufacturing was not drawn completely into the national pattern of mass-production. Even though the furniture factories did not operate on a production line basis, it was no longer possible to operate a plant without machinery and technical knowledge.

The city had attained the title "Furniture Capital of America" for its output of quality furniture and factories employed the best designers and woodworkers in the United States.¹ Only those machines that improved or maintained the quality of production were adopted. Grand Rapids sales were based on reputation and the manufacture of cheaper lines could have easily diminished that

¹Etten, A Citizen's History of Grand Rapids, Michigan, p. 171.

reputation. Thus, local plants were not as machine oriented as those of other cities. Furniture manufacturing remained as much an art as an industry. Workers were more than machine operators; they were skilled craftsmen. Therefore, the high quality furniture resulted from a combination of machine use and skilled, hand labor.

Local furniture concerns were slow to adopt assembly line methods. It was not until the 1920's that the first plant, Stow-Davis, introduced the methods successfully employed in auto production. A continuous process on the assembly line allowed the firm to complete a desk every five minutes.¹

Grand Rapids was the largest producer in the country of quality furniture. It was not first in the number of beds, chairs, or tables. Instead the local plants provided the best in beauty, service, style, and dependability. Cheap furniture was not produced. City manufacturers felt that the only merit of such furniture was its low price.² Equipment was installed that made the work easier and production faster. The general attitude of the manufacturer was to allow the laborer to do more intricate work by spending less time on rough tasks. Little mention is made in the literature of

¹George Fuller, ed., Michigan: A Centennial History of the State and Its People, Vol. I (Chicago: Lewis Publishing, 1939), p. 553.

²Furniture Manufacturers Association, The Furniture Career of Grand Rapids, p. 9.

specific machines that were introduced. However, advances were made in gluing and carving.

A gluing machine was introduced that used a hot-press technique. This process served as a substitute for clamps. The biggest change occurred around 1900 with the installation of an automatic carving machine. Previous carving machines had been too delicate and were poor for deep carving. The new Dodd carver was powerful and heavy enough to cut large and deep figures. The carving machine made the rough cuts allowing more time for the hand carver to perfect the piece. The rough carving machine was able to carve four or five pieces at once. By 1920 the number was increased to 24.¹

Whether Grand Rapids was first in the development and installation of numerous machines is uncertain since it is difficult to say what was happening in Chicago, New York, or Philadelphia without in-depth studies of each. If Grand Rapids firms were not the first to use many machines and techniques, they were among the first. Spray guns were used which could cover 24 chairs an hour compared to 4 with a brush.²

¹Arthur White, "The Recollections of An Onlooker," Furniture Manufacturer and Artisan, III (January, 1912), 43.

²Ransom, The City Built on Wood, p. 61.

The furniture factories were modern with efficient machinery. New woods, finishes, and techniques were used. By 1900 standards, Grand Rapids plants were considered large (Figure 13). Workmen were provided with large working spaces since cramped quarters hindered work. Room was needed for walking around each piece to observe its appearance. A great amount of space was needed for lumber storage (Figure 14). Drying kilns were also large. In short, furniture manufacturing required large factories.

Transportation

In the latter part of the 1860-1890 era, Grand Rapids had a high degree of accessibility to the West. By 1900 that advantage had been lost. The high quality of local goods proved more important than accessibility. The city had long had an initial advantage of good access. The Grand River had provided good connections for one era and during another period the city was well served by railroads. However, as rail networks expanded, Grand Rapids was not on the major routes and its once advantageous position was negated. Chicago became the important rail center of the Middle West.

One of the most notable innovations of the 1890-1929 period came in response to transport inequities. The Michigan Bureau of Labor in attempting to account for the growth of the local industry suggested in 1900 the



Figure 13. Berkey and Gay plant. Most of the furniture factories of Grand Rapids were built in similar designs.



Figure 14. Lumber storage area. The John Widdicomb factory utilizes a covered storage area.

following reasons: an abundance of materials in the area, the use of the photograph in marketing, semi-annual markets, and the use of a special furniture car in transporting furniture.¹ The use of a special rail car in marketing gave local manufacturers a peculiar advantage. Furniture was a unique item for the railroads to handle. Furniture was easily marred, and yet, rapid movement was demanded. Grand Rapids was extremely efficient in crating and shipping furniture. City manufacturers refunded only a fraction of the amount of damages for shipped furniture that other cities did.²

Special railroad cars were designed and used by Grand Rapids manufacturers. First rail shipments had been made in regular freight cars which proved unsatisfactory. Therefore, specially designed cars were built. Initially 10 cars of special sizing were ordered by furniture manufacturers. These cars were 7 feet high and 32 feet long.³ By 1900 the length was increased to 50 feet. The new cars were immediately adopted by local manufacturers. The cars were used entirely by Grand Rapids firms, and when empty were returned to the city. The innovations proved so successful that 50 additional

¹Bureau of Labor and Industrial Statistics, State of Michigan, 1900, p. 76.

²Ibid., p. 6.

³Ibid., p. 78.

cars were built and within a year 500 were in operation.¹ Although other furniture centers adopted the use of the special car, for some time Grand Rapids had a distributing advantage.

In 1881 in an effort to knit furniture companies together, the Grand Rapids Furniture Manufacturers Association was formed. The stated purpose of the association was "to promote and protect the welfare of the furniture industry in the city of Grand Rapids."² In addition to directing the semi-annual expositions, the organization attempted to overcome marketing problems. In the 1900's the city was not advantageously located on major east-west rail networks. The large market area for local, quality furniture meant that small amounts were sent to many different locations. In 1910 the F. M. A. established a carloading department to organize and systematize less than carload shipments. Furniture was difficult to ship in less than carload lots without damage, time loss, and high rates. Under the carloading department, firms pooled shipments to the same points. Thus, carload rates were assured, time of delivery could be estimated, and damages reduced.

¹Ibid., p. 78.

²Furniture Manufacturers Association, The Furniture Career of Grand Rapids, p. 15.

Carloading was the most important development in the movement of furniture. It benefited both the railroad and the industry. Railroads were not fulfilling their purpose unless products were delivered rapidly and safely. Damages often resulted for no special handling of furniture existed for less than carload lots. Time and expense were saved by reducing storage at warehouse terminals and furniture plants. Benefits received from carloading were passed on to dealers and customers which made Grand Rapids furniture more competitive.

The carloading technique was highly systematized. Previous attempts at carloading had been high priced and provided poor service. Thus, dealers had preferred time delays and high expenses to agency poolings. However, the Grand Rapids system worked. Dealers were kept informed as to the location and status of shipments without expense. The efficient management of the department led to an increase in shipments. Shipments to Boston and New York were notably greater. By 1928 over 70 per cent of the furniture from Grand Rapids passed through the carloading department.¹ Over 4,000 cars of furniture a year were sent out by the department.² The service was so successful that

¹Johnson and Sironen, Manual of the Furniture Arts and Crafts, p. 553.

²Robert Irwin, "The Furniture Industry in Grand Rapids," speech before the Grand Rapids Rotary Club, December 16, 1926.

similar organizations were established at Chicago, Evansville, Jamestown, and Rockford.

Materials

By 1900 logging operations and saw mills had moved to the Upper Peninsula. The timber of the Grand Rapids area had been cut and furniture manufacturers no longer depended on local sources of lumber. The advantage of the earlier periods was gone as the close sources of lumber were depleted. However, the industry was firmly entrenched in the city and other advantages had accrued that were more important than a close source of lumber.

Manufacturers looked further afield for raw materials. At one time maple, ash, walnut, and oak were obtained in the area and used in the solid form. No concern had been exhibited for economy of materials. By 1890 manufacturers were concerned with material shortages and made much use of veneers. Oak became popular. Its use in Grand Rapids factories was brought on by a railroad official.¹ This official had a large tract of oak. Several Grand Rapids factories were encouraged to experiment with the use of oak. Oak had a coarse texture and brittle fiber which presented a finishing problem. The difficulties of finishing were solved and the railway

¹Bureau of Labor and Industrial Statistics, 1900,
p. 71.

official sold great quantities of oak to the local factories. The use of mahogany was old but the expense of importing the wood had held its use down. With the depletion of walnut, its use increased. Although the original source of mahogany varied, the trade was controlled by Britain and all logs ultimately came through Liverpool. Mahogany logs were originally cut in Mexico, British Honduras, West Indies, and West Africa. Logs were shipped to Liverpool where a duty was paid and weekly auctions held. The logs were not cut into lumber until reaching mills in the United States. Grand Rapids factories preferred African mahogany to that of Central America because of its finer texture. Local manufacturers hoped that shipments could be made directly to the States, avoiding Liverpool. However, there was no point in West Africa that acted as a clearing house. Logs did not come out of the interior in mass. Therefore, seldom was a complete cargo of timber available.

Other woods were also imported during the early 1900's as local lumbers became scarce (Table 8).

The use of veneers indicated the shortage and costs of raw materials. Cheaper grades of wood were used for interior construction. Knife-like cutters sliced logs into thin pieces of veneer. Mahogany was quite expensive, running as much as \$600 a log.¹ Many of these

¹Ibid., p. 71.

TABLE 8
SOURCES OF WOOD

Wood	Source
Mahogany	West Africa, Mexico, British Honduras, West Indies
Rosewood	Brazil, India
Walnut	France, Caucasus
Olive Wood	Italy
Maple, Chestnut	Southern U.S.
Satinwood	Ceylon, India, West Indies

Source: Fred Henshaw, "From Logs to Living Room,"
Magazine of Michigan (January, 1936), 4.

logs were cut into 600 veneer sheets. Thus, not only were source regions of lumber changing, but so were the amounts used. Grand Rapids was more fortunate than other centers for by producing quality rather than quantity, smaller amounts of lumber were needed.

To many people furniture meant wood construction. However, one answer to timber shortages was to turn to metal materials. By 1910 metal construction began to appear. Metal office furniture was the first to appear. Desks, fireproof safes, and filing cabinets were being built in the early 1900's.

Design, Style, and Carving

A consulting study made in 1917 found no evidence other than leadership for the growth of the local industry.

Leadership meant innovativeness in design. If furniture in Grand Rapids had been produced for utilitarian purposes only, one factory in the city would have produced what all factories did. However, to survive, Grand Rapids furniture was developed as an industrial art on the basis of beauty. The best designers in the world were hired. The emphasis on the importance of design coupled with the meticulousness of craftsmen led to furniture unequaled in quality. The industry was generally known for low wages. However, designers were paid high salaries and some of the best were attracted. These designers came from all sections of the country, but the greatest number came from foreign countries including the Netherlands, Sweden, Denmark, Italy, and the British Isles. At one time over 200 designers worked in the city.¹ The city was undoubtedly the design capital of the country.

In 1917 the Designers Association was formed to protect the fame of Grand Rapids by furthering its reputation as style leader. The organization was formed at a time when local manufacturers realized that the growth of the industry was limited. Industrial growth had slowed and leaders were attempting to stimulate new growth. The organization sought to maintain a high standard in design for fear of losing its quality reputation.

¹Lydens, The Story of Grand Rapids, p. 303.

Although no single factor led to the growth of the industry, factory designers did much to make Grand Rapids world famous in furniture making. Manufacturers went after and hired first class artists, designers, and artisans. "Made in Grand Rapids" stamped on furniture meant the best. As the local industry grew, good carvers and designers were harder to get. Many were trained by owners. In 1900 designers were sent to the Paris Exposition to study and keep up in their field.

Many manufacturers contended that carvers and designers were found, not made. Grand Rapids industrialists were unwilling to accept that premise and encouraged training schools in the city. The Kendall School of Design was the most famous of these undertakings. Training was obtained in the fundamentals of drawing and design as well as interior decorating. Students were turned out who became leaders in design in the local furniture industry. The school was important in helping Grand Rapids remain a center for quality furniture products.

The backbone of the industry, however, were the crafts and skills of the workers. Technical schools were set up to insure that skilled workers would be available in the future. Courses were taught by instructors from the furniture companies in such skills as cabinet repair, finish patching, and knife grinding. Six week courses were held in upholstering. Workers were hired, then

trained. The feeling was that it was better to train Grand Rapids men than to try to recruit outside the city.

A vocational and technical high school helped to serve the needs of the furniture industry. All branches of furniture making were taught from designing to finishing. All teachers were required to have had experience in a specialty in a furniture factory. Students later became effective furniture workers.

Innovations of the 1890-1929 era came in styling changes. The idea of piling shelf-bookcases on top of each other was very old. However, the technique lacked standardization and good styling. The commercial necessities were worked out and patented in Grand Rapids. The sectional bookcase became more sophisticated.

City manufacturers were style leaders. The good reputation for styling was badly hurt around 1900. "Fad" styles were making great headway in sales. Thus, some local manufacturers committed their production in two fads. One style was highly ornate and curvaceous. The other style gave a golden oak cast to furniture. Neither fad had a long range effect on sales and Grand Rapids was blamed for encouraging the styles. As the style leader, the city bore the brunt of criticism. Following the fad disaster, local firms were more cautious in style changes. Companies sought to protect their hard earned reputation.

Design innovations occurred in sofa beds, opera seats, school furniture, bedroom suites, coffee tables, modern furniture, sectional chairs, and office furniture. Designers in Grand Rapids recognized the potential of creative ideas, and put forth a steady supply of them.

Grand Rapids and Other Centers

The furniture industry continued to grow in Grand Rapids in the 1890-1929 period. However, the rate of growth slowed considerably in the 1900's. Until 1890 growth in both the number of employees and the number of firms had been exponential. Following 1890 the growth rate lessened (Table 9).

TABLE 9
FURNITURE GROWTH

Year	No. of Firms	No. of Employees	Wages in \$1,000's
1860	9	53	14
1870	8	281	131
1880	15	2,279	720
1890	31	4,347	2,000
1900	34	6,236	2,582
1910	54	7,250	3,903
1920	71	9,372	19,594
1929	72	12,036	17,350

Source: U.S. Department of Commerce, Bureau of the Census, Census of Manufacturers, 1860 to 1929 (Washington: U.S. Government Printing Office).

