



Industrial growth in Montana
by James B Cameron

A thesis submitted to the Graduate Faculty in partial fulfillment of the requirements for the degree of DOCTOR OF PHILOSOPHY in Agricultural Economics
Montana State University
© Copyright by James B Cameron (1967)

Abstract:

An examination of the Montana economy reveals that the leading indicator of economic growth, per capita income, is increasing but at a rate below that found in the majority of states. The Montana economy needs an infusion to reverse this trend. Industrial growth is a sector that could give this infusion and stimulate economic growth. The research was directed at assessing the possibility of stimulating industrial growth in Montana.

The methodology used in the research was (1) to review location theory and then apply it to the characteristics found in Montana to determine if enough favorable location factors existed that would induce industry to locate in the State and (2) to make empirical studies among three different groups of industrial firms (firms now operating in Montana, firms that have operated within Montana, and out-of-state firms that have investigated industrial locations within Montana) to determine if additional locational problems existed that were not discovered in applying location theory to Montana. In addition, a sample of the Montana population was interviewed to determine the attitude of the population toward industrial growth.

From applying location theory and from the empirical studies, the indications were that Montana is not on the threshold of industrial development nor were there any indications that it is likely to be so in the near future. Some industrial growth should occur but it is not expected that this growth will be large.

The biggest stimulant to future industrial development in Montana will be in the processing of the State's natural and agricultural resources.

The biggest deterrent to industrial growth is the lack of markets, with cost of transportation and labor being other important deterrents.

The attitudes among those Montanans interviewed for this study indicated they were overwhelmingly in favor of trying to stimulate industrial growth and were willing to offer some concessions to industry in order to stimulate this growth.

Considering all factors relating to the industrial sector, it is unlikely that this area will grow substantially so as to stimulate any large growth in the Montana economy.

INDUSTRIAL GROWTH IN MONTANA

by

JAMES "B." CAMERON

A thesis submitted to the Graduate Faculty in partial fulfillment of the requirements for the degree

of

DOCTOR OF PHILOSOPHY

in

Agricultural Economics

Approved:

Clarence W. Jensen
Head, Major Department

Layton S. Thompson
Chairman, Examining Committee

Doris D. Smith
Graduate Dean

MONTANA STATE UNIVERSITY
Bozeman, Montana

August, 1967

ACKNOWLEDGEMENTS

The author owes a debt of gratitude to Dr. Layton Thompson, committee chairman, and to Drs. Clive Harston, Helmer Holje, John Fischer, and Harvey Larson, committee members, for their encouragement, guidance, and suggestions in the writing of this dissertation.

Thanks are also due to Mr. Samuel Chapman, Director, and Mr. Patrick Byrne, Economic Analyst, of the Montana State Planning and Development Commission, as well as to Dr. Mary Uber of the Commerce Department, Montana State University, for their help and suggestions. A special thanks is reserved for Richard Setterstrom, Manager, Area Development Department, Montana Power Company, for his willingness to discuss his many experiences in industrial development work in Montana. In addition, Mr. Setterstrom was willing to review the drafts of this dissertation and as a result made several useful and timely suggestions.

Appreciation should also be noted for my wife, Lalah, and our three children, Linda, Stephen, and Douglas, for their willingness to sacrifice during the writing of this dissertation. Their support throughout has been a source of inspiration.

Notwithstanding the contributions made by others, the errors, if any, in this dissertation are mine alone and I assume full responsibility for any that exist.

CONTENTS

CHAPTER	PAGE
I. INTRODUCTION	1
Problem Setting	1
Economic Growth	3
Per Capita Income	6
Population	7
Employment	14
Brain Drain	21
Purpose and Importance of Study	26
Hypothesis	29
Methodology	30
Limitations	32
II. GENERAL FACTORS INVOLVED IN THE LOCATION OF INDUSTRY	33
Introduction	33
Demand Factors	35
Cost Factors	41
Personal Factors	67
Governmental Factors	72
Summary	73
III. CHARACTERISTICS OF MONTANA AFFECTING INDUSTRY	74
Introduction	74
General Characteristics	74

CHAPTER	PAGE
Natural Resources	76
Labor	83
Transportation	88
Industrial	89
Taxes	96
Community Government	98
State Government	99
IV. DETERRENTS AND STIMULANTS TO INDUSTRIAL GROWTH	102
Introduction	102
Present Montana Industry	102
Demand	105
Cost Factors	110
Personal Factors	148
Governmental Factors	155
Summary	156
V. EMPIRICAL STUDIES	158
Firms Operating Within Montana	158
Firms Investigating Montana Locations	187
Firms No Longer Operating in Montana	194
Summary	195
VI. ATTITUDES TOWARD INDUSTRY	197
Importance of Attitude	197
Results of Questionnaire	198

CHAPTER	PAGE
Chi-Square Test for Homogeneity	213
Summary	214
VII. SUMMARY, CONCLUSION, AND RECOMMENDATIONS	216
Summary	216
Conclusion	220
Recommendations	223
APPENDIX	228
Appendix I	229
Appendix II	233
Appendix III	234
Appendix IV	235
LITERATURE CONSULTED	237

LIST OF TABLES

TABLE	PAGE
I. Per Capita Income, Montana and the United States, 1950-1965	8
II. Per Capita Income Indexes for Montana, Neighboring States, and the United States, 1955-1965	9
III. Percentage Change in Per Capita Incomes, Montana and Surrounding States, 1953-1964 and 1948-1964	10
IV. Montana and United States Population Comparisons, April 1, 1960 and July 1, 1964	12
V. Employment Changes in Montana by Major Divisions From 1950 to 1960 and Projected to 1975	15
VI. Average Employee Earnings in Montana by Divisions, 1960 and 1965	20
VII. Percentage of Employment by Division, Montana and the United States, April 1, 1960	22
VIII. Employment Location of 216 Graduating Seniors of Montana State University, June 1966	24
IX. Selected Statistical Characteristics, by State	77
X. Occupational Distribution of the Labor Force, Montana and United States, 1950 and 1960	84
XI. Age Distribution and Percentage Employed of the Montana Labor Force, 1960	85
XII. Characteristics of Civilian Labor Force in Montana, 1960	86
XIII. General Statistics for Standard Metropolitan Statistical Areas, Counties, and Selected Cities in Montana, 1963 and 1958	92
XIV. General Statistics by Industry Group in Montana, 1963 and 1958	93

TABLE	PAGE
XV. Size of Manufacturing Establishments in Montana by Number of Employees, 1958 and 1963	104
XVI. Index by State of Relative Growth in Value Added and Production Employment	114
XVII. Percentage Comparison of Per Hour Earnings for Production Workers Between Montana and Other Continental States, Selected Industrial Groups and All Industry, 1963	121
XVIII. Montana's Ranking of Hourly Earnings for Production Workers with Other Continental States, All Industry and For Selected Industrial Groups, 1963 and 1958	122
XIX. Comparison of Productivity Between Montana and Other Continental States for Selected Industrial Groups, 1963	124
XX. Productivity Ranking of Montana with Other Continental States for Selected Industrial Groups, 1963	125
XXI. Labor, Material, and Utilities as a Percentage of Total Value of Shipments by Industry Group, 1963	128
XXII. Four Digit Industry Groups with Utility Costs Exceeding Five Percent of Total Value of Shipments, 1963	130
XXIII. Tax Comparisons Between Montana and the Eight States That Showed the Largest Increase in Value Added to Manufactures in the Period 1947 to 1963	135
XXIV. Percentage of Returns on Industry Questionnaire	160
XXV. Summary of Responses on "Attitude Toward Industry" Questionnaire	199
XXVI. Responses on 633 Non-Student "Attitude Toward Industry" Questionnaire by Age and Sex	209
XXVII. Responses on 633 Non-Student "Attitude Toward Industry" Questionnaires by Occupation	212
XXVIII. Chi-Square Test of Homogeneity on Question 1 of "Attitude Toward Industry" Questionnaire	214

LIST OF FIGURES

FIGURE		PAGE
1.	Unemployment Rate, Montana and United States, January 1, 1960 to July 1, 1966	17
2.	Cost Curves - Two Competitors	42
3.	Transportation Cost	46
4.	Backhaul Transportation	50
5.	Average Annual Precipitation in Montana	78
6.	Railroads	89
7.	Airline Routes	90
8.	Maintained Highways	91

ABSTRACT

An examination of the Montana economy reveals that the leading indicator of economic growth, per capita income, is increasing but at a rate below that found in the majority of states. The Montana economy needs an infusion to reverse this trend. Industrial growth is a sector that could give this infusion and stimulate economic growth. The research was directed at assessing the possibility of stimulating industrial growth in Montana.

The methodology used in the research was (1) to review location theory and then apply it to the characteristics found in Montana to determine if enough favorable location factors existed that would induce industry to locate in the State and (2) to make empirical studies among three different groups of industrial firms (firms now operating in Montana, firms that have operated within Montana, and out-of-state firms that have investigated industrial locations within Montana) to determine if additional locational problems existed that were not discovered in applying location theory to Montana. In addition, a sample of the Montana population was interviewed to determine the attitude of the population toward industrial growth.

From applying location theory and from the empirical studies, the indications were that Montana is not on the threshold of industrial development nor were there any indications that it is likely to be so in the near future. Some industrial growth should occur but it is not expected that this growth will be large.

The biggest stimulant to future industrial development in Montana will be in the processing of the State's natural and agricultural resources. The biggest deterrent to industrial growth is the lack of markets, with cost of transportation and labor being other important deterrents.

The attitudes among those Montanans interviewed for this study indicated they were overwhelmingly in favor of trying to stimulate industrial growth and were willing to offer some concessions to industry in order to stimulate this growth.

Considering all factors relating to the industrial sector, it is unlikely that this area will grow substantially so as to stimulate any large growth in the Montana economy.

Industrialization appears to be a major and essential ingredient for substantial economic growth.

Wilbert E. Moore

Chapter I

INTRODUCTION

Problem Setting

In eleventh century Europe a group of churchmen hit upon an idea to enhance the value of church lands. Cities and towns had begun to develop so these churchmen conceived the idea of industrial development that would promote the church owned lands and make them more valuable. In twentieth century United States some of the people are still doing the same thing--trying to enhance the wealth of an area through industrial development. But the means being used now are vastly different and far more expensive than those used by the eleventh century churchmen. In fact, trying to lure new industries¹ to establish in particular locations has become a business that employs thousands of people and spends millions of dollars.

¹Although there are several good definitions of industry available, the one selected was that used by Wilbert E. Moore, in The Impact of Industry, Prentice-Hall, 1965, page 4. Moore defined industry as "the fabrication of raw materials into intermediate components or finished products by primarily mechanical means dependent upon inanimate sources of power."

Even though the above definition is narrower than some others (especially that used by the federal government which includes not only industry, as defined above, but also construction, transportation, mineral extraction, and public utilities), it fits the subject matter discussed in this paper. As defined, industry is closely synonymous with manufacturing and the two are used interchangeably throughout this study.

As recently as 1963 it was estimated that this business was spending \$220 million a year.²

No longer is this a business where amateurs can have much success as there are too many professionals who have a greater knowledge of how the game is played. It has been estimated that there are 20,000 area development organizations throughout the United States³ and that about 500 new plants are either established or relocated in any given year.⁴ Thus the chance of success in landing one of these industrial plants by an area development organization is very small--about one in forty.

With such heavy odds against landing one of the new industrial plants, why don't some of these industrial development groups close up shop and forget the whole thing? The reason is simple--the potential gains exceed current costs. For example, a study done by the Economic Research Department of the Chamber of Commerce of the United States indicated the following: A new plant employing 100 workers would add 65 jobs outside the plant; it would support three more retail stores; it would boost bank deposits in the area by \$229 thousand; it would increase population by 359 people; it would add 100 more households, 97 more cars, and 91 more school children; it would add \$331 thousand to retail sales per year; and it would increase

²"The Rough-and-Tumble of Site Location," Dun's Review and Modern Industry, March, 1963, p. 97.

³"The Big Plant Site Scramble," Dun's Review and Modern Industry, March, 1964, p.105.

⁴James O. Henderson and Anne O. Krueger, National Growth and Economic Change in the Upper Midwest, University of Minnesota Press, 1965, p.110.

personal income by \$710 thousand.⁵ In addition another writer estimated that, on an average, industry makes a capital investment of \$20 thousand for each employee hired.⁶ One must keep in mind that these figures were derived several years ago and undoubtedly would be higher today. Yet they are impressive and give a good indication why the race for industry is on. Also, there is little doubt that industrialization will help economic growth and improve per capita income.

Economic Growth

Economic growth has been defined as the expansion of an area's capability to produce the goods and services that its people want. Since the productive capacity of an area depends upon the quantity and quality of its resources and the level of technology present, economic growth requires that these determinants be continually improved and expanded.

What is the significance of economic growth for the people of Montana? Essentially it is to increase the welfare or well-being of the people in the State absolutely as well as relatively to the other forty-nine states. This is done in two ways: it leads to growth in the quantity and quality of goods available for private consumption, and it provides the necessary resources for government to assume its ever-increasing responsibilities without adversely affecting private consumption standards. If economic

⁵"What New Industrial Jobs Mean to a Community," Chamber of Commerce of the United States, Washington, D.C., 1963.

⁶"Want New Industry," American City, April, 1959, p. 5.

growth did not occur in the total economy, then an expanding government could, in some instances, lead to lower personal consumption.