Not only had growth slowed in Grand Rapids but a geographic shift occurred in the industry relative to the country. The traditional centers were Michigan, New York, and Massachusetts with great concentrations at Grand Rapids, Jamestown, and Gardner, respectively. In the early 1900's a shift occurred toward southern United States. The South, North Carolina in particular, became attractive on the basis of lower labor costs, building subsidies, cheap power, and lower taxes. Southern manufacturers were able to hire semi-skilled workers at one-half the Northern rates.¹ Attempts were made to attract furniture manufacturers away from Grand Rapids around 1914. However, the major competition of Grand Rapids existed with Chicago and New York firms. The rise of Chicago as a major furniture producer was a serious threat to Grand Rapids because of its closeness. Chicago and New York produced furniture of comparable quality to Grand Rapids. Southern firms produced cheap lines. Changes also took place in the relative position of Boston (Table 10). A marked trend occurred to the South. The great supply of hardwoods in the High Point area contributed to a clustering of factories in the immediate vicinity. In 1913 the first Southern Furniture Exposition was held in High Point.

¹A. Gordon Foster, Report on A Tour of the United States of America, p. 6.

TABLE 10
FURNITURE PRODUCTION 1890-1929

1890			
City	Firms	No. of Employees	Value of Production
New York	187	6,491	12,922,290
Chicago	149	7,706	12,540,215
Grand Rapids	31	4,347	5,638,916
Philadelphia	79	2,589	4,812,913
Cincinnati	62	3,134	4,208,974
1900			
New York	187	6,760	13,246,405
Chicago	114	7,843	12,344,510
Grand Rapids	34	6,236	7,494,607
Boston	50	1,032	2,849,734
North Carolina	44	1,759	1,547,305
1910			
Chicago	202	11,097	20,512,384
New York	406	9,878	19,438,816
Grand Rapids	54	7,854	12,629,524
North Carolina	117	5,533	3,486,869
Boston	64	1,134	1,494,385
1929			
Chicago	316	18,370	57,571,060
New York	622	12,862	54,009,287
Grand Rapids	72	12,036	36,213,310
North Carolina	146	15,609	27,012,621

Source: U.S. Department of Commerce, Bureau of the Census, Census of Manufacturers, 1890-1929 (Washington, D.C.: U.S. Government Printing Office).

Boston faded as a production center and North Carolina steadily rose. New York, Chicago, and Grand Rapids were the top three centers. Although Grand Rapids never was number one in the number of firms, employees, or the value of production, it was a top producer. For a small city it was little short of amazing that production reached such great proportions (Figure 15).¹ The local population was low compared to that of New York and Chicago. Thus, a large internal market did not exist. The size of the factories in Grand Rapids were substantially larger than those of New York or Chicago. In 1929, 72 factories in Grand Rapids employed nearly as many men as 622 factories in New York.

Workers

City firms drew craftsmen from many foreign countries. From 1890 to 1929, hundreds of skilled European workers came to Grand Rapids. Not all were initially woodworkers. But, they were conscientious people whose skills were easily transferable to furniture making. These immigrants were attracted to the city by the furniture industry, good land, relatives, and the dominant religion of the community. The high standards of the industry were

¹The distribution of factories in 1929 still showed the affects of early location close to the river and the once present canals. However, factories were more widely dispersed than in 1881. This dispersal was made possible by the railroad.

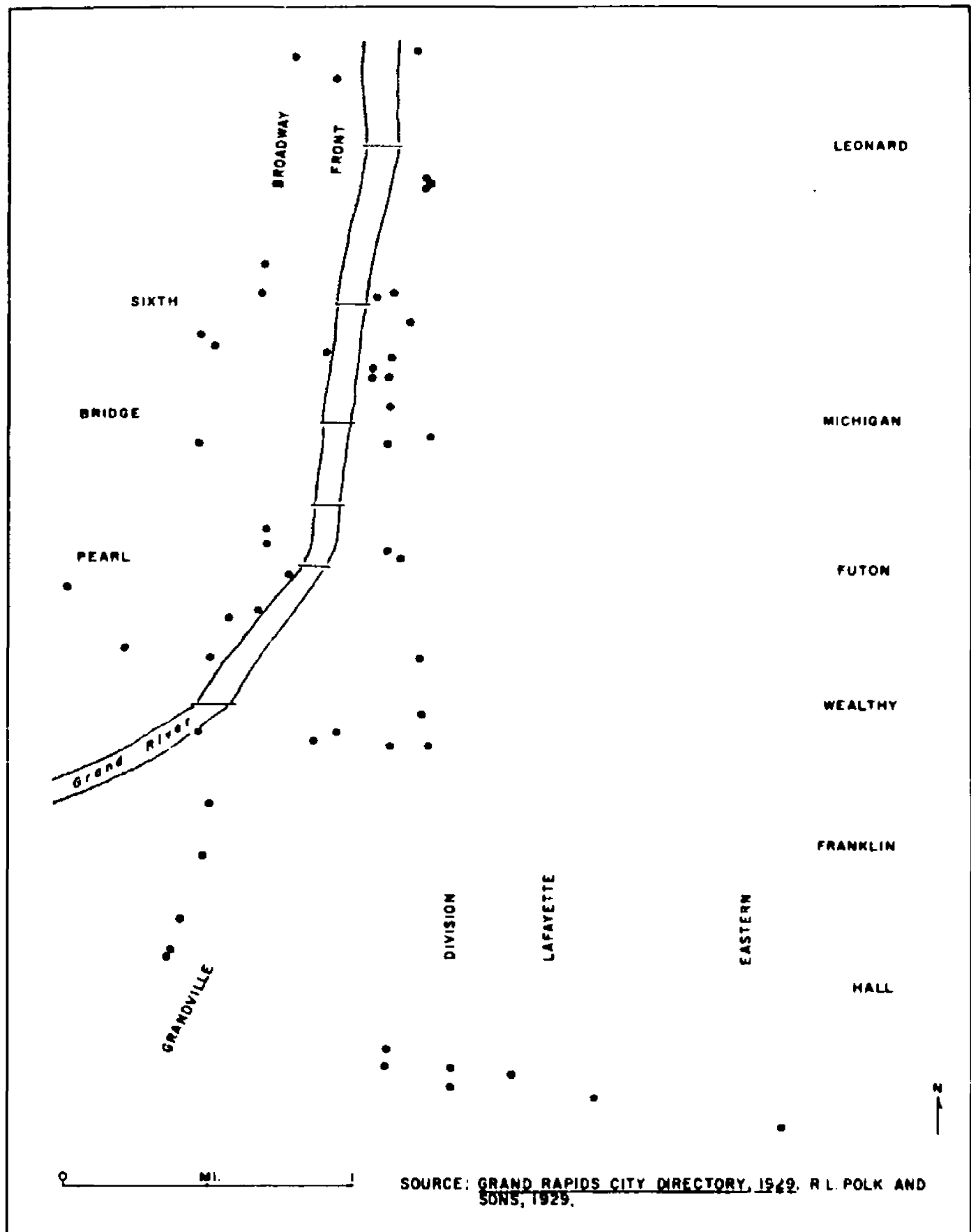


Figure 15. Furniture Plants in Grand Rapids, 1929

met by these people. An important resource of the city was the character and enterprise of the workmen.

Little labor turnover occurred in the local furniture industry. Many workers were employed by the same company for 50 years.¹ The work was steady with lay-offs fewer than in most industries. Furniture had a uniform demand throughout the year. Thus, workers could count on stable employment and close to 300 work days a year.²

The furniture industry made tremendous use of immigrant labor. In 1900 some 14,361 people made their living in all industries in Grand Rapids. The furniture industry employed 6,236 of those industrial workers and over 85 per cent of them were immigrants.³ Of all nationality groups, the Dutch were found in greatest numbers. An 1890 Bureau of Labor survey of 28 furniture firms recorded the nationality of the workers (Table 11). Nearly as many Dutch immigrants were employed in the furniture factories as were native Americans. Yet, the percentage of Dutch in the city was not nearly as high

¹Robert Irwin, "The Furniture Industry in Grand Rapids," speech before the Grand Rapids Rotary Club, December 16, 1926.

²W. Lauo, "Furniture Manufacturing Centers," Furniture Manufacturer and Artisan, III (February, 1912), 94.

³Ibid., p. 94.

TABLE 11

NATIONAL ORIGIN OF FURNITURE WORKERS--1890

Nationality	Number	Nationality	Number
American	1,129	Russian	22
Dutch	1,109	Norwegian	18
German	283	French	4
Canadian	124	Belgium	4
Swedish	119	Swiss	4
English	50	Welch	1
Polish	40	Finlander	1
Irish	34	West Indian	1
Danish	32	Other	6
Austrian	24		
Scottish	22	Total	2,929

Source: Bureau of Labor and Industrial Statistics, State of Michigan, 1890 (Lansing: Robert Smith, 1890).

as the percentage in the furniture plants.¹ About 30 per cent of the entire population was Dutch while close to 40 per cent of all furniture employees were Dutch.² More significant yet is the fact that only one Hollander worked in the furniture plants of Detroit and only 49 elsewhere in the state.³

However, the Dutch did not occupy positions of leadership in the industry, or even the choice jobs. The Dutch generally held jobs as cabinetmakers, finishers, machinists, and laborers (Table 12).

¹Ibid., p. 94.

²Lauo, "Furniture Manufacturing Centers," p. 94.

³Bureau of Labor and Industrial Statistics, 1890, p. xv.

TABLE 12
JOB TYPE BY NATIONALITY

Job	Dutch	German	Swede	Canadian	American
Carver	10	17	2	17	45
Foreman	6	0	1	0	9
Finisher	83	6	12	3	38
Cabinetmaker	46	34	31	5	46
Machinist	72	11	13	9	49
Laborer	47	4	8	0	7
Sawyer	1	5	12	1	6

Source: Compiled from data of the Bureau of Labor and Industrial Statistics, 1900 for Widdicomb, Berkey and Gay, and Nelson, Matter and Company.

Americans and Canadians dominated the carving jobs and Americans were used as foremen. Sawyer jobs were held by Swedes. Thus, Dutch were used as "common" laborers in the furniture industry. However, even the "common" jobs were those requiring skilled workers.

Not only were the carvers, foremen, and sawyers paid higher wages, but the Dutch laborers, machinists, finishers, and cabinetmakers were paid less than their American counterparts. Hollanders were typically paid \$1 a week less than native Americans.¹

Grand Rapids was fortunate that in the formative years of the industry, little labor difficulty occurred. Factories were poorly lighted and equipped. Workers toiled

¹Ransom, The City Built on Wood, p. 56.

six days a week, 16 hours a day for low wages.¹ Yet, workers were so poorly organized that revolt was out of the question. Over 60 per cent of the workers were foreigners who had come to a promised land.² Language difficulties prevented mixing of all groups. The Dutch presented a special difficulty because of their religion. The church viewed labor organizations as ungodly. Thus, it was not until 1911 that the first general strike took place. The four-month strike was won without concession by the companies. Manufacturers contended that unfavorable freight rates put Grand Rapids at a disadvantage and wages and hours were set accordingly. The Christian Reform Church doomed the strike when it formally opposed the effort. In comparison to other industries the furniture worker remained poorly paid.

However, working conditions improved and wages rose steadily until 1929. Protective devices were installed on machines, ventilating systems were installed, drinking fountains put in, and better lighting used. Much was done to improve the workers' morale. Although wages went up, the furniture worker was regarded as under-paid until the 1920's. From 1920 to 1926 labor costs rose much

¹Lyon, "Furniture Recovery," p. 4.

²Bureau of Labor and Industrial Statistics,
1890, p. 144.

faster than furniture prices.¹ The annual wage rose from \$622 in 1914 to \$1539 in 1923.² Wage increases were associated with labor shortages. Skilled labor was scarce during the 20th century boom period. Cabinetmakers were in such short supply that the Furniture Manufacturers Association planned to import 200 skilled cabinetmakers under labor contract from Europe in 1923.³ The request was denied by the Bureau of Immigration on the grounds that the situation was only temporary and could be remedied if Grand Rapids lured back the workers lost to Chicago. In short, Grand Rapids firms wanted cheap, skilled labor and were unwilling to pay what it was worth. European immigrants were seen as a possible source.

Sales

The city had a world wide fame not on the magnitude of sales but on a reputation for quality. Products were marketed throughout the country and in many foreign countries. A variety of furniture was produced for the international market--chairs, living room sets, bedroom suites, school furniture, and library products. Local

¹Irwin, "The Furniture Industry of Grand Rapids," p.

²Ransom, The City Built on Wood, p. 57.

³"Plan to Import Cabinetmakers Balked by U.S.," Grand Rapids Press, Sept. 11, 1923, p. 14.

firms displayed furniture at national and international expositions and created special designs for overseas buyers.

Carloads of furniture were sent to the Royal Hawaiian Hotel in Honolulu, embassies around the world were furnished with Grand Rapids furniture, and hand carved products were created for the Emperor of Japan. Great efforts were made to enlarge international markets. Around 1910 South America was eyed as a potential market for attempts at European sales had proved unsuccessful. The feeling was that South America, South Africa, Japan, and China offered large markets. English and German furniture were already being sold in those areas and Grand Rapids attempted to compete with them.

Changes took place in selling methods. Complete lines could not be carried in showrooms. Thus, the entire line was photographed and shown in portfolios of photo-gravures. These portfolios were sold for \$50 a copy.¹

Whereas out-of-town display rooms had been abandoned in the 1880's, they began to reappear just prior to World War I. The reopening of display rooms in New York was evidence of the slowing of growth that disturbed local companies. Manufacturers felt that furniture was not receiving its full share of the

¹Nesbit, The Story of Berkey and Gay, p. 14.

consumers' dollar. The rise of the automobile in the 1920's took the bulk of buyers disposable income. Efforts were made to educate customers in the advantages of quality furniture. The Berkey and Gay Company approached the problem by attempting to better educate retail salesmen. Salesmen from various parts of the country came to training sessions in the city. Growth was quite limited in the quality line and expansion of sales to lower income groups was a necessity. Training in selling colors, styles, and beauty was given. The effort to perpetuate growth indicated the Berkey and Gay sales area. Salesmen came from several states (Table 13). The South and West were not a part of the sales region of Berkey and Gay despite local claims to national markets.

TABLE 13

SALESMEN ATTENDING 1928 TRAINING SESSION

State	No.	State	No.
District of Col.	3	New Jersey	2
Illinois	6	New York	9
Indiana	9	North Carolina	1
Iowa	3	Ohio	21
Kansas	1	Oklahoma	5
Kentucky	3	Oregon	1
Massachusetts	1	Pennsylvania	13
Michigan	16	Wisconsin	6
Missouri	3	Canada	6
Nebraska	1		

Source: Report of the Program: The First Berkey and Gay Retail Salesmen's Conference (Grand Rapids: 1928).

Expositions

Two main methods of marketing furniture were used. Furniture expositions were greatly accepted and exhibits could be viewed at several markets. Between the sales seasons, salesmen traveled and marketed furniture by showing photographs. The exposition grew out of the custom of turning out new designs in January and July of each year. Buyers came to inspect the furniture and place orders. Thus, the Grand Rapids Exposition was instituted on a regular basis. Through such markets, a city image was built rather than an image of individual companies. The companies were united and organized in their efforts to enhance the city reputation. The Grand Rapids Market Association was created to direct the important semi-annual markets. Outside firms were welcomed to participate but were asked to show only "good" furniture that met the standards of the Association. Poorly made and styled furniture was not able to compete since buyers at Grand Rapids wanted quality. Although not the only exposition in the country, the local market was the quality exhibition. As more retailers recognized the quality of Grand Rapids furniture, more buyers came to fill their stock. Displayers increased in number and so did the reputation of Grand Rapids as a furniture center. The Association promoted the market with a twelve month publicity campaign. It concerned itself with the

comfort and pleasure of buyers. Representatives at each hotel found accommodations and entertainment for guests. Entertainment was a real problem because of the size and background of the community. Many in the city did not realize the importance of the market. Estimates in 1926 suggested that buyers spent close to \$2,000,000 a year in the city.¹ Some buyers stayed as long as a week.

At first buyers were taken through furniture plants for showings. The method left much to be desired. A central exhibition building in the city was constructed for display purposes. By 1916, eight additional buildings had been built.²

The number of retail buyers attending the exhibition grew steadily as shown in Table 14. In 1899 over 500 towns in North America were represented at the market as well as representatives from Australia, Japan, China, and several European countries.³ The leading furniture representatives of the United States were present to discuss trading conditions, exchange ideas, and examine the displays.

¹Irwin, "The Furniture Industry of Grand Rapids."

²Ransom, The City Built on Wood, p. 57.

³"Advantages of Visiting the Grand Rapids Market," The Grand Rapids Furniture Record, p. 174.

TABLE 14
BUYERS AT THE GRAND RAPIDS EXPOSITION

Year	Number
1893	161
1894	320
1895	609
1896	627
1897	806
1898	1,079
1899	1,309
1900	1,588

Source: Compiled from data in "Advantages of Visiting the Grand Rapids Market," The Grand Rapids Furniture Record, II (December 15, 1900).

The exposition in Grand Rapids was not the result of recreation or a convention city. It located in the city because of the quality furniture factories. A furniture representative from Rockford, Illinois described the situation aptly when asked about moving the exhibition to Rockford, "Some of our direct competitors would still be in Grand Rapids and we could not offer a diversified market. The dealer would not come out here [Rockford] but would place his orders in a market like Grand Rapids."¹ Grand Rapids was clearly the "Paris of Furniture."

To Grand Rapids the exposition meant an international reputation. Thus, the cost of selling local

¹"Advantages of Visiting the Grand Rapids Market," The Grand Rapids Furniture Record, II (December 15, 1900), 175.

furniture was low. Small amounts were spent on advertising and salesmen. Local firms were not obliged to seek out buyers since dealers came to the city to place orders.

Chicago also had a furniture exposition and by 1912 a rivalry existed between the Chicago and Grand Rapids markets. The Chicago market was characterized by less quality furniture but more exhibits. The Grand Rapids exposition had an atmosphere of quality but could not match the commercial advantages of the larger city. In any event, Chicago began to make inroads into the clientele that had attended the Grand Rapids exhibitions. The pressure was felt locally, and the city firms countered by holding unofficial, mid-season markets in November and May. The innovation was not popular among buyers and was an attempt to counter the growth of the Chicago exhibition.

Displays were not limited to exhibits of local firms. In 1925, 68 Grand Rapids factories were represented, but so were 400 outside manufacturers from 22 states (Table 15). Buyers who came to see the displays came from all states. However, the greatest number came from the East and Middle West (Table 16).

By the 1920's the Grand Rapids exhibition began to lose buyers to the Chicago Market. The Chicago exhibition was more convenient for buyers. Furniture was

TABLE 15
1925 EXPOSITION DISPLAYS BY STATE

State	Number	State	Number
Michigan	132	Pennsylvania	37
New York	76	Massachusetts	12
Indiana	64	Kentucky	11
Illinois	56	Tennessee	11
Ohio	45	Virginia	10
North Carolina	38	Minnesota	9

Source: Grand Rapids Market Association, The Grand Rapids Market (Grand Rapids: 1925), p. 9.

TABLE 16
BUYERS AT THE 1925 EXPOSITION

State	Number	State	Number
California	37	Missouri	74
Connecticut	28	Nebraska	25
District of Col.	20	New Jersey	43
Illinois	198	New York	275
Indiana	99	Ohio	312
Iowa	51	Oklahoma	26
Kansas	26	Pennsylvania	214
Kentucky	46	Texas	62
Massachusetts	72	Virginia	23
Maryland	20	West Virginia	39
Michigan	320	Wisconsin	49
Minnesota	48		

Source: Grand Rapids Market Association, The Grand Rapids Market (Grand Rapids: 1925), p. 48.

displayed in one large building. In Grand Rapids, buyers had to tour several exhibition buildings and view the displays at 16 of the factories. Even though the local market began to slip in the 1920's, large numbers of buyers continued to come. In 1928 over 2,400 buyers attended the exhibition.¹ Many retailers came out of habit. Others came because of specific lines which were displayed. Most felt that the furniture displayed was of the highest quality. The atmosphere was congenial for the sophisticated buyer with little hustle and bustle present. A personal contact with manufacturers was present. However, many retailers wanted hustle and bustle and cheaper products. Thus, the Chicago market grew in size and Grand Rapids began to lose the advantage it had held for so long.

Reputation

As the "Furniture Capital of America," Grand Rapids had a reputation for superior furniture throughout the country. This reputation served as an initial advantage for city firms. Massive advertising campaigns were unnecessary. Buyers sought out local firms. Other cities were rising in furniture fame but Grand Rapids was able to cling to its reputation and successfully compete.

¹White, "Grand Rapids Furniture Centennial," p. 267.

In 1881 local manufacturers had realized the importance of the name "Grand Rapids" and attempted to protect it. The Furniture Manufacturers Association was formed to deal with dishonest and unscrupulous dealers. The attention gained in the 1876 Exposition would otherwise have been lost. Various names were applied to similar associations in the city but their purposes were alike.

Several organizations sprung up in the 1890-1929 period. Efforts were made to improve manufacturer-dealer-consumer relations. High standards of styling and craftsmanship were promoted. Cooperative advertising campaigns were run and a Grand Rapids trademark adopted. Locally made furniture was stamped "Made in Grand Rapids." Other manufacturers across the country made use of the city's reputation by stamping "Grand Rapids" on their furniture. Thus, the name was exploited and some companies had a free ride on the local reputation. The Furniture Manufacturers Association took the issue of improper name use before the courts and the Federal Trade Commission. The right of Grand Rapids firms to exclusively use the Grand Rapids name was established. Thus, the local reputation was protected. William Widdicomb suggested the importance of a fine reputation in 1900, "Reputation is the best asset any interest can have which lives exposed to competition, but it is far easier to let

it slip away than to win it back."¹ Grand Rapids had a fine record but it could not afford to rest on its laurels. The problem in the 1920's was how to retain supremacy. One possibility was to maintain a reputation for quality products.

Growth

A general feeling existed in the furniture industry around 1900 that Grand Rapids had reached a plateau in growth.² Old firms had difficulty competing with new ones. Financial difficulties arose. Local plants needed to be re-equipped. The competition from new firms was vigorous. The depressions of 1904 and 1908, coupled with the 1911 strike, and World War I affected local firms. Two well known firms, Nelson, Matter and Company and Macey failed. Several others were in financial difficulty. Successful firms modernized facilities, changed styles, and adjusted to larger market areas.

Some companies viewed the hard times in the industry as public apathy. O. H. Wernicke, speaking in 1912, suggested that the public lacked knowledge of what good furniture was.³ The public was viewed as

¹Widdicomb, "The Growth of the Industry," p. 178.

²"A Bit of History," The Grand Rapids Furniture Record, II (January 15, 1901), 211.

³O. H. Wernicke, "Not Over-Production, But Under-Education," Address at the Dinner of the Grand Rapids Advertising Club, January 11, 1912.

undereducated. Manufacturers were concerned about lagging sales and felt they must stimulate sales by forcing good furniture on consumers. Greater publicity was needed. Grand Rapids furniture was seldom purchased out of necessity, rather because of changing tastes. Consumers were made more aware of styles, harmony, and finishes. The 1928 training session of dealers was such an attempt.

Innovations were introduced to spur growth. The exposition opened 20 days early. Four sessions were held annually. The Association trademark was instituted, new styles and finishes were used, and previously secret patterns were published. Thus, the growth of the furniture industry had been checked. Manufacturers were attempting to regain the phenomenal growth of the late 1800's.

World War I

World War I interrupted normal furniture production. Much of the furniture output was allocated to the war effort. Changes in production brought construction of gliders, seats, mock guns, and upholstered seats. Domestic furniture output suffered. Workers were difficult to get and raw materials were limited. However, manufacturers anticipated a great increase in production following the conflict. Several innovations helped to stimulate the post-war industry. Plywood was used that brought

costs down and allowed more to purchase quality furniture. Installment purchasing also helped increase sales. Thus, although the war was a temporary setback for the industry, sales boomed when the war ended.

Impact on the City

The furniture industry had an enormous impact on Grand Rapids. The industry produced a multiplier effect for the city. Hotels expanded, restaurants increased in number, storage space was rented, and offices were leased. The semi-annual exhibitions greatly enhanced the local economy.

Furniture making required many accessory products. Factories consumed great quantities of veneers, mirrors, wood finishes, excelsior, pads, brass trimmings screws, dowel pins, glue, casters, and sandpaper. Most of the accessories were produced locally. The successful industry stimulated printing and engraving shops for furniture illustration. Many machines and tools such as saws, drills, knives, chisels, hammers, planes, and kilns were made in the city. Furniture related production was so great that one speaker contended that furniture accounted for 70 per cent of the employment of the community.¹ Even the metal industry was closely tied to furniture.

¹Irwin, "The Furniture Industry of Grand Rapids," p. 1.

Human Judgments

By the end of the 1890 to 1929 period, Grand Rapids was no longer perceived as the major furniture center of the country. Chicago rose as a major producer and was highly regarded by buyers. Grand Rapids decided against building a single exhibition hall. Thus, buyers were inconvenienced in viewing furniture at many different sites. As sales stagnated and growth lagged, decisions were made to stimulate the industry by holding training sessions for dealers, marketing by photographs, and demanding quality output. Thus, human decisions had spatial consequences in wide ranging activities. New factories were organized in the city as it was still considered a desirable location.

The Dutch who settled in the area perceived the city and industry as desirable, with settlement decisions based on such things as friends, religion, and steady work. The Dutch were widely employed by the furniture firms. Thus, the search for skilled labor was local in scope. Carvers, however, were obtained from further away. Factories surely had information flows on carvers and designers from years of experience and contacts with the East and Western Europe.

The industry became active in far ranging searches for lumber. In this way, the demand for a variety of woods was met. The world-wide search for raw materials

varied considerably from the in-state sources of the pre-1890's.

The decision of the local factories to advertise the city rather than individual firms was critical in developing a national reputation as a furniture center. The city-wide reputation was enhanced by salesmen, trade journals, and the exposition. The cooperation displayed by local firms made carloading, joint warehouses, trade journals, trade-marks, and expositions possible. Firms were able to see beyond their own selfish, short term gains and cooperate for a long range effect.

Summary

In the 1890-1929 era Grand Rapids had good control over the instruments of production. The local factories were well equipped; and skilled, industrious workers were available. Customers came to Grand Rapids to view the exhibits of the semi-annual fairs. The instruments of transportation also were favorable to the local community. Even though the city was off national trunk lines, special cars and carloading techniques temporarily overcame the problem.

Important initial advantages helped the city to a leadership position. An excellent reputation enhanced sales and made advertising minimal. The maintenance of an industry in the city was favored by an inertia of movement. Grand Rapids in the 1920's began to lose its

position relative to other centers. However, firms did not leave the city, instead further growth was checked as branches were opened in other cities.

Innovations were still forthcoming from the city, but the types changed. Design and style changes occurred. Previous innovativeness had concerned machine adoptions and marketing techniques. The base for the industry was set by 1890. From 1890 to 1929, production and marketing techniques were perfected but not radically altered. The local industry matured, but in doing so slowed in its growth cycle.

CHAPTER VI

COLLAPSE OF THE INDUSTRY: 1929-1940

Furniture manufacturers in the 1920's felt that they were not receiving their full share of the consumer's dollar. Great amounts of expendable income for example were spent on automobiles. Thus, furniture purchases were delayed. The 1929 depression caused further deferment of furniture buying. The impact of the depression hit the industry sooner than most other industries. Purchases of furniture could be delayed for long periods of time. As a result of the depressed economic conditions of the 1930's, the local industry virtually collapsed.