Although the material standard of living in this nation is the highest in the world, the citizens of Montana, like those in the rest of the country, have come to expect a continued upward movement. For this increase to take place, economic growth is an absolute necessity. That economic growth has occurred in the United States cannot be questioned, but neither can the statement that economic growth throughout the United States has not occurred uniformly. A competitive struggle exists among the states, each hoping to obtain more than its share of this economic growth. (An analysis of whether or not Montana has obtained its share of the economic growth that has occurred in the United States will be discussed later in this chapter.)

The processes by which economic growth takes place are the means by which an area expands its productive capacity. Basically, four factors are important in the process of economic growth. These are: (1) the quantity and quality of labor (including managerial abilities), (2) the quantity and quality of the natural resources, (3) the quantity and quality of capital, and (4) the level of technology within the society.

As for factors three and four, capital and technology, their importance as factors in the economic and industrial growth of Montana (or of any other state for that matter) have been assumed to be negligible. Most experts would agree that within the United States (and to some extent all of the free world) capital is now quite mobile. That is, it moves in

response to the opportunities and earnings from its employment. The United States system of financial institutions is highly developed and these institutions are continually searching for new ways to improve their services.

As for technology, this diffuses through our nation at a very rapid rate. Although there are pockets where research activities are more extensive, normally professional associations and literature will move the knowledge of any new technology at a fairly rapid rate. Montana certainly is not a leader in the development of technology and perhaps lags some in the adoption of new ideas. Aside from the national system of patents, there are no legal barriers present to prevent the transfer of innovations from state to state. It is felt that patent protection probably has little affect on the economic growth of Montana.

The other two factors of economic growth, natural resources and labor, are both important to Montana. Natural resource endowment is very definitely not the same in the different states and there is not much a state can do to change the natural resources that it has or does not have. However, something can be done about finding and utilizing those that do exist. In the booklet Natural Resources of Montana, this statement is made:

"Development of the state (Montana) has stemmed and will progress from the people of Montana, who know the value of wise conservation, careful management, and rational use of the resources Nature has given them. Montana has grown from a brawling, independent frontier territory into a State with a diversified economy. Its future is assured, because the basic resources are at hand for sustaining continued growth."⁷

⁷Natural Resources of Montana, U. S. Department of the Interior, Washington, D. C., 1964, p.67.

The quality of labor is more important in economic growth than quantity but both are necessary ingredients. India and China have large quantities of unskilled labor yet show a poor economic growth rate. On the other hand, an area may have an abundance of skilled (quality) labor and still show a low economic growth rate. Subsequent pages in the chapter will examine the quantity and quality of labor in Montana along with an assessment of their effect on economic growth.

Per Capita Income

If one is interested in economic growth because of its significance to the welfare of the citizens, then what is important is not just output but rather the right kind of output. Increased production means little to the average citizen unless he has a growing volume of goods and services at his disposal. Thus the measure of economic growth that is most meaningful is the level of output per person. Measured in dollars and cents this is labeled per capita income and is one of the standard methods for determining how well an area is doing.

A look at per capita income for Montana shows that a very undesirable change has taken place in recent years. Taylor studied this area and states that in the period 1938-1955 per capita income in Montana averaged about 1.5 percent above that for the whole United States, but since 1955 it has averaged 7.5 percent below the United States average. Taylor concluded from his study that "Montana is not sharing in the general economic growth of the country" and that "rather than being sluggish, the Montana

economy has been almost stagnant since 1955."⁸ Table I shows what is happening to per capita incomes in Montana and the United States, Table II shows the growth in per capita incomes in Montana, surrounding areas, and the United States. Both tables clearly indicate that the relative position of Montana is deteriorating. It is evident that something needs to be done to reverse this undesirable trend.

Table III shows that per capita income growth in Montana has been small compared with surrounding states. In fact, except for South Dakota, Montana had the lowest percentage increase in per capita income of all fifty states during the period 1948 through 1964.

The standard measurement for determining how well an area is doing, per capita income, is far from encouraging as far as Montana is concerned. Not only is growth in per capita income below average but our ranking among the fifty states is deteriorating, going from the top third in the early 1950's to the bottom half in the 1960's

Population

In the decade 1950-1960, the population of Montana grew from 591 thousand to 675 thousand people. This is an average percentage growth for each year of 1.33 percent as compared to the rate of growth of the entire United States of 1.70 percent per year. From April 1, 1960 (when

⁸Maurice C. Taylor, "Income Trends in Montana," Bulletin 590, Montana Agricultural Experiment Station, Montana State University, Bozeman, Montana, (October, 1964) pp. 3-4.

TABLE I

PER CAPITA INCOME, MONTANA AND THE UNITED STATES, 1950-1965

<u>Year</u>	<u>Montana</u> (Dollars)	<u>United States</u> (Dollars)	<u>Montana as a</u> <u>Percent of U. S.</u> (Percent)	<u>Montana's Rank</u> <u>Among Fifty States</u> (Rank)
1950	1,622	1,496	108	13
51	1,760	1,652	107	17
52	1,786	1,733	103	18
53	1,779	1,804	99	21
54	1,729	1,785	97	22
55	1,852	1,876	99	19
56	1,892	1,975	96	21
57	1,944	2,045	95	21
58	2,059	2,068	100	19
59	2,010	2,161	93	26
60	2,037	2,215	92	27
61	1,973	2,264	87	31
62	2,272	2,368	96	24
63	2,265	2,455	92	28
64	2,255	2,579	87	32
65	2,438	2,746	89	29

SOURCE: Survey of Current Business, U. S. Department of Commerce, Washington, D. C., August, 1966, Table 2, p. 13.

TABLE II

PER CAPITA INCOME INDEXES FOR MONTANA, NEIGHBORING STATES, AND THE UNITED STATES, 1955-1965
(1955=100)

<u>Year</u>	<u>Montana</u>	<u>Idaho</u>	<u>North Dakota</u>	<u>South Dakota</u>	<u>Utah</u>	<u>Wyoming</u>	<u>United States</u>
1955	100	100	100	100	100	100	100
56	102	108	104	105	105	104	105
57	105	112	107	124	110	111	109
58	111	117	123	129	113	115	110
59	109	122	111	114	119	120	115
60	110	120	124	138	121	122	118
61	107	124	109	137	126	124	121
62	123	132	156	155	133	128	126
63	122	133	145	148	136	130	131
64	122	138	144	145	140	131	137
65	132	156	165	171	145	138	146

SOURCE: Computed from data in "Survey of Current Business," U.S. Department of Commerce, Washington, D.C., August, 1966, Table 2, p.13.

TABLE III

PERCENTAGE CHANGE IN PER CAPITA INCOMES, MONTANA AND
SURROUNDING STATES, 1953-1964 and 1948-1964

<u>State</u>	<u>1953-1964</u> (Percent)	<u>1948-1964</u> (Percent)
Montana	27	41
Idaho	36	58
North Dakota	68	54
South Dakota	38	29
Utah	39	77
Wyoming	29	57

SOURCE: "Survey of Current Business," U.S. Department of Commerce, Washington, D. C., July, 1965, p. 11

the last census was taken) to July 1, 1965, the Census Bureau has estimated that the population of Montana increased by 31 thousand to a total population of 706 thousand. This is a 4.6 percent increase during this 5 year period as compared to an 8 percent increase for the entire United States.

What is the reason for the slow rate of population growth in Montana? One cannot attribute it to the birth rate as this exceeded the United States average, nor to the death rate as Montana's approximated the United States average. One factor does stand out and that is the number of out-migrations that the State experiences. During the 1950's, Montana experienced a net out-migration of approximately 25,000 people. From available information, most of those in this out-migration were in the younger and most productive age group (15 to 25 years of age) and the reason they left was because of better opportunities elsewhere. For example, Rixe and Ewasiuk state that 13 percent of the male out-migration was in the 20 to 24 age group and that 9 percent was in the 15 to 19 age group. They conclude: "These migrants represent a very great loss to the state. They are highly productive young men moving into another state's labor force."⁹

This situation does not seem to have changed since 1960. Table IV shows the composition and changes in the populations of Montana and the United States since 1960. Notice in this table that the 18 to 44 age

⁹Lloyd Rixe and W. J. Ewasiuk, "Montana's Population," Now, Montana State University, Bozeman, Montana, Winter, 1965, p.4.

TABLE IV

MONTANA AND UNITED STATES POPULATION COMPARISONS,
APRIL 1, 1960 AND JULY 1, 1964

<u>Age Group</u>	<u>Percentage of Total Population (4/1/60)</u>		<u>Percentage of Total Population (7/1/64)</u>		<u>Percentage Change in Population between 4/1/60 to 7/1/64</u>	
	<u>Montana (Percent)</u>	<u>United States (Percent)</u>	<u>Montana (Percent)</u>	<u>United States (Percent)</u>	<u>Montana (Percent)</u>	<u>United States (Percent)</u>
Under 5 yrs.	12.2	11.3	11.6	10.8	-2.4	1.8
5 to 17 yrs.	26.3	24.5	27.8	25.9	10.1	12.9
18 to 44 yrs.	33.2	34.9	32.0	33.9	0.5	3.8
45 to 64 yrs.	18.6	20.1	19.2	20.1	7.9	6.5
65 and Over	<u>9.7</u>	<u>9.2</u>	<u>9.4</u>	<u>9.3</u>	<u>1.1</u>	<u>7.8</u>
Total Population	100.0	100.0	100.0	100.0	4.1	6.7

SOURCE: Bureau of the Census, "Population Estimates," Series P-25, No. 333, March 30, 1966, Tables 1,3, and 4, pp. 6, 8, 9.

group in Montana increased by 0.5 percent although the whole United States increased 3.8 percent. Again Montana is experiencing very little growth in the most productive age group. Rixé and Ewasiuk drew the following conclusions from such trends:

"Present migration and population growth patterns in Montana do not offer much encouragement nor do they suggest a reversal of those trends. This points to a key problem. We have fewer people in the highly productive age groups supporting more and more people in the young and old age categories.

"You might well surmise that the productive age groups are going to be compelled to use more of their income to support schools, churches, welfare, recreational programs, and many other established and socially accepted, demanded, and desired institutions if Montana is to support these things entirely from state revenues. What happens if we don't? The quality and quantity of these programs and services will most likely suffer. More people will be induced to leave Montana for areas where services and programs are available in the quantity and of the quality desired and at a more attractive price. This out-migration will in effect place a still heavier burden on the remaining citizens. At the same time, it will decrease the inducement for in-migration.

"Montana's economic growth and development are closely and directly associated with the human resources of our state. Rural out-migration in response to agricultural adjustment has been taking place throughout the nation and will continue for the next few decades. This agricultural adjustment is of greater significance to Montana than to most of the nation because a high percentage of our population is rural. (See Table VIII for comparison.) Consequently, the urban areas of the state will have to grow faster than the national average to assimilate and offer employment opportunities for the displaced rural population.

"This urban growth must take place in areas other than those supporting agriculture because fewer local services are required by modern agriculture. It would seem that industrial development, coupled with expanded service centers, is needed if Montana's economy is to grow and expand."¹⁰

¹⁰ Ibid, p. 5. (Underlining and words in parentheses supplied.)

Apparently Rixe and Ewasiuk view past and current population trends in Montana as being undesirable and express the view that economic growth in Montana will have to come from industry. If the citizens of Montana feel it important to stop or slow down this out-migration, then suitable employment opportunities for these people must be created in the State.

Employment

What are the chances of finding suitable employment to prevent this out-migration? Perhaps an examination of employment in the State along with some projections that have been made can give some clues as to what the State may expect.

Table V shows the division breakdown in employment changes between 1950 and 1960 along with a projection made by Henderson and Krueger for the period 1960 to 1975. Although total employment increased in the decade of the 1950's, it was not sufficient to absorb the increase in population. Montana has had a participation rate¹¹ of between 35 and 40 percent. (In 1950 it was 38.9 percent, in 1960 it was 36.8 percent.) If one assumes a participation rate of roughly midway between the 1950 and 1960 figures (about 37.5 percent), then the increase in population of 84,000 between 1950 and 1960 should have added approximately 31,500 to the labor force. Yet Table V shows that Montana added approximately 6,000 to its labor force during this period. Three reasons probably account for this difference:

¹¹ Participation rate is computed by dividing total labor force by total population.

TABLE V

EMPLOYMENT CHANGES IN MONTANA BY MAJOR DIVISIONS
FROM 1950 to 1960 AND PROJECTED TO 1975

<u>Division</u>	<u>Change in Numbers Employed, 1950-1960</u>	<u>Projected Change in Numbers Employed, 1960-1975</u>
Agriculture	-14,550	-8,679
Mining and Oil	-3,484	-335
Manufacturing	1,887	2,678
Railroads	-4,900	-2,117
Transportation, Communication, and Utilities (except railroads)	1,618	2,501
Wholesale Trade	1,673	1,538
Retail Trade	2,407	5,368
Finance, Insurance, and Real Estate	3,149	2,604
Service and Miscellaneous	6,469	10,654
Construction	1,109	3,302
Federal Government	1,400	2,465
State and Local Government	<u>8,900</u>	<u>12,851</u>
Total Change	5,678	32,810

SOURCE: James O. Henderson and Anne O. Krueger, National Growth and Economic Change in the Upper Midwest, Table 1-3, page 12 and Table 2-1 page 22.

first, the large number of births recorded in the 1950's would have had the effect of lowering the participation rate; second, the 25,000 out-migration during the period would have reduced the work force; and third, the increasing number of unemployed workers during the period. From 1950 to 1960, the number of unemployed increased in the state by over 5,000. (On the census date, April 1, 1960, the United States unemployment rate was 5.1 percent whereas the Montana rate was 6.8 percent, one of the highest in the upper-midwest and west.¹²) By way of comparison, if employment opportunities in Montana had kept pace with the rest of the nation, the State would have had another 19,000 employed in 1960.¹³

Although the State employment situation has substantially improved since 1960, it has not yet reached the point where the employed labor force is keeping up with population changes. According to the Montana State Employment Service, the State had an employed labor force on April 1, 1960 of 231,300 whereas on April 1, 1965 it was 239,300, an increase of 8,000 workers. With an estimated population increase of 31,000 during this period and a participation rate of approximately 37.5 percent, the State should have had an increase in the employed labor force of near 12,000.