Grand Rapids Expositions

The decline of the local industry was evident from the drop in the number of buyers at the Grand Rapids expositions. The twice-a-year sales exhibitions drew a great number of out-of-town buyers. Many downtown buildings had been constructed to service the expositions and the community profited from the influx of retailers.

TABLE 17
FURNITURE EXPOSITION ATTENDANCE

Year	Buyers
1928	6,000
1931	2,110
1933	1,885
1941	4,368

Source: Ransom, The City Built on Wood, p. 75.

From 1928 to 1933 a great decline in buyers occurred. One can assume that sales suffered accordingly. However, the low point in sales was reached in 1933. By 1934 government housing programs began to provide further sales opportunities.¹

Production Losses

Unfortunately census data is not available on the furniture industry between 1929 and 1939. However, the general picture is clear. Not only was furniture output down, but it did not keep pace with the output of other industries.² By 1932 local firms had experienced five years of declining sales. Sales in 1932 alone were

¹Ransom, The City Built on Wood, p. 75.

²Frank Seidman, "Withered: The Furniture Industry," reprinted from Furniture Manufacturer (June, 1933), p. 1.

38 per cent lower than 1931.¹ Production in 1929 was centered in 72 firms while in 1939 the number had dropped to 47.² The number of employees declined accordingly. Over 12,000 employees worked in the furniture factories of the city in 1929, by 1940 just over 2,900 remained.³ The long period of financial strain took its toll on three of the biggest producers in the city. Luce, Sligh, and Berkey and Gay had a combined income of \$20 million.⁴ They failed to survive the depression years. Their failure was not only a result of the depression, but was hastened by it. Many firms had begun to experience financial difficulties just prior to the depression. The financial crisis speeded the decay process and brought confusion to the industry. Yet, many firms did survive and were able to continue production under better economic conditions.

Response to Financial Crisis

Furniture was a luxury item that was bought in modest amounts during the depression. Grand Rapids

¹Ibid., p. 1.

²U.S., Bureau of Census, Census of Manufactures, 1929 and 1940.

³Ibid.

⁴George Nelson, "The Furniture Industry," Fortune, XXXV (January, 1947), 110.

furniture was more luxurious than most. Thus, the local industry suffered more than most centers because of the high priced, quality production. Yet, the industry catered to those people most able to buy. Quality products had limited markets; during the depression the markets became even more limited.

In response to the depression, some companies modified the focus in style and began to produce "popularly priced" furniture in hopes of appealing to more customers. "Modern" furniture was initially associated with cheaper lines. However, by 1940 modern furniture became better in quality and higher in price. Other manufacturers continued the traditional, refined lines. Those companies threatened with the prospect of folding went to cheaper lines using cheaper grades of wood, less intricate styling, and less expensive construction. Traditional producers felt that success depended on retaining the reputation for producing superior lines. Therefore, 15 large producers joined to combat the prospect of either folding or producing cheap furniture. The Grand Rapids Furniture Guild was formed to train small town dealers in selling quality lines. Great success occurred from this effort. By allying with producers of accessories, packages of furniture, carpets, fabrics, and lamps were

sold. Sales were made in small towns that previously were ignored.¹

Sources of Lumber

Fashionable furniture required distinctive woods. Mahogany and walnut were the woods most used. Mahogany was most widely used in the higher priced lines; walnut was strong in the lower priced furniture. The walnut used was veneer while the high priced lines had solid mahogany throughout.

TABLE 18
FURNITURE WOODS, 1937

Type	Percentage
Walnut	35
Mahogany	25
Maple	10
Undetermined--painted	7
Oak	5
Others--veneer only	18

Source: George Lamb, "The Wood Picture Becomes Complex," Furniture World, CXXXIV (January 14, 1939), 151.

Most of the mahogany, 80 per cent came from Tropical America; 5 per cent came from the West Indies.²

¹Aves, "Craftsmanship Built a City," p. 49.

²George Lamb, "The History of 18th Century Mahogany," Furniture World, CXXXVIII (January 5, 1939), 61.

The American mahogany was used for solid construction but seldom for veneers. Although only 20 per cent of the mahogany used in Grand Rapids came from Africa, this mahogany constituted 80 per cent of the veneers because the trees were large and well grained.¹

Lumber for veneer strips was obtained from many sources (Table 19). Grand Rapids was obviously receiving lumber from all over the world. Even during the financial panic, importing of exotic woods continued.

TABLE 19
SOURCES OF LUMBER, 1937

Type	Source
Avodire	Africa
Carpathian Elm	Carpathian Mountains
Cativo	Jamaica, Panama
Ebony	Ceylon
Harewood	England
Koa	Hawaii
Olivewood	Italy
Prima Vera	Mexico
Rosewood	Brazil
Sapeli	Africa
Teak	Burma
Tigerwood	Africa
Zebrawood	Africa

Source: George Lamb, "The Wood Picture Becomes Complex," Furniture World, CXXXIV (January 14, 1939), 151.

¹Ibid., p. 61.

Southern Competition

During the 1930's large scale production passed to the South. The trend of a growing furniture industry in North Carolina and Virginia intensified. Growth in Grand Rapids was non-existent and the industry declined. By 1935 North Carolina was second in national production and Virginia was fifth while Michigan held a distant seventh (Table 20). Michigan's share of the national market fell off rapidly between 1929 and 1935.

The shift in production to the South was due to Southern firms increasing in number and size rather than northern firms moving to the South.¹ The largest producers in North Carolina and Virginia were of Southern origin.² Firms did not leave Grand Rapids; they opened branch plants in the South. Grand Rapids was not abandoned as a production region, but local expansion was cut.³ Output locally was so low that the railroads were adversely affected. In an effort to stimulate business, freight rates were reduced as much as two-thirds on less than carload shipments.⁴ Even with its carloading

¹Oliver, The Development and Structure of the Furniture Industry, p. 117.

²Ibid., p. 118.

³Aves, "Craftmanship Built a City," p. 49.

⁴"Furniture Men Get Fare Cut," Grand Rapids Press, Nov. 28, 1932, p. 1.

TABLE 20
FURNITURE OUTPUT BY STATES, 1929-1935

State	1935		1933	
	Rank	% of Sales	Rank	% of Sales
N.Y.	1	13.6	1	14.6
N.C.	2	11.3	2	12.1
Ind.	3	9.5	3	8.9
Ill.	4	9.2	4	8.3
Va.	5	7.6	5	7.5
Pa.	6	6.4	6	7.0
Mich.	7	5.9	7	5.7

State	1931		1929	
	Rank	% of Sales	Rank	% of Sales
N.Y.	11	15.6	1	14.3
N.C.	2	10.1	5	8.7
Ind.	4	8.6	3	13.6
Ill.	3	9.9	2	11.3
Va.	6	7.0	9	4.2
Pa.	5	7.3	6	6.3
Mich.	7	6.3	4	9.3

Source: "A Birds-Eye View of Furniture Progress,"
Furniture World, CXXXIV (February 18, 1937), 13.

department, Grand Rapids had reduced its carload shipments.

The industry decentralized nationally and the process meant lower sales volume for Grand Rapids. Evidence supports the contention that no small area of the country could dominate the industry for long.¹ The raw materials and markets were too wide-spread. In any event, Grand Rapids did not compete with the South for long. The city concentrated further on quality lines. Plants geared to low priced production, found it difficult to survive. Both labor and raw materials were cheap in the South. In 1929 average annual wages for a furniture worker were \$821 in North Carolina, \$845 in Virginia, and \$1332 in Michigan.² Low and medium priced furniture were mass-produced in the South with the laborers acting as machine operators. The lower labor and material costs were of prime importance during the period of economic stagnation.

Labor Force

Between 1929 and 1940 the labor force of the local industry declined by 75 per cent and wages were

¹"Grand Rapids--The Quality Market," Furniture Manufacturer, LIV (April 15, 1939), 6.

²Ben Lemert, "Furniture Industry of the Southern Appalachian Piedmont," Economic Geography, X (April, 1934), 188.

drastically reduced. Wages were cut nearly in half by 1933. Cabinetmakers who had earned \$.70 an hour in 1926 were earning \$.35 an hour in 1933. The situation was similar for hand carvers. They dropped from \$.82 to \$.42 an hour.¹ The work force which had exceeded 12,000 in 1929 had dropped to just over 2,900 in 1940. Although surprisingly few furniture factories went out of business during the depression, 45 of them were only partially active.² Thus, a once booming industry had at least temporarily collapsed.

Efforts at Revitalization

Many in the local industry misjudged its condition. They felt the setbacks were only temporary and all that was holding Grand Rapids back were general economic conditions. One effort to revitalize the industry was the formation in 1932 of the Furniture Makers Guild. Ten rival companies were loosely connected to guarantee the quality of each other's furniture. A tag of approval was placed on furniture of member companies. The tag was recognition of high quality merchandise. Reputable retailers were picked to sell the Guild approved furniture. Each piece of furniture was registered by number, quality, and value.

¹Ransom, The City Built on Wood, p. 76.

²R. C. Lyon, "Furniture Recovery," The Cauldron, late 1930's--exact date unknown, p. 5.

The Guild formation was a radical departure from business practices of the time. Yet, it was a response to declining sales and a threatened industry.

In an effort to rejuvenate the local expositions and to enhance the reputation of the "furniture city," a furniture museum was opened in the community. In 1938 the museum was opened to display Grand Rapids furniture. New as well as old furniture was displayed. Exposition buyers were encouraged to visit the museum. The history, use, and manufacture of furniture were shown in an attractive old mansion. The museum was reportedly the only one in the world devoted exclusively to furniture.

Furniture and Grand Rapids

Grand Rapids was not a one industry town in 1929. Yet, furniture manufacturing employed over 40 per cent of the workers in manufacturing. By 1939 this percentage had dropped considerably (Table 21). In 1939 furniture was no longer the major industry of the city. Only 14 per cent of those engaged in manufacturing, worked in furniture construction.

Between 1929 and 1940 a tremendous transformation occurred in the local industry. In 1929 the seemingly, booming furniture industry was regarded as one of the major producers in the country. During the depression the industry virtually collapsed. A reputation for fine

TABLE 21
INDUSTRIAL EMPLOYMENT 1929 AND 1939

	1929		1939	
	Workers	%	Workers	%
Manuf.	28,084		19,665	
Furn.	12,036	42.1	2,942	14
Metals	1,354	5.6	3,753	19
Misc.	14,694	52.3	12,970	67

Source: U.S., Bureau of the Census, Census of Manufactures, 1929 and 1939.

furniture remained, but production in 1940 was low. The industry was no longer a national leader nor even a community leader.

Summary

The role of decision making changed during the depression. Rather than attempting to expand the industry by adopting new production methods or winning new markets, firms sought to survive. Grand Rapids firms were large by furniture standards, and therefore, were more apt to survive. Survival was further enhanced by the fact that production was of a high-priced nature catering to those of means to buy. Efforts were made to reach potential buyers even in small towns. However, furniture dominance began to shift to the South. Buyers no longer perceived of Grand Rapids as the major furniture center.

The decision of buyers to attend expositions in the South and to purchase low-end furniture there, led to a spatial change in the national industry. The Grand Rapids industry was badly hurt and to survive became deeply entrenched in high-end production.

CHAPTER VII

RESURGENCE: 1940-1972

The Grand Rapids furniture industry was dealt such a severe blow during the depression that it has never fully recovered. If the collapse had been one merely of financially hard times, recovery would slowly have occurred. However, the decline of the local industry had begun before the depression. It was merely hastened by the conditions of the 1930's.

The initial advantages of past years no longer gave Grand Rapids advantages over other furniture centers. In fact, Grand Rapids was at a disadvantage in many of the things in which it had once excelled. Wages were lower in North Carolina and Virginia. Moreover, labor there was more readily available. Lumber was cheap to come by in the Appalachian region. The machines that had once been perfected in Grand Rapids had spread to other centers. In short, the innovations initially accepted in Grand Rapids had spread to other centers. The pace of creating new inventions and innovations that could again

revolutionize production in the local industry had slowed. No major series of innovations was able to renovate the industry or to spur growth. The initial advantage of a fine reputation for quality furniture was all that remained. Elite lines of furniture were produced between 1940 and 1972 to service a limited clientele.

World War II

The financial crisis of the 1930's was followed by increased production in the 1940's. However, the production was geared to the war effort. Purchases were again restricted. Incomes and savings rose rapidly during the war years. But, goods were not available for purchase. The government placed restrictions on natural resource use, and the furniture industry adjusted production to the war effort. None of the Grand Rapids companies was large enough to fill government contracts alone.¹ Thus, fifteen companies joined to form the Grand Rapids Industries Corporation. The corporation supplied 4,500 sets of glider wings and floors.² Only small amounts of furniture were produced, and most of that was for the government. Furniture factories were not geared to normal production during the war years. However, under the G.R.I.C., companies were able to stay in business.

¹Charles Kindell, former President of Kindell Furniture Company and Grand Rapids Furniture Manufacturers Association, interview July 10, 1972.

²Ibid.

Companies anticipated great furniture demand following the war.¹ Purchases had been put off during both the depression and the war. There was certain to be a pent-up demand with ample purchasing power.

Production Trends

Following the war, furniture output rose and prosperity slowly returned to the industry. The major limitation from 1945 to 1948 was the inability to produce fast enough to keep pace with demands.² Yet, local factories did not return to pre-depression levels as employers of workers (Table 22).

TABLE 22
GRAND RAPIDS FURNITURE OUTPUT 1929-1967

Year	No. of Firms	Employees	Value Added
1929	72	12,036	36,213,000
1939	47	2,942	10,313,000
1947	108	8,557	36,999,000
1954	91	7,897	58,028,000
1958	99	6,590	59,674,000
1963	113	8,094	86,953,000
1967	101	10,200	136,000,000

Source: U.S., Bureau of Census, Census of Manufactures, 1929 to 1967.

¹James Forman, The Furniture Industry and Its Potential Market (Washington, D.C.: Government Printing Office, 1950), p. 1.

²Ibid., p. 1.

Substantial growth in the industry occurred in the 1960's. However, much of this growth may have been based on the production of metal office furniture rather than the traditional types.

A title of the past no longer belongs to Grand Rapids--"Furniture Capital of America." Other cities employ more workers and produce greater amounts of furniture. The importance of the local industry has decreased. Yet, volume of sales and number of employees do not reflect on the quality of furniture produced. The emphasis on quality is still growing.¹ Yet, even in the number of workers employed, the furniture factories are the single most important industry in the city.²

Labor Force

Employment declined radically during the depression but rose in the post-war recovery. However, the industry as of 1967 still did not employ the number of workers it had in 1929. Employment which was expected in the late 1950's to be on the downward trend, has risen. A labor shortage may occur in the near future. A need for carvers is already evident as fewer than twenty are

¹Lydens, The Story of Grand Rapids, p. 300.

²Bureau of the Census, Census of Manufactures, 1967.

now employed.¹ Workers blame the low pay for shortages. Higher wages are found in the automobile industry which does not require the slow pace nor patience of the furniture business. Many furniture workers are nearing their 65th year and the industry is having difficulty attracting qualified replacements.² Few Americans seem interested in working for the wages offered. Thus, employers suggest they may try to hire immigrants. In short, furniture is a low wage industry and Grand Rapids can no longer draw on the multitude of Dutch immigrants that it did formerly. Other factories are competing for workers. Yet, other furniture centers are paying furniture workers less than Grand Rapids (Table 23).

In effect, Michigan furniture means Grand Rapids. Michigan clearly pays the highest wages per state for furniture workers. However, a high return per worker is expected. The average Michigan worker produces a value of \$14,980 per year while in North Carolina the figure is \$8,643. Average hourly wages show Grand Rapids workers averaging \$2.33 and High Point workers averaging \$1.92.³

¹"Demand High, Carvers Scarce," Grand Rapids Press, May 7, 1965, p. 13.

²Harold Kaiser, "The Michigan Furniture Industry and Its Utilization of Wood Products" (unpublished Ph.D. dissertation, Michigan State University, 1967), p. 35.

³U.S., Department of Labor, Industrial Wage Survey: Wood Household Furniture, Except Upholstered (Washington, D.C.: Government Printing Office, 1968), p. 22.

TABLE 23

WAGES IN THE FURNITURE INDUSTRY, 1965

State	Wages per Worker	Value Added per Worker
Michigan	5,296	14,980
California	5,280	12,547
Illinois	4,969	12,667
New York	4,780	11,500
North Carolina	3,701	8,643

Source: U.S., Department of Commerce, Lumber and Furniture Manufacturing, Industry Trend Series (Washington, D.C.: Government Printing Office, 1969), pp. 24-26.

Even Chicago workers average less per hour than those in Grand Rapids.

Employment is now stable in Grand Rapids. The production of household furniture should remain stable in the immediate future.¹ However, production is likely to expand in office and institutional lines. New growth should occur. It has been estimated that worker numbers should grow at a rate of 5 per cent a year for at least a ten-year period.² A major problem may be the recruitment and keeping of workers. Workers continue to be lost to production line factories, even though the city is one of

¹Arthur D. Little, Inc., The Economy of Greater Grand Rapids, Michigan, 1967, p. 79.

²Ibid., p. 79.

the highest paying furniture centers. Skilled carvers and craftsmen are in short supply. Furniture workers average lower wages than the workers in the metal oriented industries.¹ In 1967 furniture workers averaged \$2.67 an hour while fabricated metal workers received \$3.20 and those in primary metals \$2.98.² Yet, the industry continues to employ around 13 per cent of the labor force of the Grand Rapids area.³

Furniture now ranks third in the city as an employer.⁴ Metal working is first and machinery and equipment second as employers.⁵ The basic pattern of furniture enterprises has remained unaltered by monopolistic trends and the organization of labor. Firms are still small in size (Table 24). Firm size is not likely to increase greatly. There may be diseconomies to large scale production of quality furniture.⁶ Company presidents, as in the past, will exercise much personal control

¹ Neil Munro, "Grand Rapids City Limit: The Furniture City," Grand Rapids Press, March 12, 1967, p. 26.

² Ibid., p. 26.

³ Ibid., p. 26.

⁴ Anne Garrison, "Furniture Marketing in Grand Rapids," The Michigan Economic Record, VII (September, 1965), 8.

⁵ Ibid., p. 8.

⁶ Kaiser, "The Michigan Furniture Industry," p. 154.

TABLE 24
FIRM EMPLOYMENT, 1959

Firm	Workers	Furniture Type
Stow Davis	450	Executive Office
Imperial	350	Organ Cases
Widdicomb	250	Ornate
Johnson	200	Case Goods
Hekman	175	Occasional
Bergsma	150	Case Goods
Fine Arts	100	Occasional

Source: A. Gordon Foster, Report on A Tour of the United States, Furniture Development Council, 1960, p. 19.

over the business. Small plants present several problems, however. Electronic data processing is discouraged because of the cost factor. Likewise, advertising is a problem for small companies. In the past, companies could be production oriented. Now, by necessity firms must demonstrate an effective marketing program. Advancement is slow in small and medium sized plants. Few positions are open. Thus, there is often the problem of few qualified people to hold middle managerial positions.¹

¹Aubrey Wylie, "Timber Industry," Michigan Timber Production and Industry--Now and In 1980, Agricultural Experiment Station, Research Report 38 (East Lansing, Mich.: Michigan State University, 1966), p. 27.

Wholesaling Changes

After World War II merchandise was in short supply. Thus, a great amount of buying took place at the exhibitions. By the early 1950's Grand Rapids did not pretend to make the most furniture in the country. But, the city did claim to be a center for quality designed and produced furniture. On its fine reputation, the local exposition drew over 3,000 buyers a year.¹ The exposition set high standards of presentation and decoration. However, the failure of the industry to build one exhibition building created difficulties. Buyers shifted to other markets because of inconveniences in viewing furniture and because of the rise of other furniture centers.

In the early 1900's Chicago, Jamestown, and Grand Rapids boasted the leading expositions. By the 1950's regional exhibitions replaced the national ones. So severe was the competition from other markets that by the middle 1960's the number of buyers at Grand Rapids fell to 500.² The city no longer was viewed as a major furniture center. Major national buyers by-passed Grand Rapids. Thus, Grand Rapids firms began to exhibit their furniture at Chicago and High Point. In 1964 the local

¹Charles Kindell, interview, July 10, 1972.

²"City Still Plays Key Role in U.S. Furniture Industry," Grand Rapids Press, Sept. 25, 1966, p. C-18.

exposition had less than 500 buyers in attendance. Therefore, the following year, the 87-year-old market was discontinued.¹ Instead of semi-annual exhibits, the industry changed to a continuous, open market. The year around displays were opened to consumers as well as retailers. Marketing methods have changed. Top local firms now have their own displays in twelve or more cities, and permanent displays in Grand Rapids exhibition buildings.² Marketing appears to be in the larger cities. John Widdicomb Company has showrooms in Grand Rapids, New York, Boston, and Philadelphia. It also markets furniture in Chicago, Cleveland, Los Angeles, and San Francisco.³

The industry has become decorator oriented rather than buyer oriented. The exhibition had served the industry well in the years that it sold to a public less sophisticated in taste. However, today Grand Rapids sells to the 5 per cent of the market willing to pay for high-priced furniture.⁴ Sales are made on the basis of

¹"Tradition Ends," Grand Rapids Press, April 29, 1965, p. 1.

²Garrison, "Furniture Marketing in Grand Rapids," p. 6.

³"John Widdicomb Co. Sold to Combine Here," Grand Rapids Press, June 7, 1968, p. 2a.

⁴Garrison, "Furniture Marketing in Grand Rapids," p. 6.

coordinated packages. Fine furniture is bought in show-rooms, not stores. Samples are seen and orders placed. The furniture viewed in the Waters and Exhibitors show-rooms is priced from \$500 to \$1500 a piece.¹ To equip a room with such furniture, \$5000 could easily be spent (Figure 16).

By 1965 displays had been placed at the Kent County airport in an effort to make use of the mobility of buyers. Goods today are plentiful and transportation quick and easy. Dealers are inclined to have manufacturers store goods until they are needed.

Changing modes of furniture movement have taken place. Since World War II, the introduction of cheap motor transport has had an impact. Most furniture is moved uncrated by truck to points east of the Mississippi River. The introduction of trucks to move furniture is both cheaper and faster than rail transportation (Figure 17). Transportation changes have also affected display locations. The exhibit at the airport is such an example.

The Furniture Museum which had been set up in the 1930's was closed in the early 1960's. With buyers no longer coming to Grand Rapids, the museum no longer was an advantage to the industry. However, in 1972 the

¹Munro, "Grand Rapids City Limit: The Furniture City," p. 26.

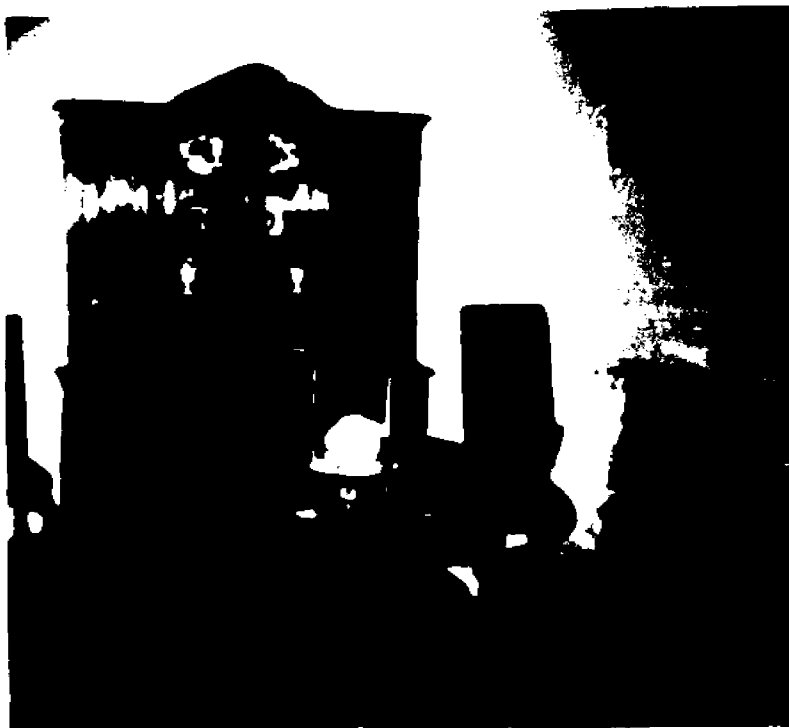


Figure 16. Quality Grand Rapids furniture. Furniture of high quality is displayed at the Baker Furniture showrooms. The table is priced at \$1,284 and the cabinet at \$3,038.



Figure 17. American Seating trucks. Most furniture moved east of the Mississippi River is today shipped by trucks.

decision was made to open a small museum in the year-around exhibition building. Thus, although buyers no longer come for ten-day periods nor by the thousands, an effort has been made to satisfy those who do come.

Innovations

The introduction of innovative policies and techniques in previous periods gave the local industry tremendous growth. The industry had increased its market areas by taking advantage of productive industrial methods. In short, it was more expeditious than other centers. The local firms had not only done things better than other centers, but they had done them differently. Grand Rapids displayed leadership in the industry.

In the 20th century the leadership of Grand Rapids waned as the flow of innovations slowed. The initial advantages won during earlier times, no longer put the city at the top of the field. Other centers had established advantages. To reverse the process a new period of innovativeness was needed. The needed changes were not forthcoming.

Southern manufacturers regard Grand Rapids as living in the past. One southern producer said, "Grand Rapids is a joke. They're all living in the past there--efficiency wise, style wise, and in every other way."¹

¹Nelson, "The Furniture Industry," p. 110.

Local producers have not sought the same markets as the producers in the South. Local manufacturers are no longer fiercely competitive in the same way they once were. Competition has lately been based on quality not quantity.

Gradual improvements have been made in mechanization in the industry. Yet, no major technological changes have recently given the industry a local advantage.¹ Machines are today basically the same as those thirty years ago. Machines have simply become more efficient and made the work of the laborer easier. Man hours of productivity increased 10 per cent from 1954 to 1966.² Having chosen a quality type of output, Grand Rapids has mechanized less than most centers and thus, is regarded as less efficient. Factory buildings are old and obsolete. The multi-story buildings make it difficult to adopt current efficient methods of production.

Some new equipment was introduced in the 1960's. A milling machine imported from Germany cuts six intricately carved legs at once. Also, a multiple carver has increased the number of carvings. However, such machines have not revolutionized the industry. Much hand labor still remains.

¹Wylie, "Timber Industry," p. 27.

²Ibid., p. 27.

Those changes made between 1940 and 1972 were not significant enough to revitalize the industry. Resources were no longer cheap, labor was expensive, and shipping was costly. Only the name "Grand Rapids" and the years of furniture making experience remained of the once dynamic industry. The depression, World War II, and the growth of new furniture centers all led to the demise of the industry.

Types and Styles Produced

The furniture industry in Grand Rapids is atypical. City firms produce a high percentage of custom furniture. Therefore, local firms are less competitive in prices than most companies. The types of furniture produced locally can be divided into three types, each accounting for about one-third of the output--custom furniture, contract furniture for offices and schools, and produce for retail stores.¹

The expensive furniture made in Grand Rapids is a result of fine workmanship and major design changes. Firms have held to traditional designs rather than modern ones. Most of the furniture is made for decorators, not dealers. Companies have lost out with dealers because of lofty standards, high prices, and traditional designs.

¹ Otto Suchsland, Selecting Panel Materials by Furniture and Cabinet Manufacturers, Agricultural Experiment Station, Research Bulletin 27 (East Lansing: Michigan State University, 1970), p. 5.

Therefore, many dealers have turned to the South for purchases.

In some products such as autos, refrigerators, and television sets, styles change yearly. Thus, buyers feel the need for rapid changes and replacement. Many products are not bought for durability. The attitude has not been as evident in furniture buying. People do buy for durability. However, since 1940, furniture purchases have become more influenced by "popular" styles.¹ The Grand Rapids furniture industry is a highly specialized industry, dependent on customers with a great amount of disposable income. Some customers have an appreciation for traditional construction. Grand Rapids companies should not be regarded as quaint. Executives vigorously and energetically attempt to stay ahead of competitors. Having focused on a type of product difficult to imitate, local firms must offer excellence in design and craftsmanship.