Even though the average rate of unemployed has been down in recent

¹²Statistics were taken from U.S. Census of Population, 1950 and 1960.

¹³The U. S. rate of increase during the 1950's was 14.5 percent whereas the Montana rate of increase was only 6 percent (the lowest in the five Rocky Mountain States surrounding Montana). Thus the difference of 8.5 percent times the 1950 Montana employed labor force of 219,000 would give the added employment of approximately 19,000.

years and is now below the United States average, unemployment is still a problem in Montana as many in the work force are employed in seasonal work. For example, agriculture, construction, lumbering, trade, and services are all areas where the annual fluctuation in employment is large. (Note the wide swings in unemployment in Figure 1 between Montana and the whole United States illustrating the strong seasonal affect on jobs within Montana.) If the State is going to make strides in increasing per capita incomes and sustaining economic growth, it needs more year-round employment.

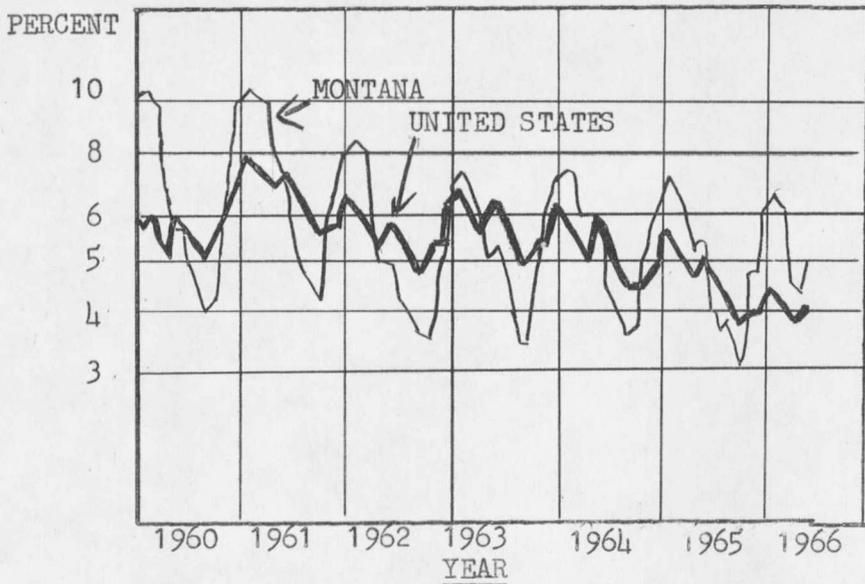


Figure 1 - Unemployment Rate, Montana and United States, January 1, 1960 to July 1, 1966.

SOURCE: 1966 Annual Report, Montana Unemployment Compensation Commission, Helena, Montana.

A look at the various segments or divisions of employment also gives some enlightenment. Table V shows that agriculture, mining, and railroads

have all lost workers during the 1950's and are projected to continue losing workers during the period 1960-1975. Agriculture and mining are considered basic industries¹⁴ that support employment in other areas. Another basic area, manufacturing, has increased and it is expected to continue to increase but not to the extent that it will offset the decreases in agriculture and mining. With respect to manufacturing and construction, Paul Blomgren, former Dean of the College of Business Administration at the University of Montana, has stated:

Thus construction serves, and has served, as a stimulus to the Montana economy, but it does not appear to be an industry upon which the state can rely as a major support in the long run. Other sectors of the economy must bear the major burden of support and provide the necessary diversification in the economy.

Manufacturing is a sector of the economy on which many people pin their hopes for growth and diversification in Montana. This is the sector usually referred to when groups speak of the need for 'industrial development.' The truth is, however, that manufacturing (other than lumber and wood products) has declined in importance in the Montana economy.¹⁵

In the 46-year period from 1919 up to 1965 manufacturing employment in Montana increased approximately 15 percent. During this same period, manufacturing employment in Montana as a percent of the United States employment in manufacturing actually decreased. However, during the decade of

¹⁴A basic area being defined as one serving markets beyond certain boundaries; in this case, the state is the boundary. Any economic activity that serves only local markets is a service area and adds little to the strength of the economic base.

¹⁵Paul B. Blomgren, "The Montana Economy in Perspective," Montana Business Quarterly, Volume 1, No. 1, p. 25.

of the 1950's, the Montana rate of change in manufacturing employment closely approximated the United States average, .90 in Montana to .93 in the United States.

If some of the basic industries are not doing too well, from where can the support for the Montana economy come? Three of the most rapidly expanding sectors in the Montana economy are trade, services, and government. During the 1950's, these areas expanded slightly more than 20 percent and the growth projections in Table V indicate an even greater expansion in the period 1960-1975. Several factors are worth noting in the expansion of these three areas. In the trade area, most of this growth is directly related to growth in other sectors of the economy. Thus if the State can stimulate greater growth in other areas, trade will be also stimulated, thus helping the Montana economy.

Growth in the services sector has been in large part due to the growth of tourism and recreation. Although most states are actively engaged in capturing this business, Montana has been blessed with many natural features that should give the State an advantage in obtaining more than its one-fiftieth share of the projected increase in recreation and tourism within the United States. However, if the expected growth does come in the trade and service sectors, it should be recognized that unless wages increase drastically (something that is not too likely), then these areas are likely to draw the per capita income even farther away from the United States average. Table VI gives the average incomes in Montana for 1960 and 1965. This table shows the disparity that exists in average earnings in the

TABLE VI

AVERAGE EMPLOYEE EARNINGS IN MONTANA BY DIVISION, 1960 and 1965

<u>Division</u>	<u>Average Earnings Per Employee</u>	
	<u>1960</u> (Dollars)	<u>1965</u> (Dollars)
Mining	5,426	6,578
Contract Construction	5,239	6,485
Manufacturing	4,990	5,911
Transportation and Public Utilities	4,846	5,871
Finance, Insurance, and Real Estate	4,145	4,867
Trade	3,683	4,074
Service and Miscellaneous	2,821	3,177

SOURCE: Montana Labor Market, Supplements 1964-1965, Montana State Employment Service, Helena, Montana, March, 1966.

different divisions and highlights the poor average earnings in the trade and service divisions. If chronic unemployment existed, then expanding employment in services would be desirable. In Montana, where unemployment is due frequently to the seasonal nature of work opportunities, the State needs more opportunities in high paying, year-round employment. If Montana could expand her industrial sector, perhaps this would be far better than the large forecasted growth of seasonal type work often found in services.

Employment within Montana in the Federal Government is projected to

increase about 25 percent. In state and local governments the projected increase is near 45 percent. To the extent that the increase in Federal Government employment does occur it will aid the economy of the state. Most of the people hired by the Federal Government are year-round employees and have wage levels that are high enough to help the economy of Montana. The increase in state and local government employment would be of little help in the State's quest for economic growth. The more than proportionate growth in state and local government employment over population growth could mean that per capita taxes will be higher.

Table VII shows the employment breakdown between the United States and Montana. This table shows that state and local government employment is already higher in Montana than for the United States. However, this would follow due to the necessity of maintaining minimum essential, but increasing, services for a low density population. However, Table VII also shows that employment in Montana is different from that found in the entire United States. Montana has more of its labor force in agriculture (but the difference is decreasing) and it has fewer in manufacturing (where the difference is not decreasing). A narrowing of this gap in manufacturing would help the economy of Montana provided growth comes from the right kinds of firms.

Brain Drain

Education and economic growth go hand in hand. There is a high correlation between the amount of education one has and the amount of remuneration one can command, that is, the more education the higher the wage

TABLE VII

PERCENTAGE OF EMPLOYMENT BY DIVISION, MONTANA
AND THE UNITED STATES, APRIL 1, 1960

<u>Division</u>	<u>United States</u> (Percent)	<u>Montana</u> (Percent)
Agriculture	6.5	16.8
Mining and Oil	1.2	3.3
Manufacturing	26.4	9.4
Railroads	1.4	3.9
Transportation, Communications and Utilities (except railroads)	5.1	4.6
Wholesale Trade	5.1	4.1
Retail Trade	16.3	17.7
Finance, Insurance, and Real Estate	4.5	3.6
Service and Miscellaneous	14.9	13.9
Construction	5.7	6.3
Federal Government	3.4	4.1
State and Local Government	<u>9.5</u>	<u>12.3</u>
Total	100.0	100.0

SOURCE: James O. Henderson and Anne O Krueger, National Growth and Economic Change in the Upper Midwest, Table 1-2, page 12.

or its opposite in that lower wages go to those with less education. Encouraging education in the State of Montana would not only benefit the person receiving the education but it would also help the State's economy to grow.

Suppose all or most or even some of these educated people left the state after receiving their training. If this happened, then the salaries that these people could command would benefit the state where they were residing. The state that educated these people would be losing in two ways: it loses its capital investment (to the extent that education is subsidized by the taxpayers of that state), and it loses the income that these people would have received if they could have been gainfully employed within that state.

What is the status of the educated in Montana? One can find both pros and cons as to whether or not there is a problem of having our educated youth leave the State. However, a few facts should help to clear the issue.

Charles Hood, Director of Placement at the University of Montana, reports that from September 1, 1964 to September 1, 1965, 52 percent of the graduates of the University of Montana placed by the placement center accepted positions in the State. At the same time, Hood states that only 38 percent of those taking jobs in industry and government remained in the State.¹⁶

¹⁶Great Falls Tribune, September 23, 1965.

A questionnaire¹⁷ completed by nearly 500 seniors at the June 1966 Montana State University Commencement showed that 216 of the group (all from Montana homes) had accepted civilian employment.¹⁸ Of this group, 105 or 49 percent were leaving the state to accept employment elsewhere. Table VIII gives the results of this questionnaire. These results follow closely those obtained by Hood at the University of Montana.¹⁹

TABLE VIII

EMPLOYMENT LOCATION OF 216 GRADUATING SENIORS OF
MONTANA STATE UNIVERSITY, JUNE 1966

<u>University Division</u>	<u>Graduates Accepting</u>		<u>Percentage Accepting Out-of-State Employment</u> (Percent)
	<u>In-State Employment</u> (Number)	<u>Out-of-State Employment</u> (Number)	
Agriculture	20	5	20
Engineering	15	41	73
General Studies	16	14	47
Professional Schools:			
Dept. of Education	27	13	33
Other Departments	<u>33</u>	<u>32</u>	<u>49</u>
Total	111	105	49

¹⁷Prepared by Charles Hash and James Cameron, both of Montana State University. The results have been tabulated but have not yet been published.

¹⁸The balance were continuing their education, going into the military now or in the immediate future and thus were not seeking employment, had not yet obtained employment or were still negotiating for employment, were out-of-state students, or for various other reasons were not seeking employment.

¹⁹In addition to disclosing the number leaving the state, the questionnaire also asked for salaries. The resultant tabulation disclosed that those leaving the state were receiving approximately \$100 more per month than those accepting employment within the State.

With close to 50 percent of the graduates from the two leading universities in the State leaving to accept employment elsewhere, one can conclude that the State does have a "brain drain." In the scientific (chemistry, physics, mathematics, etc.) and engineering areas, the questionnaire disclosed that the talent loss was much higher than 50 percent. A study done on the Upper Midwest region (including Montana) states that ". . . the Upper Midwest Region graduates about 4 percent of the nation's scientists and engineers, but less than half of these remain in the region."²⁰ Ralph Yapp, nuclear physicist, estimated that "Each scientist who migrates from his home state to live in another, represents a loss of at least \$50,000 a year to the state he leaves."²¹

It should be pointed out, though, that Montana does experience some inflow in brain power. For example, doctors and dentists are educated elsewhere and migrate to Montana. Thus the net talent loss may not be as alarming as it would appear at first glance. However, from the standpoint of economic growth, it would be desirable to keep whatever educated manpower that now leaves Montana within the State. Yet until suitable employment opportunities exist in the State and there is a narrowing of the wage differential between in-state and out-of-state opportunities, one cannot foresee a change in the State's "brain drain." Discussions indicate that many of those leaving the State would remain if the State could create

²⁰Kirk P. Draheim, "Technological Industry in the Upper Midwest," Upper Midwest Economic Study, Technical Paper No. 11, June 1964, p. 18.

²¹Deseret News, Newspaper Agency Corporation, Salt Lake City, Utah, August 8, 1966, p. 10-A.

employment opportunities and at least partially overcome the wage differential.

Purpose and Importance of Study

In recent years, some economic indicators are pointing out that the relative economic position of the State of Montana is deteriorating. However, some people within the State refuse to accept this. Blomgren is disturbed by this latter view and states:

" . . . I am disturbed by an attitude of unrealistic optimism and an unwillingness to face unpleasant tasks on the part of some people. I am disturbed by an attitude 'relax and somehow we'll muddle through' on the part of others. I feel it is high time that we dedicate ourselves to a philosophy of realistic optimism and a willingness to solve unpleasant problems by long range effort. If we do this, our economic future can be much better than it will otherwise be."²²

Economic growth is not predestined but depends upon the people, their institutions, their laws, and the characteristics of their environment. It is not something that happens by chance but rather it is something that must be cultivated and stimulated.