Only slight variations in style have occurred in several hundred years. "There is really nothing new in furniture design. Its like a stack of sheet music. You play your way through and then start all over again."²

¹Kaiser, "The Michigan Furniture Industry," p. 7.

²Walter Good and Otto Suchsland, Consumer Life Styles and Their Relationship to Market Behavior Regarding Household Furniture, Agricultural Experiment Station, Research Bulletin 26 (East Lansing: Michigan State University, 1970), p. 35.

In that respect furniture has failed to keep pace with other consumer goods. People who are making life-long purchases are reluctant to experiment with styles. Thus, Grand Rapids has been more staid in design changes than many furniture centers.

Having gone after the high-priced market, Grand Rapids is still a leader in style. The city is well known for two specialities: quality office furniture and institutional furniture for schools and churches. The inability of manufacturers to compete in cheaper lines has led to even greater emphasis on elite furniture. The city is still first in design. Over twenty-five designers are active in the city.¹ Yet, much of their work is done for other production centers.

The American Seating Company of Grand Rapids has developed a world-wide reputation for large and elegant orders of seats. Churches, schools, theaters, assembly halls, and libraries have been stocked by the company. Orders were filled for the New York Metropolitan Opera House, Busch Memorial Stadium, the Astrodome, Congress, and Radio City Music Hall.² The market has been national in school furniture while church orders have been confined

¹Lydens, The Story of Grand Rapids, p. 311.

²Alex Laggis, "Grand Rapids Specialty: Seating the Nation's Biggest Crowds," Grand Rapids Press, May 15, 1966, p. 3.

to the Middle West with most orders in Michigan.¹ In general, institutional orders have been in the high to medium price brackets.

The local industry also excels in the production of wood office furniture. Traditionally styled furniture is made for executive office suites. Thus, the city is diversified in its output. Wood and metal office furniture, quality store fixtures, institutional seating, folding chairs, and household furniture are all produced.

Changing Materials

The main material used in furniture making is still wood. However, the use of plastics and metals has intensified. Yet, wood will continue to be the main material for some time for it has some excellent qualities. The appearance, price, supply, machinability, and strength of wood account for its use.

Grand Rapids firms are more apt to continue to use larger amounts of wood than many centers. Locally made furniture is in the medium to high priced bracket. Therefore, the industry is not as price conscious as those centers marketing low priced products. High income customers desire wood products. Retooling costs for wood materials are low which makes wood desirable for the small sized factories of Grand Rapids. Factories are equipped

¹Kaiser, "The Michigan Furniture Industry," p. 41.

to work with wood and would find it difficult to install expensive new equipment.

The Grand Rapids industry is not hindered greatly by variations in the local supply of lumber.¹ Some varieties of wood are imported from out-of-state but the industry still relies on in-state sources. Most of the current cuttings are in hardwoods. Ironically, about 35 per cent of the hardwood lumber of the southern part of the Lower Peninsula is shipped to other states.² Yet, the local furniture firms purchase hardwood lumber from other states and Canada. The high quality of production demands good grades of lumber. The better grades of hardwoods were cut in Michigan some time ago.³ Therefore, some out-of-state purchases are needed. Most of the out-of-state purchases are of woods not native to Michigan. Canada serves as the main source of imported lumber. Great amounts of good grade maple, birch, and beech are bought from Canada.⁴ Other foreign sources account for only about 2.4 per cent of the total volume of lumber used with mahogany being the most used.⁵

¹Wylie, "Timber Industry," p. 17.

²Ibid., p. 17.

³Ibid., p. 17.

⁴Kaiser, "The Michigan Furniture Industry," p. 111.

⁵Ibid., p. 73.

Styling has an effect on the types of wood used. The popularity of early American furniture has increased the amounts of cherry and maple needed. Hardwoods in order of usage are soft maple, elm, walnut, cherry, hard maple, oak, and birch.¹ Most of the wood is received at the factories in the form of rough boards. Only the very small or specialty firms receive finished boards.

Most of the wood is delivered by trucks both from in and out-of-state. Hauling is cheaper by truck. Lumber is often part of a backhauling operation for trucks initially carrying other items. Many companies today do not have railroad sidings.

Mahogany sources have changed in the 20th century. Large amounts are now received from Japan, the Philippines, and Taiwan. The Japanese trade is based on logs cut in the Philippines and North Borneo. The method of in-transit sawmilling is used.²

Non-wood materials are used in greater amounts than before. Metals and plastics have been substituted for wood products. The substitutes are used mainly in institutional and non-upholstered furniture. Plastic laminates are the strongest competitors to wood. Large companies such as American Seating are using plastics.

¹Ibid., p. 73.

²Logs are sawed into lumber on the ships.

Large orders like the 45,000 seats for the Houston Astro-dome have been filled.¹ Large firms and orders are necessary in non-wood furniture because molds are expensive to set up. Metal furniture is used increasingly in offices. Public acceptance is critical in non-wood use. The furniture must be durable, have simplicity, and a good appearance. The trend is for even greater use of plastics and metals. Yet, the use of wood is not down.

Competition From Other Centers

The furniture industry is widely dispersed compared to the lumber business.² Some furniture manufacturing is carried on in all states. Kaiser found a high, positive correlation, 0.917, between the size of the state and the amount of furniture produced.³ However, the past growth of the industry must also be considered for reputations are slow to die. The following states accounted for over two-thirds of the value added by manufacturing in furniture in 1965: North Carolina, California, New York, Pennsylvania, Virginia, Michigan, Illinois, and Tennessee.⁴ Great competition exists in furniture

¹Kaiser, "The Michigan Furniture Industry," p. 138.

²U.S., Department of Commerce, Lumber and Furniture Manufacturing, p. 1.

³Kaiser, "The Michigan Furniture Industry," p. 152.

⁴U.S., Department of Commerce, Lumber and Furniture Manufacturing, p. 1.

manufacturing. A large number of producers exist, over 5,000.¹ Production is on a style basis and it is easy to start production with only modest capital. Duplication of competitors styles is also easy. Thus, costs are mainly in labor and materials. Furniture appears to be more market than material oriented.² The Grand Rapids industry is similar to national furniture manufacturing in many respects. Yet, some differences do exist. Grand Rapids has concentrated on quality production and thus, has a lower output and more constant level of production. Styling costs are high and markets limited. The city has for a long period been a source of trained personnel for other centers. Much of the designing for other centers is either done in Grand Rapids or by personnel trained in the city. Yet, the local industry is not expanding as rapidly as furniture employment is nationally.

The major furniture production centers are now in the South. Of the 60 largest companies in the country, 23 are found in a 150 mile stretch from Bassett, Virginia to Lenoir, North Carolina.³ High Point now serves as a

¹Wylie, "Timber Industry," p. 24.

²Oliver, The Development and Structure of the Furniture Industry, p. 158.

³Munro, "Grand Rapids City Limit: The Furniture City," p. 26.

major exhibition center drawing 7,000 buyers a year.¹

In 1967 Grand Rapids was well down the list of furniture producers (Table 25).

TABLE 25
1967 FURNITURE PRODUCTION

City	Firms	Employees (1000)	Value Added (1,000,000)
Chicago	449	22.8	246.4
New York	1,206	20.6	136.8
Greenboro-High Point	173	11.5	220.2
Grand Rapids	101	10.2	108.8

Source: Bureau of Census, Census of Manufactures, 1967.

A writer recently concluded after visiting Grand Rapids that the city was no longer worthy of mention as a furniture center.² The city's domination of the industry has ended. If Grand Rapids were to shut down completely, the industry as a whole would be affected little in the volume of sales--2 to 3 per cent in 1967.³ All that is left today in the city is high-end or expensive manufacturing.⁴ The plants that remain although more dispersed than in 1881 still show the affects of early

¹Ibid., p. 26.

²Ibid., p. 26.

³Ibid., p. 26.

⁴Peter Yardley, President of Baker Case Goods, interview, July 27, 1972.

location close to the river (Figure 18). However, due to truck and rail transport, the factories are no longer tied to the river. Volume production has shifted to North Carolina. The shift occurred on the basis of wages, not materials. Today the wage gap is narrowing but it is unlikely that Grand Rapids can recapture its lost sales.¹ However, the Grand Rapids industry is likely to survive for it has markets throughout the country.

It is a misconception that Grand Rapids firms have moved to the South where labor is cheaper.² No firm has permanently left the city for the South. One firm did move to the South but returned to Grand Rapids, and three firms have opened branch plants in the South.³ Grand Rapids has lost the low and medium priced production that it once had, but has kept its 5 per cent of the market in quality household furniture.⁴ The production of low and medium priced furniture lends itself to automation which North Carolina plants are geared for. Thus, while a cheap labor industry has developed in the South, Grand Rapids employs second and third generation craftsmen.

Furniture today is manufactured by methods ranging from handicraft to mass-production. Although the

¹Ibid.

²Garrison, "Furniture Marketing in Grand Rapids," p. 7.

³Ibid., p. 7.

⁴Ibid., p. 7.

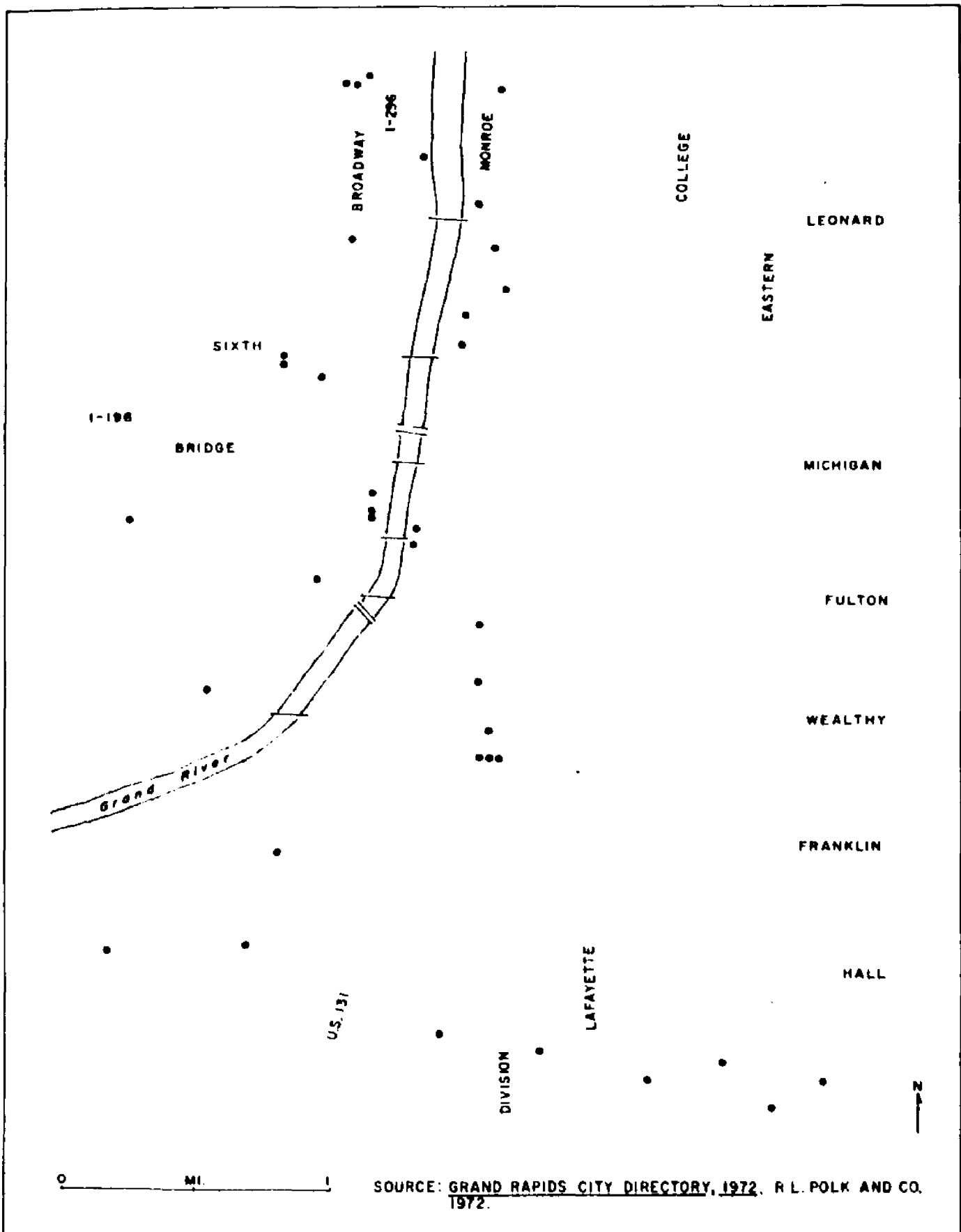


Figure 18. Furniture Plants In Grand Rapids, 1972

greatest amount of furniture is mass-produced, Grand Rapids remains a traditional producer. The city remains the heart of the Michigan furniture industry. The local area produces 77 per cent of the sales in the state.¹ Yet, with a national trend for quantity output, Grand Rapids remains a center for quality output. Grand Rapids still produces much fine furniture, but the title, "Furniture Capital of America" has long since passed to centers in the South.

Spatial Decisions

The desirability of Grand Rapids as a furniture center declined as growth was checked. The exposition was eliminated for lack of buyers and displayers as they chose other exhibitions. Local manufacturers once again found it necessary to search the country for buyers. Showrooms were opened in large cities throughout the United States.

Again the decision to cooperate aided the firms. They survived World War II by deciding to jointly produce for the war effort.

The quality production of Grand Rapids is today based on years of experience. For over 100 years, local representatives have received flows of information and sought out markets and workers. Knowledge gained has been incorporated into factory and sales methods. The decision

¹Kaiser, "The Michigan Furniture Industry," p. 27.

to emphasize quality production has allowed Grand Rapids to remain a major furniture producer with markets throughout the country. While the search for materials, information, and markets was local in 1836, today it is national and world-wide.

CHAPTER VIII

CONCLUSIONS

Few major brand names exist in the furniture industry. The names of most firms are not well known since factories are small in size. Thus, the name of the city where the furniture is produced becomes important. Such has been the case with Grand Rapids. The city rose as one of the first major production centers in the country. The name is still held in high regard today.

The industry evolved from a two-story frame house and factory owned by William Haldane in 1836. As the community grew, output by cabinetmakers increased to service the population. However, the Grand Rapids industry continued to grow in size and market area while that of most Middle West communities did not. By 1890 Grand Rapids furniture was internationally known and highly regarded.

The phenomenal growth of the industry, although not feasible without the resources of timber and water power, was not the result of them. Fine combinations of

resources existed in many regions. Rather the growth was based on decisions made by early leaders in the industry. The ingenuity of factory owners such as Haldane, Powers, Berkey, Widdicomb and others led to an inventive and innovative input that allowed Grand Rapids to out-produce many rivals.

Manufacturers were able to capitalize on initial advantages of Grand Rapids. Certainly, a variety of woods was available as well as power from the river. Yet, more important was the river as a mode of transportation for furniture shipped to Chicago and Milwaukee. The market area was expanded as early as 1860. Fine rail connections favored further growth by 1870 and mechanical techniques were able to speed production to keep pace with newly opened markets. The big impetus to growth came as a result of a cooperative display of furniture at the 1876 Exposition by three Grand Rapids firms. The well received display made Grand Rapids furniture nationally recognized.

Local firms developed their own exposition which made advertising costs minimal but still enhanced the name "Grand Rapids." By 1880 with a national market, the transportation to reach it, and the production to supply furniture, more workers were needed for the enlarged factories.

The settlement of large numbers of Dutch in the Grand Rapids area allowed manufacturers to hire skilled workers at very low wages. The Dutch labor source was available at the time that production increased and markets were expanded.

Following the 1876 Philadelphia Exposition, Grand Rapids capitalized on an excellent reputation. A continual flow of inventions and innovations in machines, transportation, and marketing made the city a top furniture producer in the country. The status continued into the 1920's. Thereafter, the flow of inventions and innovations lessened and Grand Rapids could not further extend its sales. Other furniture centers, North Carolina and Virginia, began to grow in size and threaten local firms. By 1929 growth had ceased in Grand Rapids. A shift was occurring to the South. The shift was hastened as the depression virtually destroyed Grand Rapids as a major producer.

Following the depression, production locally rose. However as of 1972, it had not reached pre-depression levels as a furniture employer. The industry in 1972 was committed to a high-end or quality production. By serving a limited clientele, it could no longer expect to attain national status as a volume producer. Yet, Grand Rapids furniture is still highly regarded on the basis of quality.

One portion of the cultural landscape of Grand Rapids has been analyzed. The furniture industry still represents one of the most important elements of the landscape of the city. Its origins and processes have been analyzed in an effort to explain the industry's phenomenal growth and rapid decline. Also of interest was an assessment of the future of the industry. In that regard, the industry still is and will be for some time a major, quality producer of the country with national markets and world-wide sources of raw materials. The still viable industry with an excellent reputation is based on the cumulative efforts of many men who were shrewd and adaptive enough to institute workable techniques in the furniture businesses of Grand Rapids.

LIST OF REFERENCES

LIST OF REFERENCES

Books

- Abler, Ronald; Adams, John; and Gould, Peter. Spatial Organization: The Geographer's View of the World. Englewood Cliffs: Prentice-Hall, 1972.
- Ackerman, Edward. "Cultural Geography." Introduction to Geography: Selected Readings. Edited by Fred Dohrs and Lawrence Sommers. New York: Crowell, 1967.
- Albert, Allen. The Present and Future of Grand Rapids. Grand Rapids: Rotary Club, 1917.
- Arthur D. Little, Inc. The Economy of Greater Grand Rapids, Michigan. 1967.
- Baker, R. H., and Creswell, H. The City of Grand Rapids: Manufacturing Advantages--Commercial Importance. Grand Rapids: Dean Printing, 1889.
- Baxter, Albert. History of the City of Grand Rapids, Michigan. New York: Munsell and Company, 1891.
- Bolles, Albert. Industrial History of the United States. New York: Kelly Publishers, 1966.
- Clark, Andrew. "Historical Geography." American Geography: Inventory and Prospect. Edited by Preston James and Clarence Jones. Syracuse: Syracuse University Press, 1954.
- Clark, Victor. History of Manufactures in the United States. 3 vols. New York: Peter Smith, 1949.
- Cox, Kevin. Man, Location, and Behavior: An Introduction to Human Geography. New York: John Wiley, 1972.

- Darby, H. C. "On the Relations of Geography and History." Cultural Geography: Selected Readings. Edited by Fred Dohrs and Lawrence Sommers. New York: Crowell, 1967.
- Davis, Charles. Readings in the Geography of Michigan. Ann Arbor: Ann Arbor Publishers, 1964.
- Dillenback, J. D. Grand Rapids in 1874. Grand Rapids: Daily Times, 1875.
- _____. History of the City of Grand Rapids. 1872.
- Etten, William. A Citizen's History of Grand Rapids, Michigan. Grand Rapids: A. P. Johnson Company, 1926.
- Fitch Scrapbook. 3 vols. Grand Rapids Public Library.
- Forman, James. The Furniture Industry and Its Potential Market. Washington, D.C.: Government Printing Office, 1950.
- Foster, A. Gordon. Report on A Tour of the United States of America. Furniture Development Council, 1960.
- Fuller, George, ed. Historic Michigan. Vol. III. National Historical Association, 1924.
- _____, ed. Michigan: A Centennial History of the State and Its People. 2 vols. Chicago: Lewis Publishing, 1939.
- Goss, Dwight. History of Grand Rapids and Its Industries. Chicago: C. F. Cooper and Company, 1906.
- Gould, Peter. Spatial Diffusion. Commission on College Geography. Resource Paper No. 4. Washington, D.C., 1969.
- Grand Rapids City Directory: 1867-1868. Chicago: Western Publishing Company, 1867.
- Higgs, Robert. The Transformation of the American Economy, 1865-1914. New York: John Wiley, 1971.
- Hurst, Michael. A Geography of Economic Behavior. North Scituate: Duxbury Press, 1972.

- Johnson, A. P., and Sironen, Marta. Manual of the Furniture Arts and Crafts. Grand Rapids: A. P. Johnson Company, 1928.
- Land, John. Industries of Grand Rapids: 1882. Grand Rapids, 1883.
- Lydens, Z. Z. The Story of Grand Rapids. Grand Rapids: Kregel Publications, 1967.
- Moore, Charles. History of Michigan. Vol. I. Chicago: Lewis Publishing, 1915.
- Oliver, J. L. The Development and Structure of the Furniture Industry. Oxford: Pergamon Press, 1966.
- Parker, Victor. Costing in the Furniture Industry. Oxford: Pergamon Press, 1965.
- Pred, Allen. The Spatial Dynamics of U.S. Urban-Industrial Growth, 1800-1914. Cambridge: M.I.T. Press, 1966.
- Prince, H. T. "Progress in Historical Geography." Trends in Geography: An Introductory Survey. Edited by Ronald Cooke and James Johnson. New York: Pergamon Press, 1969.
- Ransom, Frank. The City Built on Wood: A History of the Furniture Industry in Grand Rapids, Michigan, 1850-1950. Ann Arbor: Edwards Brothers, 1955.
- Robinson, W. A. Business Directory of the City of Grand Rapids, Michigan: 1856. Chicago: Scripps, Bross, and Spears, 1856.
- Sauer, Carl. "The Morphology of Landscape." Land and Life. Edited by John Leighly. Berkeley: University of California Press, 1967.
- Smith, C. T. "Historical Geography: Current Trends and Prospects." Frontiers in Geographical Teaching. Edited by Richard Chorley and Peter Haggett. London: Methuen, 1970.
- Utley, Henry, and Cutcheon, Byron. Michigan: As a Province, Territory, and State, the Twenty-Sixth Member of the Federal Union. New York: Americana Press, 1906.

- Wallis, George, and Whitworth, Joseph, eds. The American System of Manufactures. Edinburgh: Edinburgh University Press, 1969.
- Wolpert, Julian. "The Decision Process in a Spatial Process." Reading in Economic Geography. Edited by Robert Smith, Edward Taaffe, and Leslie King. Chicago: Rand McNally, 1968.
- Yeates, Maurice, and Garner, Barry. The North American City. New York: Harper and Row, 1971.

Journals and Periodicals

- "Advantages of Visiting the Grand Rapids Market." The Grand Rapids Furniture Record, II (December 15, 1900), 173-76.
- Aves, Helen. "Craftmanship Built a City." Inside Michigan, II (January, 1952), 46-49.
- _____. "Trend Makers." Michigan Challenge (September, 1966), 10-11.
- "A Bit of History." The Grand Rapids Furniture Record, II (January 15, 1901), 211-12.
- Borchert, John. "American Metropolitan Evolution." Geographical Review, LVII (July, 1967), 301-32.
- Bradshaw, James. "Grand Rapids Furniture Beginnings." Michigan History, LII (Winter, 1968), 279-98.
- _____. "Grand Rapids, 1870-1880: Furniture City Emerges." Michigan History, LV (Winter, 1971), 321-42.
- Eichenbaum, Jack, and Gale, Stephen. "Form, Function, and Process: A Methodological Inquiry." Economic Geography, XLVII (October, 1971), 525-44.
- Garrison, Anne. "Furniture Marketing in Grand Rapids." The Michigan Economic Record, VII (September, 1965), 3-8.
- "Grand Rapids--The Quality Market." Furniture Manufacturer, LIV (April 15, 1939), 6.

- Haines, Donal. "Industries of Michigan: Furniture Making." The Michigan Technic (January, 1927), 17-32.
- Henshaw, Fred. "From Logs to Living Room." Magazine of Michigan (January, 1930), 2-6.
- Lago, Hugh. "Fine Furniture: Celebrates Its Diamond Jubilee." Inside Michigan, III (January, 1953), 46-50.
- Lamb, George. "The History of 18th Century Mahogany." Furniture World, CXXXVIII (January 5, 1939), 13.
- Lauo, W. "Furniture Manufacturing Centers." Furniture Manufacturer and Artisan, III (February, 1912), 94-95.
- Lemert, Ben. "Furniture Industry of the Southern Appalachian Piedmont." Economic Geography, X (April, 1934), 183-99.
- Lyons, R. C. "Furniture Recovery." The Cauldron (exact date unknown, but late 1930's), 4-7.
- Merrens, Roy. "Historical Geography and Early American History." William and Mary Quarterly, XXII (October, 1965), 529-48.
- Nelson, George. "The Furniture Industry." Fortune, XXXV (January, 1947), 107-11.
- "One Hundred Years of Furniture Making." Furniture World, CXXXIII (June 25, 1936), 5.
- Press, Charles. "The Grand Rapids Area." The Michigan Economic Record, I (May, 1959), 7-8.
- Sauer, Carl. "Foreward to Historical Geography." Annals of the Association of American Geographers, XXXI (March, 1941), 1-24.
- Seidman, Frank. "Withered: The Furniture Industry." Reprinted from Furniture Manufacturer (June, 1933).
- White, Arthur. "Grand Rapids Furniture Centennial." Michigan History, XII (1928), 267-79.

White, Arthur. "The Recollections of An Onlooker." Furniture Manufacturer and Artisan, LXII (February, 1911), 74-75.

_____. "The Recollections of An Onlooker." Furniture Manufacturer and Artisan, LXII (May, 1911), 236-37.

_____. "The Recollections of An Onlooker." Furniture Manufacturer and Artisan, III (January, 1912), 42-43.

_____. "Romance of the Furniture Caster." Furniture Manufacturer and Artisan, LXII (July, 1911), 344-46.

Widdicomb, William. "The Early History of the Furniture Industry in Grand Rapids." Publications of the Historical Society of Grand Rapids, I, Part 5 (1909).

_____. "The Growth of the Industry." The Grand Rapids Furniture Record, II (December 15, 1900), 177-81.

Pamphlets

Furniture Manufacturers Association. The Furniture Career of Grand Rapids. Grand Rapids: 1941.

Good, Walter, and Suchsland, Otto. Consumer Life Styles and Their Relationship to Market Behavior Regarding Household Furniture. Agricultural Experiment Station, Research Bulletin 26. East Lansing: Michigan State University, 1970.

Grand Rapids Board of Trade. Grand Rapids As It Is: 1890-1891. Grand Rapids: Dean Printing, 1890.

Grand Rapids Centennial Furniture Festival. Grand Rapids: 1936.

Grand Rapids Chair Company. Reflections. Grand Rapids: 1922.

Grand Rapids Market Association. The Grand Rapids Market. Grand Rapids: 1925.

Kaiser, Fred, and James, Lee. The Michigan Furniture Industry and Its Utilization of Wood Products. Agricultural Experiment Station, Research Bulletin 21. East Lansing: Michigan State University, 1969.

Klok, John. A Short History of Furniture Drafting and Why Grand Rapids Became the Furniture Capital. Grand Rapids: 1934.

Nesbit, Wilbur. The Story of Berkey and Gay. Grand Rapids: 1911.

Report of the Program: The First Berkey and Gay Retail Salesmen's Conference. Grand Rapids: 1928.

Shaw, Lloyd, ed. The Industries of Grand Rapids. J. M. Elstner, 1887.

Suchsland, Otto. Selecting Panel Materials by Furniture and Cabinet Manufacturers. Agricultural Experiment Station, Research Bulletin 27. East Lansing: Michigan State University, 1970.

The Great Union Fair of Michigan: 1872. Grand Haven: Grand Haven Publishing, 1872.

White, Arthur. Grand Rapids on Parade. Grand Rapids: Herpolsheimer Company, 1926.

Windoes, Ralph. What Happened to Furniture Prices. Grand Rapids: The Periodical Publishing Company, 1921.