In Montana, per capita income has been lagging, far too many employment opportunities are in seasonal work, and too many talented youth are leaving the state. The growth sectors of the State's economy, namely, services, trade, and government, are not the sectors that will substantially help the economic growth of the State. The State needs employment in jobs that offer good annual wages and do not boost per capita tax loads.

²²Paul B. Blomgren, op. cit., p. 28.

For economic growth to occur, growth must first be stimulated in the basic areas of agriculture (including forestry), industry, mining, recreation-tourism, and, to some extent, government. If these areas can be stimulated, then growth in other areas such as wholesale, retail, services, transportation, and construction will follow naturally.

In the basic areas, agricultural employment has decreased and future projections indicate that it will continue to decrease. Mining has not been a large employer in Montana (about 3 percent of the labor force) and prospects for any large growth in the future are considered small.

A large increase in the government sector is forecasted but with mixed feelings. There are those who feel that growth in government is undesirable both socially and monetarily (due to tax burdens). Others feel that an expanding government is desirable to provide for an expanding array of socially acceptable public goods and services and are willing to pay the cost. Some economic benefits will result from the projected growth in both federal and state government employment. However, the full extent of this benefit would depend upon factors beyond the scope of this study such as analyzing, among others, the derived growth from the public expenditures. (For example, the amount of added tourist trade the State would receive as a result of an improvement in highways or recreation facilities.) With only a moderate population increase forecasted for Montana, some restraints are bound to be placed upon the growth of state and local government.

Recreation-tourism offers the promise of future gains in employment and will help economic growth in Montana. However, the pay received by

labor directly involved in this area is frequently low as compared to some other basic areas; in addition, employment is frequently seasonal. Thus growth in this basic area would not be expected to substantially improve the relative standing of per capita income in Montana.

The one other basic area left is industry. In this area, the value added is increasing but growth in employment has been small. (Currently the State has about 10 percent of its labor force in industry.) Industry, as a rule, offers good wages and year-round employment, both of which are needed in Montana to stimulate economic growth. What are the State's chances of obtaining some industrial plants? Opinions vary but one thing is sure-- industry has not been beating on the door to enter the State. Wayne Baskin, Director of Industrial Development of the Bureau of Indian Affairs, was reported to have said: "The thing Montana must realize is that industry isn't going to fight its way into the State."²³

Industry wants a location that offers a competitive advantage. For example, in the Wall Street Journal of November 30, 1964, the Southern Railway System listed the following as locational advantages of its area: abundant natural resources, economical transportation, moderate climate, large number of willing workers, waiting markets, vast supply of water, plenty of power, and room to grow. In order to encourage industrial growth, does Montana offer these advantages? Perhaps, Montana offers other advantages that would be more important to industry that it should be promoting.

²³Great Falls Tribune, October 28, 1965, p. 26.

If so, they should be listed so that the State can put its industrial development money where it will do the most good.

McGraw-Hill conducted a survey among executives of manufacturing industries that reportedly listed Montana as last in terms of consideration for industrial locations.²⁴ If this feeling is prevalent throughout industry, maybe the State could save the money that is now being spent to stimulate industrial growth and put these funds into other areas.

Such questions as posed in the foregoing paragraphs have caused many people to wonder what role industry can play in the development of the State of Montana. This research is an attempt to shed additional light on the subject.

Hypothesis

A few people throughout the State seem to feel that industry is waiting at the border to get in. The hypothesis of this paper is that industry is not anxious to come to Montana. Stated in more formal terms, the hypothesis is as follows: The State of Montana cannot, under present or foreseeable conditions, increase its rate of industrial growth because of (a) the lack of enough favorable location factors to influence industrial firms to locate in the State, and (b) apathy of the citizens of Montana concerning the desirability of industrial growth and of actively pursuing an expanded industrial base.

²⁴Plant Site Survey, A Study Among Business Week Subscribers, New York, McGraw-Hill Inc., January 1964.

Chapters 2 through 5 will discuss part (a) of the hypothesis; chapter 6 will discuss part (b) of the hypothesis--citizens' attitudes toward industry.

Methodology

The methodology used in testing the hypothesis was as follows:

1. Review location theory and the characteristics of Montana to determine if enough favorable location factors exist that will induce industry to locate in the State.

2. Make empirical studies within three different groups of industrial firms to determine if additional location problems exist in Montana that were not discovered in reviewing the general theory and characteristics of Montana. In making the empirical studies the observational design was as follows:

- (a) Select a sample from firms that are presently operating in the State to determine why they located in the State, their attitude regarding their location, and to determine what favorable or unfavorable location factors they have encountered. Firms operating in Montana were stratified by the "Standard Industrial Code" classification and then a 20 percent random sample was selected from firms within each major group of the classification.²⁵ A mail questionnaire was then sent to each firm selected. (See

²⁵An exception to the selection of a random stratified sample was that firms with an obvious local clientele have been eliminated--such as bakeries attached to grocery stores and most newspapers. Such firms do fill a local demand but their scope is such that they have little to do with the "industrial climate" in the State. Their locations are not so much one of selection as of filling a void for a locally demanded product. Therefore a decision was made to exclude these firms on the assumption that they would offer little or no help in assessing the future of industrial growth in the State.

Appendix I for a copy of this questionnaire.)

(b) Send a mail questionnaire to forty-five firms that have contacted an industrial development group within the State. (See Appendix II for a copy of this questionnaire.) Owing to the difficulty of securing names and addresses of firms that have contacted someone in the State and who have had a sincere interest in Montana locations, the first forty-five firms where adequate information was obtained were sent questionnaires. It was hoped that this group of firms would shed additional light on present environmental influences that are or are not conducive to the industrial development of Montana.

(c) Select twenty firms that have operated within Montana but that have now discontinued these operations. Firms selected for this mail questionnaire were those listed in the 1965-1966 but not in the 1967-1968 Montana Directory of Manufacturers and Buyers Guide. (See Appendix III for a copy of this questionnaire.) It was hoped that responses to this questionnaire would disclose other problems of a Montana location not found in firms presently operating within Montana.

3. Conduct personal interviews with Montana citizens to determine their attitudes toward industry and industrial development. The interviews were conducted in various locations throughout the State and an attempt was made to obtain a cross-section of the people in the State (e.g., young and old, skilled and unskilled, city and rural, etc.). The approximate number of this convenience sample was one-tenth of one percent of Montana residents. In addition, some students at Montana State University were interviewed to

determine if their attitudes differ from those expressed by the general citizenry in the State. (See Appendix IV for a copy of this questionnaire.)

Limitations

Although the primary purpose of this research is to assess the possibility of increasing the rate of industrial growth in Montana, an obvious offshoot to this might appear to be the selection of specific firms that possibly could locate in the State. However, to be specific in the selection of firms would mean that feasibility studies would have to be made for each firm and in many cases for each product produced by that firm. Lack of research money has precluded such an approach in this study, but also such an approach is not considered efficient. For each firm found capable of locating in a given area, hundreds or perhaps thousands would not fit that location. It is felt that a more efficient approach would be to establish a framework within which the weeding out or selection process can take place. It is toward establishing and analyzing such a framework that this research is directed.

It is an inexcusable fact. . . that geographic location becomes as important to producers of goods as sound management, modern plant structure, and astute merchandising policies.

Leonard C. Yaseen

Chapter II

GENERAL FACTORS INVOLVED IN THE LOCATION OF INDUSTRY

Introduction

American industry is on the move. Because of an expanding population, changing markets, and a host of other reasons, industrial management is reappraising existing locations and assessing new ones. No longer is industry tied to one area but rather it has opportunities for successful operation in many areas.

Competition is prevalent throughout most industrial processes; therefore care must be exercised in choosing a location that can meet this competition. Because larger investments are required for new facilities, business simply cannot afford a "hit or miss" attitude in site selections. Business, therefore, must carefully assess those factors that lead to what management must decide is a successful location.

What constitutes a successful location? Offhand, it is difficult to determine. However, there are the experiences of others to help lead the way. Starting with Von Thunen, expanded by Weber, Losch, Hoover, and a whole host of recent writers, today there is a theory of location. In applying this theory, rarely does one find that ideal location where

everything expounded in the theory is favorable. The usual situation is that each location has some combination of favorable and unfavorable factors.

Because not all factors are of equal importance in selecting locations, some are dominant or crucial in the site selection and are called primary factors of location; others are of lesser importance and are labeled secondary factors. The primary factors are those that limit the location to a particular area or type of site. The secondary factors are used to select a particular site from the available locations selected by using the primary factors. An example would perhaps clarify this relationship. Suppose that a manufacturer wished to add a new plant and this plant will require abundant water from a natural hot spring and commercial airline transportation facilities within 20 miles. These two factors are dominant, or primary, in the location of the plant. Further, suppose that one can find ten locations where abundant water from a hot spring and the required airline transportation exist. The selection of the one best location out of the ten will be through an examination of the secondary location factors.

It is difficult, without delving into an actual situation, to know which location factors are primary, secondary, important, or unimportant. However, this does not destroy the theory of location. One knows those factors that should be analyzed from the theory but the depth of the analysis depends on the circumstances of each case. The following sections of this chapter will discuss the major factors of location as well as mention some of the minor ones. The discussion is intended as background to give a better understanding of the situation in Montana which is covered in

subsequent chapters.

Location factors can be grouped into four categories. Three of these are objective in nature--demand factors, cost factors, and governmental factors--while the fourth is subjective--personal factors. The primary location factors are almost always found in the demand and cost factors and, thus, are critical in most site selections, although not necessarily in the same order or degree. The last two categories--personal and governmental--may or may not influence any given site decision. However, it is known that they exert a big influence in some decisions and are important in the overall concept of location theory. An examination of each of these groups follows.

Demand Factors

Most writers on location theory assume a given demand that remains virtually unaffected by site selection. They primarily have emphasized the search for the location that offers the lowest production and distribution costs. In stressing costs, they have ignored the fact that demand is a variable that is influenced by location and in turn influences location.

By demand is meant the various quantities of a product that would be purchased in a market in a given period of time at various prices or at various incomes. The amount of product demanded at various prices for each individual firm is partially influenced by the shape of its demand curve, the amount of competition, and the size of its market area. As these factors can also influence the location decision, they are discussed below.

Shape of the Demand Curve

The shape of the demand curve refers to the response in the amount sold (quantity) to a change in price. The higher this response the more elastic is demand; the less the response, the more inelastic the demand. The individual firm needs some measurement of how elastic its demand is in setting up pricing and location strategy. For example, the more inelastic the demand for the product of an industry, *ceteris paribus* (other things being equal), the greater the tendency for firms to concentrate their locations. The reasons for this action are evident when one looks at an industry demand curve, especially in markets that are monopolistically competitive or oligopolistic. An individual firm in this industry finds that the increased quantities sold in response to price changes are so small that it pays not to change price and to emphasize factors other than price. Thus in selecting a location, a site with low production and distribution costs plus other agglomerating advantages (such as a good transportation network or good banking facilities) is selected. It is no small wonder that this site is also the location of competitors who were also interested in these same factors.

For an industry having an elastic demand, the individual firm within that industry will tend to disperse instead of concentrate. By locating away from competitors, the firm can establish for itself a quasi-monopolistic location. Then by emphasizing price and attempting to magnify demand within the area of their operation, this firm can increase revenues

over those that would have been earned if the firm had concentrated at a location near its competitors.

Location and Reaction of Competitors

From the standpoint of each firm, the ideal location would be a market area free from competition and with low production and distribution costs. However, complete freedom from competition rarely exists in our society.

How does competition influence location? First, assume that a proposed new plant is going to produce a product that is homogeneous to that presently being produced by competitors. In this type of situation reasonable knowledge probably exists as to how competitors will react to new competition. If the reaction is to change the price of the product, the new plant can choose a location near its competitors if it expects that its costs of production will be lower than competitors'; or it could choose a more remote location away from competitors if it felt that this location provided an adequate demand for its output and would not seriously disadvantage itself on production and distribution costs. If it follows the latter procedure, it is said to be pursuing quasi-monopolistic locating policies. Many of the industrial firms where economies of scale are minor or non-existent locate so as to be away from as much active competition as possible. Bread and milk processing are examples of this type of location policy.

If the reaction to a new homogeneous firm is other than price, then the new firm will seek a least-cost location that would probably be

reasonably close to competitors' locations. The steel industry is an example. It does not actively compete in price yet about 80 percent of production is located in the Chicago to Pittsburgh area.

In the case of firms producing substitutable (heterogeneous) products, locations tend to be more agglomerated. Less certainty exists with respect to actions of competitors and to influences on demand of price changes because of the existence of substitutable products. In this situation, the uncertainty brings producers together. The huge Merchandise Mart in Chicago illustrates this strong tendency of firms selling close substitutes to locate together.

In seeking its maximum profit location, a firm must recognize possible reactions of other firms producing identical or close substitutes. It must select its location, determine its output, and set its price only after considering not only the direct consequences but also the possible indirect consequences from the reactions of other firms.

Market Areas

A firm may examine the elasticity of its demand curve or the location of its competitors to determine location strategy, but sooner or later it must determine a market area that will be serviced by its production facilities. In recent years, market area analysis has been increasing in importance. An efficient transportation system and higher labor mobility have freed increasing numbers of plants from the necessity of locating close to raw materials and an immediate labor supply. Many firms have been able to take a second look at existing locations and market areas.

Demand affects market area selection in essentially two ways. One is that in selecting a market area, *ceteris paribus*, an area is picked that has the best demand or sales potential. The second way is that in selecting a site, a site that will magnify demand is picked. An example would perhaps demonstrate this relationship. A firm is considering manufacturing and marketing its goods in either the Rocky Mountain States or the Pacific Coast States and demand is determined only by area. In selecting its market area, the rational firm would choose the Rocky Mountain States because of the greater area and hence greater demand. The next step is to select the exact location in the Rocky Mountains where demand will be at its highest. If demand is constant at any location in the Rocky Mountains, then the firm could locate anywhere in the region. However if demand can be intensified from a particular location, then, *ceteris paribus*, that location would be selected. Service, for example, is frequently stressed. However, one can be sure that demand is considerable higher at some locations than at others, *ceteris paribus*, because of better service.

In the United States, many manufacturing firms are oriented toward national rather than local markets. In locating, these firms tend to select sites in those areas where demand is most heavily concentrated. An advertisement sponsored by The Cleveland Electric Illuminating Company, in the Wall Street Journal of March 31, 1964, stated that within 500 miles of Cleveland, Ohio, over "half the people of the United States are concentrated," that "54 percent of the nation's retail sales are made," and that "twenty-one of the thirty 'billion dollar-or-more' industrial markets"

exist in that area. It is no wonder market oriented firms are attracted to an area with such large demand possibilities.

Fortunately for states seeking industrialization, demand for some of our industrial output is scattered enough to permit decentralization of facilities. As mentioned earlier, 80 percent of the steel facilities are located in the Illinois to Pennsylvania manufacturing belt where much of the demand for steel also exists. Yet there are some successful steel producers located outside that region that are serving local and regional markets in their own areas of operation. As a rule though, plants located away from the heart of the market tend to remain small¹ even though other location factors, primarily costs, are favorable.

Summary

Although the factors of demand were discussed independently, it should be recognized that they are interdependent. Elasticity, competition, and market areas together combine to help determine demand.

The treatment of demand is in no sense of the word complete.² But, if the reader has obtained some appreciation of demand as a factor of location without being unduly burdened with a more detailed analysis, then, to that

¹ Rapid changes in the size of the markets in the area of the small producer could materially aid his growth. But as a rule, once markets are formed changes occur rather slowly. Exceptions to this would be calamities brought on by war or so-called "acts of God."

² For excellent and more complete discussions of demand as a factor of location see Melvin L. Greenhut, op. cit., Chapters 2, 3, and 6, and Walter Isard, Location and Space-Economy, 1956, Chapter 7.

extent, it has achieved its purpose.

Cost Factors

Demand for a firm's product is determined exogenously whereas costs are determined endogenously. Thus the existence of demand does not necessarily insure sales. If the offering (or supply) price of a firm is above the demand price, no sales will occur. This section examines determinants of the offering price--cost of production.

Costs can determine and limit market areas without ever looking at demand. Consider Figure 2 as an illustration. Presented are cost curves (average total costs and marginal costs) for two firms where (for simplicity) consumers are assumed to be evenly spaced along a line AF. Firm #1 has located at point A and Firm #2 is considering locating at point F. No other competitors are presently operating in or considering this area. Moving along line AF it can be noted that the average costs of Firm #1 decrease to Point B (representing production economies, perhaps due to lowering production and distribution costs, between points AB); beyond point B, costs increase (showing production diseconomies in that it is costing more to produce and distribute each additional unit of output). The MC-#1 is the marginal cost curve for Firm #1 and determines the relevant range of output for this firm. For Firm #1, the market area could go as far as point C and it would prefer that its market area not be less than point B.

In firm #2, their output range would be between ED for the same reasons

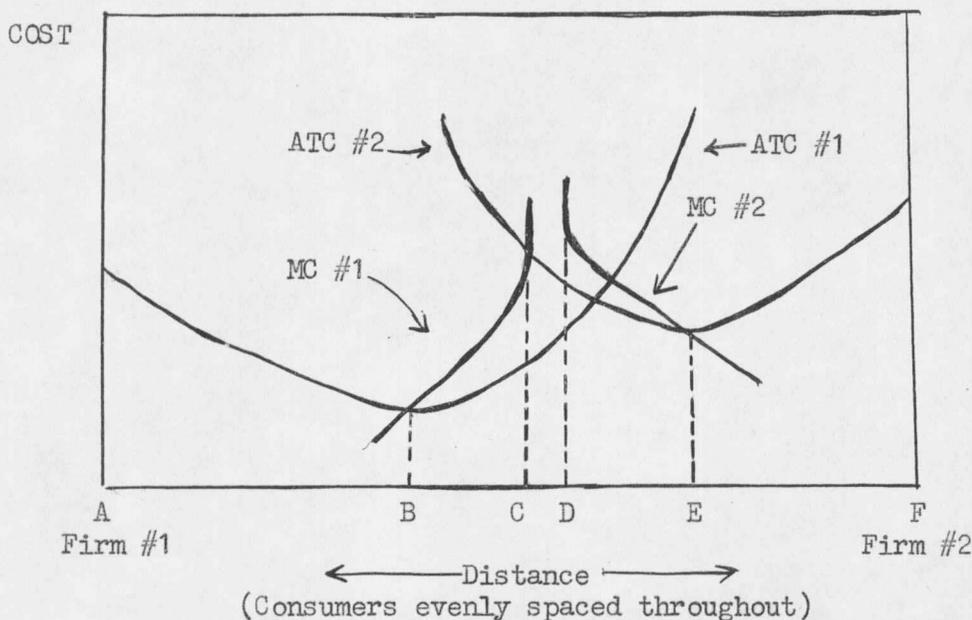


Figure 2 - Cost Curves for Two Competitors

SOURCE: Adapted from an illustration and discussion found in Walter Isard, *op. cit.*, p. 148-50.

as for Firm #1. Note that Firm #2 has higher costs than Firm #1, but by locating away from Firm #1 it has its own market area. Those consumers located between points C and D will not be serviced by either Firm #1 or Firm #2. They remain as an undeveloped market. If Firm #2 located at either point E or D, the marginal cost curves would intersect and the two firms would be in competition for the area around the intersection point. However if consumers desired the lowest price, then the intersection of the marginal cost curves would be the outer limits of the market areas for the two firms. Also if intersection does occur, all consumers would be serviced and an area such as CD in Figure 2 would not occur. Thus costs can be of

importance in setting market area limits.

Along the same line as mentioned above is another cost characteristic that is helping to shape plant locations--automation. As automation occurs, cost structures change. More of the total costs are becoming fixed and fewer are variable. As this occurs, plant output needs to increase to take advantage of economies of scale in spreading the large fixed costs over larger outputs. In industries where automation is possible, one can expect to see increasing centralization of facilities. This will work to the disadvantage of those areas that might have been in line for the decentralized facilities if automation had not occurred. The full extent of automation will, of course, depend upon the rate of growth in demand and the extent of the output necessary to achieve economies of scale in the automated plant.

In location literature, costs have received by far the most emphasis and, perhaps, rightly so. One reason for this is that the many thousands of state and local development agencies seem to stress cost analysis. Another reason is that firms selecting locations probably have already determined demand before the publicity of their site hunt is announced. For these and whatever other reasons costs are stressed, they are crucial determinants in most site selections. Of the ten biggest pitfalls in plant location as listed by Leonard Yaseen, seven are related to cost factors.³

³Leonard C. Yaseen, "The Ten Biggest Pitfalls in Plant Location," Dun's Review and Modern Industry, March, 1957, p.49. The ten pitfalls listed by Yaseen are:

1. Miscalculation of labor costs.

In analyzing cost factors, location theory and economic theory are no strangers to each other. Location theory uses the economic principle of factor substitution. This principle is that the cheap factor(s) should be substituted for the expensive one(s) to the point where:

$$\frac{\text{Marginal Product of Factor 1}}{\text{Price of Factor 1}} = \frac{\text{MP of Factor 2}}{\text{Price of 2}} = \frac{\text{MP of all other factors}}{\text{Price of all other factors}}$$

In essence, the equation states that the added output of one additional unit of a factor divided by the cost of that one additional unit of a factor should be equal to that obtained from all other factors. Thus finding a location that has, for example, high labor costs, does not necessarily rule out that location if at the same time that location also has either a high level of labor productivity or a cheap factor (for example, capital) that could be substituted for labor. Yaseen has estimated that "in many industries a differential of as much as 10 percent of total manufacturing and distribution cost can be effected simply by virtue of geography."⁴

In the discussion that follows, the more important of the cost factors will be analyzed. They will be treated as if they were separate and

-
2. Choice of a state where the labor reservoir was inadequate.
 3. Neglect to anticipate growth.
 4. Carelessness to checking the site.
 5. Lack of distribution know-how.
 6. Failure to predict impact of plant on community.
 7. Neglecting to check on supporting facilities (fire, schools, etc.).
 8. Reliance on misinformation on utility costs.
 9. Underestimating the importance of taxes.
 10. Failure to recognize cost relationship.

⁴Leonard C. Yaseen, Plant Location, p. 9.

unrelated, but it must be recognized that they are largely interdependent.

Transportation

In those industries where the cost of gathering raw materials and distributing the finished product are an important part of total costs, then transportation becomes a significant factor of location. In the early development of manufacturing in the United States, most industrial firms located near the source of their raw materials. These firms are called raw material (or resource) oriented firms. As our country grew and developed, some firms found that they could economically operate at or near their markets and are called market oriented. The chief reason some firms operate at the market and others operate close to raw materials is transportation. Yaseen states that transportation is the "least understood and most frequently misinterpreted" factor of location.⁵ Greenhut feels that transportation is a major determinant of location for two reasons, cost of service and type of service.⁶

Ignoring other factors, the objective of a firm in locating a new plant is to minimize the combined gathering and distribution cost per unit of product. Usually, this will call for a location at the source of the raw material, at the market where the finished good is sold, or somewhere on a reasonably straight line between those two points. Figure 3 illustrates

⁵Ibid, p. 14.

⁶Melvin L. Greenhut, op. cit., p. 106.

this principle. In this figure, three lines are presented showing raw material gathering costs, finished goods delivery cost, and total transportation for both raw material and finished goods. The lines are determined by assuming a location at either the market or raw material source. As Figure 3 is drawn, the total transportation cost is lowest by locating the new plant at the market. However, the actual point of production in most situations is a composite of variables that would include such things as characteristics of production, the peculiarities of our transportation rate-making system, and the type of service needed from the transportation system.

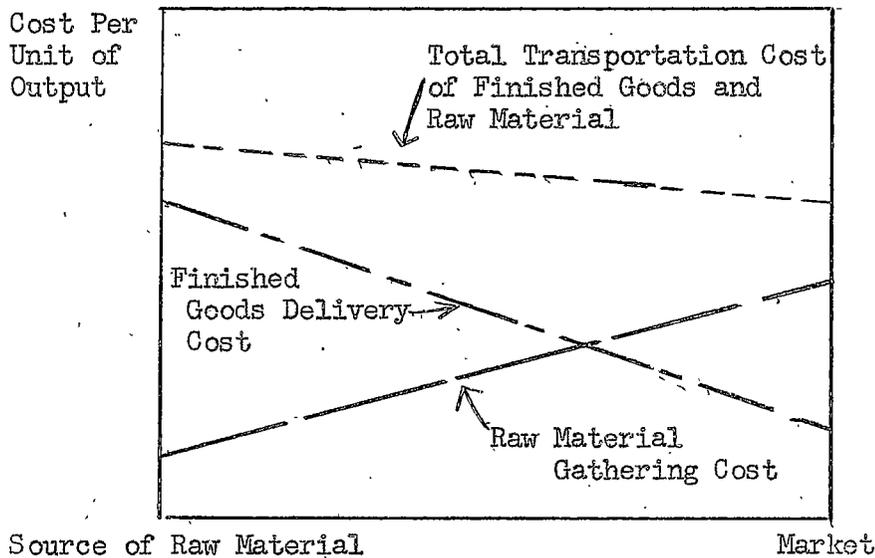


Figure 3 - Transportation Cost

Where there is extensive weight reduction of the raw materials in the production process, production tends to take place at or near the raw material source. When production adds considerable weight to the raw material,

the opposite is true and production tends to locate at or near the market. The smelting of most ores, ginning of cotton, canning of fruit juices, and packing of many fish products are examples of weight-losing processes that find it economical to locate at or near the source(s) of raw materials. Those processes that use some ubiquitous material--those available nearly everywhere at similar cost--tend to locate at the market. Soft drink and ice manufacturers are examples.

In those industries where little loss or gain is noted in inputs and outputs, it may make very little difference whether production takes place near the raw material source or near the market. For example, oil refining has plants located both at the market and at the raw material source. The relative desirability of a given location depends upon a deeper penetration of all cost factors than when a location at the market or at the raw material source is clearly indicated. Undoubtedly, transportation will be high on the list of factors to be examined.

In the United States, freight rates have been a source of vexation for many people. Early railroad rate-making philosophy was based on "what the traffic would bear" rather than on the cost of performing the service. Motor carriers tended to imitate railroad rates. It is only in recent years that the carriers have become interested in cost accounting and the desire to set rates based on operating costs. However, the philosophy of rate discrimination still prevails. During a recent transportation seminar, representatives of both truck and rail carriers implied that if a business can give them a good volume of traffic, then they will try to obtain for that

business a good transportation rate. Small plants are obviously at a disadvantage in this kind of rate-making philosophy as they will have to pay the posted class rate for their goods.