Wylie, Aubrey. "Timber Industry." Michigan Timber Production and Industry--Now and in 1980. Agricultural Experiment Station, Research Report 38. East Lansing: Michigan State University, 1966.

Newspapers

"Berkey and Gay Statistics." Telegram-Herald, May 24, 1886, p. 1.

"City Still Plays Key Role in U.S. Furniture Industry." Grand Rapids Press, Sept. 25, 1966, p. C-18.

"Demand High, Carvers Scarce." Grand Rapids Press, May 7, 1965, p. 13.

- "Furniture Men Get Fare Cut." Grand Rapids Press, Nov. 28, 1932.
- "The Great Union Fair." Grand Rapids Daily Eagle, Sept. 20, 1872, p. 1.
- "John Widdicomb C. Sold to Combine Here." Grand Rapids Press, June 7, 1968, p. 2a.
- Laggis, Alex. Grand Rapids Specialty: Seating the Nation's Biggest Crowds." Grand Rapids Press, May 15, 1966, Magazine p. 3.
- Munro, Neil. "Grand Rapids City Limit: The Furniture City." Grand Rapids Press, March 12, 1967, p. 26.
- "Plan to Import Cabinetmakers Balked by U.S." Grand Rapids Press, Sept. 11, 1923, p. 14.
- "Tradition Ends." Grand Rapids Press, April 29, 1965, p. 1.
- White, Arthur. "Furniture Making Here Century Old." Grand Rapids Press, Dec. 24, 1927, p. 38.
- "Why Grand Rapids." The Evening Leader, Feb. 26, 1891, p. 1.

Public Documents

- State of Michigan. Bureau of Labor and Industrial Statistics, 1886. Lansing: Robert Smith Printing, 1886.
- _____. Bureau of Labor and Industrial Statistics, 1890. Lansing: Robert Smith Printing, 1890.
- _____. Bureau of Labor and Industrial Statistics, 1900. Lansing: Robert Smith Printing, 1900.
- _____. Census of the State of Michigan, 1884. Vol. II. Lansing: Thorp and Godfrey Printers, 1886.
- U.S. Department of Agriculture. Utilization of Elm, by W. Brush. Bulletin 683. Washington, D.C.: Government Printing Office, 1918.

U.S. Department of Commerce. Bureau of the Census.
Census of Manufactures, 1947.

_____. Department of Commerce. Bureau of the Census.
Census of Manufactures, 1958. Vol. III.

_____. Department of Commerce. Bureau of the Census.
Census of Manufactures, 1963. Vol. III.

_____. Department of Commerce. Bureau of the Census.
Census of Manufactures, 1967. Vol. III.

_____. Department of Commerce. Bureau of the Census.
Eighth Census of the United States, 1860:
Manufactures. Vol. II.

_____. Department of Commerce. Bureau of the Census.
Ninth Census of the United States, 1870:
Manufactures. Vol. III.

_____. Department of Commerce. Bureau of the Census.
Tenth Census of the United States, 1880:
Manufactures. Vol. II.

_____. Department of Commerce. Bureau of the Census.
Eleventh Census of the United States, 1890:
Manufactures. Vol. II.

_____. Department of Commerce. Bureau of the Census.
Twelfth Census of the United States, 1900:
Manufactures. Vol. VII.

_____. Department of Commerce. Bureau of the Census.
Thirteenth Census of the United States, 1910:
Manufactures. Vol. IX.

_____. Department of Commerce. Bureau of the Census.
Fifteenth Census of the United States, 1930:
Manufactures. Vol. III.

_____. Department of Commerce. Bureau of the Census.
Sixteenth Census of the United States, 1940:
Manufactures. Vol. III.

_____. Department of Commerce. Growth Industries in
Wood Products and Furniture. Industry Trend
Series No. 6. Washington, D.C.: Government
Printing Office, 1957.

U.S. Department of Commerce. Lumber and Furniture Manufacturing. Industry Trend Series No. 3.
Washington, D.C.: Government Printing Office, 1969.

. Department of Labor. Industrial Wage Survey: Wood Household Furniture, Except Upholstered.
Washington, D.C.: Government Printing Office, 1968.

Interviews

Cleary, Lora. Furniture researcher, Grand Rapids Museum. Personal interview, July 7, 1972.

Ellis, Holmes. Plant executive, Grand Rapids Chair Company. Personal interview, July 12, 1972.

Kindel, Charles. Former President of Kindel Furniture Company and Grand Rapids Furniture Manufacturers Association. Personal interview, July 10, 1972.

Solon, Charles. President of Furniture Manufacturers Association. Personal interview, July 10, 1972.

Wainoris, Jeff. Furniture Division, Grand Rapids Museum. Personal interview, July 7, 1972.

Welch, Kenneth. Furniture manufacturer and son of inventor of the Welch folding bed. Personal interview, July 10, 1972.

Yardley, Peter. President of Baker Case Goods. Personal interview, July 27, 1972.

Unpublished Materials

Bailey, Perry. "The Role of the Economic-Geographic Factors in the Origin and Growth of Grand Rapids, Michigan." Unpublished Ph.D. dissertation, Ohio State University, 1955.

Irwin, Robert. "The Furniture Industry in Grand Rapids." Speech before the Grand Rapids Rotary Club, Dec. 16, 1926.

- Kaiser, Harold. "The Michigan Furniture Industry and Its Utilization of Wood Products." Unpublished Ph.D. dissertation, Michigan State University, 1967.
- Porter, C. O. C. O. Porter Machinery Company. Letter to the Grand Rapids Public Library on machine carvers.
- Wernicke, O. H. "The History of Sectional Bookcases." Unpublished manuscript, Grand Rapids Public Library.
- _____. "Not Over-Production, But Under-Education." Address delivered at the Dinner of the Grand Rapids Advertising Club, Grand Rapids, Michigan, January 11, 1912.
- White, Arthur. Unpublished manuscript, Grand Rapids Public Library, 1915.

Maps

- Baxter, Albert. "Village of Grand Rapids," "Railroad Map," and "City Skeleton Map, 1890." History of Grand Rapids, Michigan. Grand Rapids: Munsell and Company, 1891.
- Cram, George. "Map of Grand Rapids," 1923.
- _____. "Map of Kent County," 1923.
- Etten, William. "City Surveyor's Map." A Citizen's History of Grand Rapids. Grand Rapids: A. P. Johnson Company, 1926.
- "Greater Grand Rapids." Grand Rapids: Fred Johnson Company, 1965.
- Lockwood, Samuel. "Manuscript Map: Kent County, Township Map, 1838-1841."
- "Map of the City of Grand Rapids." R. L. Polk and Sons, 1886.
- Walling, H. F. Atlas of the State of Michigan. Detroit: R. M. and S. T. Tackabury, 1873.

OTHER REFERENCES

OTHER REFERENCES

Books

- Baker, Alan. Progress in Historical Geography. New York: Halsted Press, 1972.
- Board of Trade. Working Party Reports: Furniture. London: His Majesty's Stationary Office, 1946.
- Davis, Kenneth. Furniture Marketing. Chapel Hill: University of North Carolina Press, 1957.
- Dillenback, J., and Leavitt. History and Directory of Kent County, Michigan. Grand Rapids: Daily Eagle, 1870.
- Dunbar, Willis. Michigan: A History of the Wolverine State. Grand Rapids: Eerdmans Publishing, 1965.
- _____. Michigan Through the Centuries. New York: Lewis Historical Publishing, 1955.
- Fisher, Ernest. Grand Rapids and Kent County, Michigan. Chicago: Robert Law, 1918.
- Fitzpatrick, Albert. Pricing Methods of Industry. Boulder: Pruett Press, 1964.
- Grand Rapids Chamber of Commerce. Data on Plant Location at Grand Rapids, Michigan. 1955.
- Grand Rapids City Directory: 1880-1881. Grand Rapids: R. L. Polk, 1880.
- Grand Rapids Furniture Designers Association. Directory. Grand Rapids. 1955.
- Industrial Advantages of Grand Rapids, Michigan. Grand Rapids: S. A. Fewless, 1896.

Leeson, M. History of Kent County, Michigan. Chicago: Charles Chapman and Company, 1881.

Ormsbee, Thomas. The Story of American Furniture. New York: MacMillan Company, 1941.

R. L. Polk and Company. Grand Rapids City Directory: 1900. Grand Rapids: Grand Rapids City Directory Company, 1900.

White, Arthur. Grand Rapids, 1873: Its Leading Commercial and Manufacturing Interests. Grand Rapids: Eber Rice, 1874.

Wolpert, Julian. "A Spatial Behavior Analysis of Decision Making in Middle Sweden's Farming." Introduction to Geography: Selected Readings. Edited by Fred Dohrs and Lawrence Sommers. New York: Crowell, 1967.

Journals and Periodicals

"A Bird's-eye View of Furniture Progress." Furniture World, CXXXIV (February 18, 1937), 5.

"C. C. Comstock Operated First Furniture Factory in Grand Rapids in 1856." Daily Artisan Record (January 19, 1928), 2.

"A Discussion of Market Rivalry." Furniture Manufacturer and Artisan, III (March, 1912), 121-22.

Dunn, William. "A Growing Heritage." Michigan Challenge (September, 1966), 9.

"Furniture Making." Michigan Tradesman (September 7, 1898), 52.

"Furniture Salesmen Market Hosts." Furniture Manufacturer and Artisan, XV (February, 1918), 69-71.

Gabler, Arthur. "Office Furniture." Michigan Challenge (September, 1966), 16-17.

"Grand Rapids Carloading Plan." Furniture Manufacturer and Artisan, XII (December, 1916), 255.

"Grand Rapids." Furniture World, XXVIII (December 24, 1908), 23.

"The Great American Opportunity." Furniture Manufacturer and Artisan, XII (September, 1916), 134-35.

Hanink, John. "The View From Here." Michigan Challenge (September, 1966), 15.

Lamb, George. "The Wood Picture Becomes Complex." Furniture World, CXXXIV (January 14, 1937), 151.

"Leaders in the Industry: F. Stuart Foote." Furniture Manufacturer, LV (September, 1940), 11.

Luck, David. "A Story of Quality." Business Topics (November, 1953), 8-13.

"One of the Most Up-to-the Minute Modern Furniture Plant Operations in the World." Furniture Manufacturer, LXV (January, 1950), 34-35.

"Phases of the Furniture Markets." Furniture Manufacturer and Artisan, X (August, 1915), 99-104.

Pred, Allen. "Industrialization, Initial Advantage, and American Metropolitan Growth." Geographical Review, LV (April, 1965), 158-85.

_____. "The Intra-metropolitan Location of American Manufacturing." Annals of the Association of American Geographers, LIV (June, 1964), 165-80.

"Status of the Furniture Strike." Furniture Manufacturer and Artisan, LXII (May, 1911), 211-15.

"Up Hill Work." Michigan Tradesman (February 16, 1910), 33.

Verway, David. "The Furniture Industry." The Michigan Economic Record, V (January, 1963), 7-8.

Weale, James. "The Mahogany of West Africa." The Furniture Manufacturer and Artisan, VI (August, 1913), 378-80.

"Where It Goes." Shop Mark: Berkey and Gay Furniture, I (March, 1917), 1-3.

White, Arthur. "The Evolution in Three Decades." Furniture Manufacturer and Artisan, LXII (January, 1911), 12-13.

"Written in the Semi-Editorial Vein." Furniture Manufacturer and Artisan, LXII (April, 1911), 164-65.

Pamphlets

Berkey and Gay Furniture Company. A Greater Berkey and Gay. Grand Rapids: 1924.

A Chronological History of Grand Rapids: 1833-1882.
Reprinted from the Grand Rapids Mirror, 1933.

Furniture Manufacturers Association of Grand Rapids.
Grand Rapids. Grand Rapids.

Grand Rapids Association of Commerce. Grand Rapids: A Good Place to Live. Grand Rapids: 1932.

Grand Rapids Market Association. The Furniture Capital of America. Grand Rapids: 1921.

Grand Rapids News. The Grand Rapids News Year Book.
Grand Rapids: 1917.

Industrial Souvenir of Grand Rapids, Michigan. 1901.

James, Lee. "Timber Production." Michigan Timber Production and Industry--Now and in 1980. Agricultural Experiment Station, Research Report 38.
East Lansing: Michigan State University, 1966.

John Widdicomb Company. Little Stories About Furniture.
Grand Rapids: 1953.

Newspapers

Burns, Robert. "Furniture History is Pieced Together." Grand Rapids Press, Aug. 30, 1970, p. 2-B.

"Cabinet Ware and Upholstered Goods." Grand Rapids Daily Eagle, Dec. 12, 1864, p. 1.

DeMaagd, Pete. "New Exhibit Promises to Revitalize Furniture Industry." Grand Rapids Press, June 15, 1967, p. 53.

"Establish School for Upholsterers." Grand Rapids Press, July 17, 1919, p. 10.

"Furniture Shipping Reaches High Mark." Grand Rapids Press, Oct. 11, 1916, p. 16.

"Grand Rapids at Top." Evening Press, April 16, 1910, p. 6.

"Grand Rapids Gets New Museum to Show Off Its Furniture Tradition." Grand Rapids Press, Dec. 13, 1964, p. 21.

"G. R. Has It, Say Furniture Men." Grand Rapids Press, Jan. 3, 1960, p. 1.

"How It Works." The Evening Leader, Oct. 15, 1892, p. 1.

"Its Quest: Better Seats." Grand Rapids Herald, April 19, 1952.

"Museum Here Points Up Furniture Arts Heritage." Grand Rapids Press, Jan. 14, 1973, p. 4-D.

"Paris of Furniture Fashions." Grand Rapids Times, Jan. 8, 1937, p. 1.

Warren, Virginia. "Grand Rapids Endures Despite Changing Markets." New York Times, June 18, 1965, p. 22-C.

White, Arthur. "Blodgett the First Furniture Mart." Grand Rapids Press, Feb. 11, 1927, p. 20.

"Why They Object." Evening Press, May 29, 1902, p. 4.