The practice of "in-transit" privileges in determining rates also affects plant locations. Carriers determine a rate, generally based on the rate applicable to raw materials, that permits raw materials to be processed enroute to the markets and then continue their journey under the same original rate. This system replaces the combination of rates that would otherwise be charged on the shipment and ignores the fact that a stop was made for processing the goods into something more valuable and higher rated. This practice permits plants to be located in-between markets and raw materials. Grain, lumber, livestock, cotton, dairy products, iron, and zinc are but a few of the raw materials enjoying "in-transit" privileges. To the extent that this practice grows in importance in the future, market and resource orientation could diminish in plant location.

Figure 3 showed, for simplicity only, freight rates as being a straight line and dependent only upon distance. Yet for most commodities, total transportation cost per mile decreased as the length of haul increases. Freight moving in certain directions is sometimes accorded rate advantages that are not available to freight moving in the opposite direction. Also rates are influenced by the value added principle, bulkiness of the shipments, and perishability. To the extent that any of the above affect the cost of transportation, it could also affect plant location. Greenhut, for example, states: "Low freight rates (or any lowering in freight rates)

leads to localization in the center, as the hinterlands are more serviceable from a distance. On the other hand, high transit costs (or increase therein) tend to disperse the particular industry."⁷ Changing freight rates on grain in the upper midwest area have had the effect of changing some market areas and the direction of some grain shipments.

In selecting locations, some producers have to locate where they can obtain the type of service from their transportation system that they require. Water transportation is cheap but it is slow; air transportation is fast but expensive. Manufacturers of style goods, whose sales depend on getting their goods to retailers with little delay, like air transportation; whereas ore processors, who are not worried much by delivery time, seek the lowest cost transportation system.

As a rule, service and the number of transportation facilities go hand in hand. Thus plants tend to congregate in areas where transportation systems converge. In those areas off the mainline transportation networks, the chances of substantial industrial growth are small, at least until transportation facilities are improved.

When plants produce for several markets or receive their raw materials from several sources, the complexities of choosing a plant location are multiplied. In this situation, appropriate weights must be given to transportation cost and service at all of the various points of supply and demand

⁷Melvin L. Greenhut, op. cit., p. 261.

Labor

It is a rare plant where rates, availability, stability, and productivity of labor are not vital factors in its operation. As automation progresses, machine repair or fuel might supplant labor to a great extent. Currently, however, labor is still a major cost item in most production processes; and if the above characteristics of labor are not favorable, then the future industrial growth of an area is somewhat in doubt. Usually, though, there is ample public information available for judging these labor factors in almost every area.

In the United States there are wide variations in labor rates. It has been argued in recent years that wage differentials would disappear primarily because of labor unions and the growth of national bargaining. This does not seem to be the case. Miller states: "The geographic spread in wage rates is as great at present as in any previous period."⁹ There are many reasons to account for this difference in wage rates and among them would be cost of living, sex and color of the work force, skill of the workers, and type of industry.

Yaseen feels that a "most important influence on wage rates is the expenditure standard of a community."¹⁰ He points out that there is little difference in food costs between areas but major differences exist in "buying habits" and in the "tempo of spending." Rural communities have less

⁹Willard E Miller, A Geography of Manufacturing, p. 7.

¹⁰Leonard C. Yaseen, Plant Location, p. 69.

purchased entertainment than larger cities so presumably spend less. Those living in the South pay less for heating than those in the North. As long as these or other differences in spending exist, or are thought to exist, some wage differentials will probably also exist.

With the passage of the Fair Employment Practices Act, wage differentials based on sex and color should diminish. Within each plant, equal pay is required for the same type of work regardless of which sex or color is doing the work. Skill of workers and the type of industry should continue to be important reasons for wage differentials. For example, in the 1958 Census of Manufactures the United States average wage for labor in petroleum and coal products division was \$2.97 per hour; in textile products the labor averaged only \$1.50 per hour. Most of this difference can be attributed to differences in skills but some is inherent in the industry itself.

Some of the differences in wage rates can be traced to the productivity of the workers. Where capital investment per worker is high, wage rates also tend to be high, reflecting the greater skill required by the employees to operate the plant. Where capital investment is low, the wage rate tends to be low, indicating that less high-paid skilled labor is required. This latter type is called a "labor intensive" industry whereas the former is called "capital intensive." To show how important it is to consider not only labor rates but also productivity, Wonnacott compared the rubber products industry in Michigan and Minnesota and found a 30 percent difference in the wage rate (\$2.63 in Michigan to \$2.02 in Minnesota) but only a 4

percent difference in total costs.¹¹ Productivity, however, is not entirely due to the amount of capital investment. Some workers and even some social groups have more abilities for industrial work than others. Women, for example, are thought to be better suited for repetitive operations than men, hence their productivity, *ceteris paribus*, would be higher.

Although the U. S. labor force is considered to be fairly mobile, as a practical matter when selecting a site it is desirable to make sure that labor in a desired quantity and quality is available within the immediate vicinity. Skilled labor is generally considered to be more mobile than unskilled but even here a generalization of this kind could cause difficulties. An article in the February 23, 1966, issue of the Wall Street Journal pointed out the difficulties firms were having in getting employees to move to new locations. In most cases, all or a majority of the labor force should be counted on as coming from the immediate vicinity of the plant site. An exception might be where a company is transferring operations from another site; here the company might bring all or a majority of its employees with it. (As an aid in assessing labor supply, most State Employment offices have information that can be used to compute labor quantity and quality.)

It is sometimes difficult, when assessing labor supplies, to compute the number of job transfers that will occur if a new plant locates within a given area. Wage rates and working conditions of the new plant in comparison

¹¹Ronald J. Wonnacott, "Manufacturing Costs and the Comparative Advantage of United States Regions," Upper Midwest Economic Study, Paper No. 9, April 1963, p.11.

with those prevailing in the surrounding area would be of major importance in estimating job transfers.¹²

Stability of labor is also of importance when selecting a plant site. Workers can become accustomed to seasonal employment and unemployment checks and hence not be interested in year-round employment. Agricultural workers might be enticed to industry during the winter months but leave again for agricultural work during the summer. Labor strifes can also become so pronounced in an area as to make it unwise for new facilities to locate there. Indications of labor stability can be obtained by looking at employee absenteeism and labor turnover. Yaseen feels that an absentee rate of more than 3 percent is excessive and a danger signal.¹³ However, a high employee turnover is an even greater indicator of labor unrest, particularly if the industry has high employee training costs.

A review of state labor laws is sometimes helpful in determining the labor climate. If labor is strong and has been successful in getting stringent labor laws passed, these may hamper operations. On the other hand, where labor is weak and few labor laws have been enacted it may be a sign of

¹²This author is acquainted with a situation where a new facility, primarily employing women, practically destroyed an existing community wage rate for women. A large number of women in the community changed jobs because the wage rate paid by the new firm was higher than that existing within the community for female workers and because at the time of the establishment of the new plant there was not an excess of unemployed females with the desired skills in the area. A wage spiral resulted that was unhealthy for all firms in the community. If the new firm had paid a competitive community wage and if they had determined the availability of labor with the right kinds of skill, probably this situation could have been avoided.

¹³Leonard C. Yaseen, Plant Location, p. 73.

future labor problems if and when labor gets more power. In other words, locators want to see the right mixture of the right kind of labor laws.

Can labor costs rule out locations? The answer would have to be a resounding yes as the following quote indicates: "Climate has ruled New England out of the running and high costs of labor and steel have pretty well eliminated the West Coast. . ." ¹⁴

In summary, when labor costs are an important part of total production and distribution costs, then the selection of a plant site where favorable labor costs exist is important. In determining labor cost, not only should the basic rates be considered but also the indirect or fringe benefits accorded to labor as well as the productivity and stability of the labor supply.

Care should be exercised that availability of labor be considered as well as cost. The labor supply should be adequate in both quantity and quality in reasonably close proximity to the proposed plant site.

Power

Historically, the location of power resources has been one of the major factors in determining the location of industry. Because water power was the chief source of mechanical energy for many years, it was only natural that industry located close to water resources. However, in recent years the development of steam generating plants using coal, oil, or natural gas

¹⁴Wall Street Journal, July 28, 1966, p. 1. The quote was in relation to the building of a new shipyard for the navy.

along with the ability to transport power over long distances have lessened the dependence of plants to sites near water. Coal and other energy sources are generously scattered throughout the United States so that steam generating plants can operate economically from almost any location. Water power, though, is usually less expensive than other energy sources.

A costly but relatively untapped source of power is nuclear energy. About half of the total power output of new generating plants ordered in the first half of 1966 was scheduled to use nuclear fuel, and the Atomic Energy Commission now estimates that by 1980 nuclear energy will provide about 20 percent of the total estimated consumption of electricity.¹⁵ Although most of the development of nuclear energy has been subsidized by the Government, perhaps development will be such that the ease of providing power from this source (portable units have been developed that can be located almost anywhere) will revolutionize plant location in those industries dependent upon large quantities of power. For example, the electrochemical industry has traditionally located near low cost water power. If nuclear power becomes competitive with water power, then the electrochemical industry would be free to locate away from water power and nearer markets.

Because power supplies are available almost everywhere, it is usually a matter for a firm to determine if existing sources are adequate for its needs at a price that is reasonable. Rates are available from State Utility Commissions; but in case of heavy usages, rates are usually negotiated.

¹⁵Wall Street Journal, August 1, 1966, p. 1.

directly with the supplier. However, for most industrial plants, published rates are sufficient and in these cases power is probably not an important factor in plant location.

Fuel

As a locational factor, fuels vary greatly in importance from industry to industry. In those industries where large quantities of fuel are used, fuel could possibly dictate a location closer to it than to either raw materials or markets. For example, orientation to fuel is considered a major factor in the location of such industries as steel and glass making. (Although recent technological developments in steel have now lessened the importance of fuel as a factor of location.)

Improving transportation systems have also tended to lessen the importance of fuel as a factor of location except in those cases where fuel is a major cost item and alternative fuels or sources are available. Securing the fuel with the lowest delivered cost and highest energy output could give preference to one location over another.

Water

For most industrial plants, usage of water is limited to drinking and toilet purposes and thus water is not a factor of location. To that minority of plants (about one-fifth) that use water in their production processes, the securing of necessary quantities and qualities of water has become an increasingly important factor of location. Some new industrial techniques, as well as many older processes, require vast amounts of water at reasonable

rates that many communities simply cannot supply and thus have to be eliminated as possible locations. In many steel, paper, food, and chemical plants, water is a key determinant of plant location.

Areas where periodic water shortages occur are not desirable locations when water is necessary in the production process. If shortages do occur, the normal order of priority is domestic and sanitary first, agriculture second, and industry last. It is better to locate where supplies are adequate than to run the risk of plant shutdowns. Many firms attempt to solve their water problems by drilling their own wells. A danger here is that more and more states are regulating ground water in the same manner as surface water. Hence, new wells may not be permitted at all locations or supplies could be curtailed if the ground water is reduced to certain levels.

In most processes where water is important, the quality as well as quantity is important in choosing a location. Contaminates or excessive minerals may require early replacements of some equipment or perhaps the installation of added equipment (for example, water softners) to handle the poor quality water. In any case it would be adding costs to the operation of the plant and it is something that might have been avoided if an alternative location had been selected.

Wastes

One of the most widely discussed subjects in recent years is that of waste disposal. Billions of tons of waste pile up or are emitted into the air or water each year. The finger of suspicion points to industry as one

of the leading offenders, although it has been estimated that close to 90 percent of all manufacturing plants in the United States are not capable of air and water pollution. The Department of Interior Conservation Yearbook No. 2 estimates that only about one-sixth of the air pollutants arise from manufacturing. However, in some industrial processes the problem of waste is a major problem. Many governmental units have passed laws or ordinances in an attempt to eliminate or reduce the problem. For example, if a smog alert is called in Los Angeles, then certain industrial processes have had to curtail their operations until the alert ended.

For the vast majority of firms, the problem of wastes is not a factor of location. For the minority of firms where it is a problem, location can frequently minimize the cost of controlling it. The direction of prevailing winds, stream flow, and the size of dumps along with the amount of wastes expected to be dumped by the new plant, should be considered in selecting the plant location.

Climate

In selecting industrial sites, warmer areas have a comparative cost advantage over colder areas, *ceteris paribus*. Not only are plant heating costs lower but workers need less money to maintain comparable living standards. Miller has estimated that "a southern industrial worker, in order to have the same level of living as a worker in New England, can have a salary 10 to 20 percent lower."¹⁶ Also in southern areas, buildings can frequently

¹⁶Willard E. Miller, op. cit., p. 10.

be constructed at less expense than in the North where buildings must be constructed to keep out the harsh cold weather.

It was once thought that the productivity of workers in the warmer areas was lower than in the colder areas. Greenhut investigated available evidence in this area and concludes that this is not the case.¹⁷ Productivity, using similar economic resources, seems to be as high in the South as in the North.

In terms of a good working climate, Yaseen has suggested the following:

1. The location should have frequent but moderate weather changes and gradual seasonal changes so as to prevent weather monotony.
2. The temperature range should be approximately 40° during the winter season and 64° in the summer.
3. The humidity should not be too low. Below 25 percent relative humidity promotes susceptibility to the common cold and other respiratory diseases.¹⁸

Unfortunately there are few areas that meet these kinds of climatic conditions; fortunately not all industry needs them. Each industry has a climate that is best suited to its needs. One firm might need a damp climate, another a dry one; some perhaps need lots of sunshine, others not so much; some might desire a warm climate, while others need cold climates. The point is that it takes all kinds of firms seeking all kinds of climates to make up the industrial complex that we have in the United States. However in location analysis, it must be recognized that climate can have an

¹⁷Melvin L. Greenhut, op. cit., pp. 130-131.

¹⁸Leonard C. Yaseen, Plant Location, p. 125.

influence, direct and indirect, on costs of production.

As an aid in selecting the right climate for a plant location, the U. S. Weather Bureau compiles data for almost every area. This data includes information of elevation, temperatures, precipitation, relative humidity, number of sunshine hours, wind speed and direction, and the number of days per year of each kind of weather, i.e., clear, cloudy, snowy.

Capital

Most writers agree that capital is not an important factor of location.

For example, Miller concludes:

The important manufacturing districts of the world in modern times are located with little regard to a source of money for their development. Capital is readily available to all parts of the world where political security and financial returns are reasonably guaranteed. As a consequence, capital as a location factor may be disregarded in the industrial nations of the world.¹⁹

Certainly one cannot argue with this in considering the location of large firms. Their capital is not tied to local or regional money markets but rather to national and international money markets.

The business structure is not composed entirely of large firms. A substantial number of firms that would have to be considered small are still in existence. They are local in nature and their impact on the markets is infinitesimal. The location of these small firms may not be dictated so much by the need to secure a low cost operating site as it is by the need to secure capital. Their sources of funds are generally limited to personal

¹⁹Willard E. Miller, op. cit., p. 10.

savings, friends, relatives, acquaintances, local banks, industrial development groups (in the few areas where these have been formed), and to some government sources, notably the Small Business Administration. By the very nature of most of these sources, these small businesses are tied to locations approximate to where they obtained their capital. Thus capital, in this situation, could become a dominant factor of location. (However, it would have to be conceded that the mortality rate of these firms is probably a lot higher than those where capital is not an important factor of location.)

Land and Buildings

Wars, people, and inflation have had their impact on land and building costs throughout the United States; but not all areas have been affected to the same extent. A few hundred miles, or in some cases just a dozen or so miles, can change land and building costs by thousands of dollars. When industry contemplates alternative locations it is acutely aware of these differences that exist in land and building costs.

More than one enterprising mayor or chamber of commerce official has killed a plant location because of premature announcements. These announcements have led in some situations to severe inflation of land prices. This in turn has led the firm to re-evaluate locations and to select an alternative site where land and building costs were more reasonable. People like to get the best price for their land and are of the opinion that industry has unlimited funds and can pay any price. What these landowners frequently

forget is that industry is composed of people who also want to obtain the best price possible--in this case the lowest one. Where substantial land area is being sought, industry will go to great lengths to maintain secrecy. Civic leaders would do well to abide by that secrecy until after the land has been acquired.

One of the more interesting developments of industrial land acquisition is the practice of firms buying land in advance of need. Of course, not all firms follow this practice but to the extent that it is being practiced indicates that decisions are being made now concerning industrial locations for the future. The reason often given for these acquisitions is to acquire low cost plant sites in strategic locations. (Although these acquisitions could be sold at some future date, a study of the extent that these are being used for future locations could, perhaps, give an indication of the future direction of industrial growth in the United States.) At any rate, to those firms acquiring this land, it would have to be considered as a factor of location although probably not a primary one.²⁰

For firms not interested in buying an industrial location, their consideration of locations is limited to areas where rental or lease arrangements can be obtained. Because suitable facilities are probably available at many locations, the terms of the arrangement would be a consideration in selecting a site. Frequently, renting facilities instead of buying can help in trying out an area without committing one's capital to permanent

²⁰For a more complete discussion of firms buying land in advance of need, see Wall Street Journal, December 18, 1965, p. 1.

facilities. Communities should be wary of giving too many short-term special considerations to firms trying out an area. Such firms are an easy target for other communities once these special considerations end.

Taxes

The influence of taxes in selecting plant locations is difficult to determine. Not only is there a lack of uniformity in assessing taxes throughout the states so that it is difficult to compare tax burdens, but also those people studying location factors cannot agree as to how important taxes are in selecting locations. Depending upon which author one reads, one can get viewpoints ranging from those who argue that taxes are important but not a dominant factor to those who feel that taxes are unimportant.

Questionnaires sent to businesses in the early 1950's indicated, generally, that little weight was given to taxes in selecting locations. However in 1964, the results of a questionnaire sent to subscribers of Business Week by the publisher, McGraw-Hill, showed that 65 percent of the 2,000 respondents felt that "reasonable taxes" were important in location decisions. Does this mean that industry now feels that taxes are an important determinant? McMillan stated: "Primary among the areas of initial investigations, is government finance and taxation"²¹ Yet the results of a 1966 survey reported in Factory showed less than 12 percent rated low taxes as being one of the top five location factors.²²

²¹T. E. McMillan, Jr., "Why Managements Choose Plant Location vs. Determinants of Plant Location," Land Economics, August 1965, p. 244.

²²"Procedures for Contemporary Site Selection," Factory, May 1966, p. A-136.

Apparently, though, some states have been impressed that taxes are an important factor in industrial location. Thirty-five states have enacted "free port" laws to reduce property tax on inventories (primarily those destined for later out-of-state shipment), ten states offer general property tax relief on new investment, and twenty-three states offer some kind of tax exemption or concession to industry.²³ Seemingly, the legislators in these states have been convinced that these concessions would help to stimulate industrial growth and development.

Empirical studies seem to indicate, though, that taxes are not important in choosing general areas of location but are one of the several factors considered when choosing a specific site from the already determined general area. For example, Greenhut concludes the following from his review of empirical studies:

From these studies, it would seem that tax incentives are at best a relatively unimportant secondary factor of location. Given the governing factor, the tax incentive may induce a specific location within the area defined by the basic factor. If the location offering tax incentives is not within the area set by the governing factor, it is simply not considered."²⁴

Industry is willing to pay its fair share of taxes but it does not want

²³Information obtained from "State Tax Guide," Prentice-Hall, Inc., p. 277 (April 26, 1966) and p. 279 (January 18, 1966). In addition, nine states have state development authorities that will build new plants or finance construction, twenty-seven states have state development credit corporations that aid in financing new plant construction, sixteen states have laws that allow governmental bodies to sell bonds to cover the cost of erecting new plant facilities, and thirty states offer some type of 100% financing plans on new plant construction.

²⁴Melvin L. Greenhut, op. cit., p. 139.

to pay an unreasonable amount. Thus when Factory listed "low taxes" and the Business Week questionnaire listed "reasonable taxes," the difference in response could have been due to the use of the words "low" and "reasonable."

Low taxes have probably eliminated as many locations from consideration as would high taxes. Low taxes can be a sign of inadequate present services and possible future troubles. A community may have to play "catch up" with substantially higher taxes at some future time. The following points are suggested as items to consider in comparing tax burdens:

1. What is the net debt and its trend?
2. What changes have taken place in interest rates?
3. What community facilities (schools, city buildings, sewers, etc.)

are now inadequate or will be in the immediate future and what is their estimated impact on future taxes?

4. What are the capabilities of tax officials and their attitudes toward industry? (Industry is still considered fair game in many tax assessor's offices.)

Taxes are in essence a measure of the services of the community and the state. As demands for increased services are made upon the governmental bodies, it is to be expected that their reactions will be different. The extent of this difference will be reflected in taxes and perhaps increase existing tax disparities. As these tax disparities grow so will the importance of taxes as a factor of location grow. For example, Yaseen compared tax burdens for a hypothetical business in nine locations each in a different

state. He found a tax spread among the nine locations of \$231 thousand.²⁵ Impressive as this difference is, it must still be measured in terms of benefits received.

In summary, it is not only taxes that should be considered but also benefits received. That location, *ceteris paribus*, providing the better services for the lowest tax burden would be selected. Taxes, in most site selections, are probably only secondary factors of location rather than primary.

Personal Factors

Probably no factor of location is as difficult to assess or more bothersome to community development efforts than are the so-called personal factors of location. An investigation might reveal that demand and cost factors are highly favorable at a given location, yet the plant locates somewhere else. Or perhaps demand and cost factors seem unfavorable but the plant locates there anyway. Why? The reason is almost always due to some personal factor on the part of the person making the location decision. Such reasons might include living or social conditions or perhaps recreational possibilities. Little has been done to incorporate these personal factors into location theory because of their variability. They are unlike demand or cost factors in that they are almost impossible to quantify; however, on occasion, they have been important determinants of location. A discussion of some of the more important personal factors follows.

²⁵Leonard C. Yaseen, Plant Location, p. 108.

Recreation

The affluence found within the United States economic system is unsurpassed by any other nation. Along with this affluence is the demand for greater and more diversified recreational activities. Statements such as "I located here because of the fishing" or "I wanted to be near the Los Angeles Dodgers" are statements that reflect the attitudes of those making location decisions toward recreation. A town in Tennessee was told that although it was one of two being considered as a plant site, it lost out for the reason that "If you want to attract industry you gotta have a golf course."²⁶ Also an Ohio community was eliminated from final consideration because it not only lacked a golf course but also considered inadequate were its parks, playgrounds, social and cultural centers, churches and schools.²⁷

A noted conservationist, author, and lecturer, E. H. Taylor, in speaking to a statewide industrial development group in Pennsylvania, is reported to have said: "The shortage of recreational resources is just as serious as the shortage of water."²⁸

Another, Fred Smith, concludes: "What interests young people as well as older people are recreation facilities. What attracts them are recreational facilities. What makes them happy in a given area is likely to be,

²⁶"You Gotta Have a Golf Course to Attract Industry," Business Week, June 25, 1955, p. 87.

²⁷William Papier, "Recreational Facilities Attract New Industry," The American City, July 1957, p. 131.

²⁸Ibid, p. 132.

in large part, recreation facilities."²⁹

The above quotes are not to imply that all industry demands or even wants recreational facilities. Some firms could care less. However with the trend toward more leisure time, recreation will become increasingly important in location decisions. An official of Sylvania Electric sums up this increasing concern for recreation facilities when he stated: "Employees, we feel, should have wholesome recreation available for their leisure time..."³⁰

The community that can provide this wholesome recreation will be preferred, *ceteris paribus*, over one that does not provide it. Quantity may count but quality will usually be the deciding factor.

Social Conditions

Integration of an industry into a community is a two-way street. Not only must the community express its approval or disapproval but industry must also assess its relationship within the community. Some companies will not select areas where they are the major employer; other companies feel that there is a definite advantage in being the big industry in an area. There is at present, however, a trend toward locating plants in smaller communities. It has been estimated that in recent years 90 percent of all new factories have been built in communities of less than 50,000 population³¹

²⁹Fred Smith, "Recreation as an Economic and Social Asset," Recreation, May 1961, p. 229.

³⁰William Papier, op. cit., p. 131.

³¹"Why Big Industry is Going to Smaller Towns," U. S. News and World Report, December 21, 1959, p. 87.

and that by 1970 nine out of every ten plants will employ less than 100 people.³² With this kind of trend it becomes increasingly important to determine whether the plant and the community can successfully integrate. For example, a plant dependent upon continuous seven-day operations may find itself in trouble by locating in a strong religious community where Saturday or Sunday work is frowned upon.

Regardless of what the plant site advertisements state, it must be recognized that not every plant can fit into every community. Industry is recognizing this and is now giving more attention to social conditions as a factor of location.

Living Conditions

Living conditions within an area can and do affect the location decision. A situation was mentioned where both a demand and cost analysis favored a certain location, yet the president spurned it when he learned that the climate would have an adverse effect on an allergy problem in his own family.³³ A company in Phoenix, Arizona, boasted that unsolicited letters are received from all over the country asking for employment because of the desire to live where it is sunny and dry.³⁴ If this is true for some potential employees, no doubt it is also true for some employers.

The pace of life is considered to be slower and more casual in the West

³²Wall Street Journal, September 4, 1964, p. 15.

³³T. E. McMillan, Jr., op. cit., p. 246.

³⁴Reported in the Wall Street Journal, May 6, 1965, p. 1.

than in the East. This appeals to some who make location decisions whereas the western style of living would be repugnant to others. Some, perhaps, would like to be located in areas of dense populations but others would prefer the wide open spaces with room to breathe. Also, as mentioned earlier, some companies have had to cancel relocation plans because they could not convince key employees to move with them. The employees preferred the living conditions of the old area over the new one.

Living conditions vary somewhat between communities, even those located reasonably close to each other. What makes a person choose one community over another? Perhaps the sociologists will arrive at the complete answer. For purposes of examining factors of location, it is one of the many intangible factors that could explain the selection of one site over another.

Educational Facilities

Like most of the other personal factors of location, the influence of educational facilities on location is difficult to determine. It is suspected, though, that for the majority of plants its influence on location decisions is small. For other plants it could be one of the more important factors. For example, a trend observable in recent years is that of locating research and development facilities in proximity to colleges and universities. Not just any school, however, but generally those specializing in such areas as engineering, physical and biological sciences, and agriculture. Other plants have found it expedient to locate near trade schools to insure an adequate supply of skilled craftsmen or perhaps close to good libraries

where company personnel have access to the latest technological information. The president of one firm, a staunch Catholic, refused to approve a location because it lacked parochial schools.

Other Personal Factors

Besides those discussed above, there exist a host of other personal factors. These include such things as adequacy of room accommodations for customers, visitors, or plant officials, the kinds of stores or shopping centers within or close to the proposed location, adequacy of hospital facilities, community planning efforts, progressiveness of local school systems, street lighting, condition of streets, and the quality of newspapers, radio, and television serving the area. Most are probably not primary location determinants but could have some affect on the ultimate decision.

Summary

An area may be ripe for industrial development but none comes. Community attitudes and cultural patterns may be preventing the establishment of the environment necessary for development to take place. Or perhaps the person making the decision for industry has found, in his assessment of the community, factors not to his liking. Both of these comprise the personal factors of location.

It is difficult, if not impossible, to determine the personal factors that are going to be important in any given location decision. There is ample proof that they do affect some location decisions. Those communities interested in industrial development can help themselves by giving industry

as favorable a picture as possible. Golf courses, fishing streams, opera, and well-maintained roads are not the solution to industrial development in every area, but having them is certainly not hurting a community's chance of securing industrial development.

Governmental Factors

Another intangible factor usually examined in site selection is the role of government in and its attitude toward business. Some assessment needs to be made of the business climate at all levels of government within a state. Such an assessment should include some measure of each of the following: the effectiveness of the government; the types of laws considered and passed; the types of taxes assessed and reports that need to be filed; types of restrictions imposed against business (such as zoning laws); the kind of benefits received from the governments (such as police and fire protection); and some indication of the attitudes of people toward their governments.

Many governments have failed to realize how important it is to project a good image toward business. This image cannot be created by simply putting on a one-day show. Rather it is something that is developing with each passing day. Too frequently it can be observed that local communities roll out the red carpet one day only to have it stored away for the other 364 days. These governmental units have to recognize that something done today, or tomorrow, or the next day (such as a careless word, an unfavorable zoning restriction, or perhaps the passage of a law favoring union organization)

can have an impact on industrial development for years to come.

Summary

In every site selection, a balancing and weighing of many different factors is involved. Some factors will be deemed to be very important and will weigh heavily in the decision; others will be considered of less importance and accorded little weight in the decision.

Normally cost factors have had the most influence in location decisions but certain trends are evident to indicate that demand will exert an increasing influence in location decisions. Instead of business seeking the least-cost location, the stress is now on a maximum-profit location.

Tempering the stress toward a maximum-profit location will be the personal and governmental considerations. Although they are difficult to quantify, their influence in location decisions must be recognized and appropriately handled.

The job of luring industry into a state or community is not an easy one. The many location variables, along with different needs of plants, creates many different patterns of location factors none of which is just exactly like the other. Perhaps to the plant, investigating locations is a science; to those attempting to stimulate industrial development, it would have to be classified as an art.

. . . It seems to me that Montana is a great splash of grandeur. The scale is huge but not overpowering. . . . Montana seems to me to be what a small boy would think Texas is like from hearing Texans.

John Steinbeck

Chapter III

CHARACTERISTICS OF MONTANA AFFECTING INDUSTRY

Introduction

The purpose of this chapter is to point out the characteristics of Montana that affect industrial growth and development. The intent is not to re-do the many books, pamphlets, and articles containing the history and geography of Montana but only to highlight some of the main characteristics of the State that will affect industrial growth and development. One can begin to understand the future of industrial growth only by understanding the environment where it is to take place.

General Characteristics

Montana is a land of contrasts in altitude. The western one-third of the State is traversed from north to south by the Rocky Mountains. Some of these mountains are over 12,000 feet high, but most are between 8,000 and 11,000 feet. In between many of these mountains are located valleys that have altitudes that range between 2,000 and 5,000 feet. It is in these valleys that many of the State's important agricultural centers are located. Also these valleys are generally well supplied with rich soil, abundant water

(surface and ground), and are protected from the winter storms by the nearby mountains.

The eastern two-thirds of Montana is labeled as a plains area. This area is not devoid of mountains as isolated mountain groups appear throughout. However, the average altitude of this area is substantially lower than that found in the western one-third of the State.

Although Montana is classified as a mountain state, more than half the State is below 3,000 feet in altitude. In fact Montana's average altitude of about 3,400 feet is lower than the average altitude of most of the other Rocky Mountain States including Arizona.¹ The visitor from the East is often surprised by this fact as he drives over the many miles of plains to reach the mountains.

The total area of Montana is 147,138 square miles of which 1,402 square miles are covered with water. The state has a population density per square mile of 4.9 and ranks 47 out of 50 states in this category. Only Alaska, Nevada, and Wyoming have lower population densities than Montana. Thus, the State has ample room to grow population wise.

The weather in Montana is extremely variable yet it is rather pleasant. The average maximum daytime temperature for January is 28°F and for July it is 85°F. As a rule, however, these averages would be higher in the plains and lower in the mountain areas.

In terms of sunshine, Montanans enjoy a high average percentage of

¹"Natural Resources of Montana," op.cit., p. 10.

possible sunshine. The average percentage of possible sunshine for January is 45 percent and for July, 78 percent. Because of Montana's many days of sunshine and smog-free weather, the state has been appropriately nicknamed "The Big Sky Country."

As can be expected from a state as large and as varied as Montana, the annual rainfall is not consistent throughout the state. The state average is 15 inches of precipitation per year with the western mountains averaging 18 inches and the eastern plains about 13 inches. Figure 5 shows the moisture variability throughout the state. Almost one-half of the total annual precipitation falls during the months of May, June, and July.

Associated with the low annual precipitation is a low relative humidity. The average daytime humidity in July ranges from 33% to 38%, less than half that found in many eastern states.

Natural Resources

The economy of Montana has been and still is based on its natural resources. In the minds of many people, the future of Montana is viewed as being only in its natural resources. Table IX points out the importance of one resource, lumber, as 35.5 percent of the state's total manufacturing work force was employed in this area in 1960. (Currently it is running close to 40 percent). In a 1965 ranking of states, Montana ranked first in the production of manganese, vermiculite, tame mustard, and chrome; second in available coal reserves; third in the production of copper, barley, and silver; fourth in wheat, phosphate rock, and sheep; sixth in beef cattle;

TABLE IX
SELECTED STATISTICAL CHARACTERISTICS, BY STATE

State	Change in Population 1960-63	Population Per Square Mile 1963	1960 Population Characteristics			Educational Attainments of Age 25 and Over, 1960				Major Industry 1960	Total Work Force in Major Industry	Population by Age Group		
			Urban	Non-Farm	Farm	No School	Grade School 8 Years	High School 4 Years	College 4 Years			15-19	20-39	40-64
Alabama	2.5%	65.6	55.0%	32.7%	12.3%	3.5%	61.5%	30.4%	5.7%	primary metals	17.1%	8.6%	25.0%	24.7%
Alaska	9.7	0.4	37.9	61.1	1.0	3.5	84.3	54.7	9.5	NA	NA	7.6	35.9	18.6
Arizona	19.7	14.0	74.5	21.7	3.8	4.0	79.1	45.7	9.1	food products	12.5	7.8	26.7	24.0
Arkansas	4.0	35.3	42.8	38.6	18.6	2.7	65.6	28.9	4.8	lumber, wood products	22.4	8.5	22.0	26.9
California	11.9	112.3	86.4	11.5	2.1	1.9	85.4	51.5	9.8	transportation equip.	18.5	7.0	27.5	26.5
Colorado	11.8	18.0	73.7	19.0	7.3	1.2	86.7	52.0	10.7	food products	21.1	7.5	26.5	24.6
Connecticut	5.2	544.2	78.3	20.7	1.0	2.7	81.6	43.9	9.5	transportation equip.	17.3	6.8	25.7	28.7
Delaware	6.7	240.6	65.6	29.5	4.9	1.8	80.4	43.4	10.1	chemicals	10.0	6.7	27.6	25.8
Florida	14.1	104.2	74.0	23.9	2.1	2.1	78.2	43.6	7.8	food products	19.7	6.9	25.6	26.9
Georgia	5.0	71.0	55.3	34.4	10.3	3.3	59.7	31.9	6.2	textile products	30.1	8.5	26.4	24.4
Hawaii	9.7	108.1	76.5	21.8	1.7	6.6	73.4	46.1	9.0	food products	61.8	8.8	30.5	21.8
Idaho	6.9	8.6	47.5	32.6	19.9	0.7	89.3	48.6	7.2	lumber, wood products	36.9	8.4	23.8	24.7
Illinois	1.0	182.0	80.7	13.7	5.6	1.7	81.9	40.4	7.3	machinery*	14.6	6.9	25.6	28.4
Indiana	0.7	129.7	62.4	27.2	10.4	0.9	33.1	41.8	6.3	primary metals	16.1	7.4	25.6	25.8
Iowa	0.8	49.6	53.1	22.9	24.0	0.5	86.3	46.3	6.4	food products	30.4	7.4	23.3	26.7
Kansas	2.1	27.1	61.0	24.3	14.7	0.7	87.0	48.2	8.2	transportation equip.	33.2	7.3	25.2	26.1
Kentucky	1.9	77.6	44.5	37.4	18.0	2.3	66.8	27.3	4.9	food products	14.7	8.4	24.7	25.2
Louisiana	4.9	75.8	63.3	29.6	7.1	6.6	58.1	32.3	6.7	food products	23.0	8.1	25.3	24.0
Maine	1.3	31.7	51.3	43.7	5.0	1.2	84.3	43.2	5.5	leather products	22.9	7.7	24.5	26.0
Maryland	6.1	333.1	72.7	23.8	3.6	1.4	72.8	40.0	9.3	primary metals	14.5	7.3	27.5	26.1
Massachusetts	1.3	663.3	83.6	15.7	0.7	2.8	82.6	47.0	8.8	electrical machinery	12.8	7.1	24.8	28.4
Michigan	3.7	142.3	73.4	21.0	5.6	1.5	82.5	40.9	6.8	transportation equip.	30.0	7.2	25.8	25.8
Minnesota	2.5	43.7	62.1	20.7	17.2	0.8	85.4	43.9	7.5	food products	22.1	7.4	23.7	26.0
Mississippi	5.1	48.5	37.7	37.4	24.9	3.8	62.2	29.8	5.6	apparel	21.6	9.0	22.6	23.8
Missouri	0.9	62.6	66.6	20.9	12.5	1.3	78.5	36.6	6.2	transportation equip.	14.4	7.1	24.2	28.0
Montana	4.8	4.9	50.2	34.2	15.6	0.9	86.7	47.8	7.5	lumber, wood products	35.5	7.5	24.2	25.0
Nebraska	3.4	19.1	54.3	23.8	21.9	0.8	87.8	47.7	6.8	food products	45.6	7.2	24.0	26.3
Nevada	29.0	3.4	70.4	26.1	3.5	1.0	89.1	53.3	8.3	stone, clay, glass	21.5	6.7	28.7	27.7
New Hampshire	3.3	69.6	58.3	38.6	3.1	1.5	83.7	42.9	7.1	leather products	25.4	7.3	24.4	27.5
New Jersey	6.6	860.3	88.6	10.6	0.8	2.5	79.5	40.7	8.4	electrical machinery	14.4	6.6	26.2	29.3
New Mexico	10.7	8.4	65.9	28.1	6.1	4.4	75.7	45.4	9.8	food products	27.0	8.1	28.0	20.8
New York	5.5	369.4	85.4	12.7	1.9	3.5	80.5	40.8	8.9	apparel	17.5	6.5	25.9	30.2
North Carolina	4.5	97.0	39.6	42.7	17.7	3.1	58.6	32.3	6.3	textile products	43.8	9.0	26.9	23.9
North Dakota	0.2	9.1	35.2	32.5	32.3	1.2	81.6	38.9	5.6	food products	50.5	8.3	23.3	25.0
Ohio	10.5	248.3	73.3	21.3	5.4	1.3	82.4	42.0	7.0	primary metals	13.6	7.0	26.1	26.2
Oklahoma	6.8	36.1	62.9	26.0	11.1	1.5	76.6	40.5	7.9	food products	16.0	8.0	24.6	26.9
Oregon	3.2	19.0	62.2	30.0	7.8	0.7	87.8	48.4	8.5	lumber, wood products	49.8	7.4	23.7	27.9
Pennsylvania	0.9	253.8	71.6	25.3	3.1	2.2	78.4	38.1	6.4	primary metals	16.2	7.1	25.2	28.8
Rhode Island	3.0	836.5	86.4	13.1	0.5	3.0	76.4	35.0	6.6	textile products	22.2	7.4	25.8	28.3
South Carolina	4.2	82.0	41.2	44.1	14.7	4.5	56.6	30.4	6.8	textile products	53.7	9.6	26.2	22.4
South Dakota	8.3	9.6	39.3	30.5	30.2	0.7	86.2	42.1	5.7	food products	62.9	7.8	23.3	25.3
Tennessee	3.6	88.5	52.3	31.3	16.4	2.5	65.1	30.4	5.5	apparel	15.0	8.4	25.7	25.8
Texas	10.8	39.3	75.0	17.7	7.2	4.1	69.9	39.5	8.0	food products	16.2	7.8	26.6	24.7
Utah	10.4	11.9	74.9	20.2	4.9	0.8	91.0	55.9	10.2	food products	20.7	8.6	25.5	21.8
Vermont	0.03	42.0	38.5	49.0	12.5	1.0	85.4	42.8	7.3	machinery*	17.5	8.3	23.1	26.3
Virginia	9.2	108.7	55.6	34.2	10.2	2.7	63.7	37.9	8.4	textile products	13.2	8.2	27.8	24.8
Washington	6.9	45.7	68.1	26.2	5.7	0.8	88.2	51.5	9.3	transportation equip.	30.5	7.3	25.2	26.5
West Virginia	-4.4	73.8	38.2	55.3	6.5	2.2	69.5	30.6	5.2	primary metals	19.8	8.5	23.9	26.5
Wisconsin	2.8	74.2	63.8	22.2	14.0	1.0	82.2	41.6	6.7	machinery*	17.6	7.2	24.0	26.7
Wyoming	2.1	3.5	56.9	30.1	13.0	0.8	88.5	52.1	8.7	petroleum, coal prods.	33.2	7.4	26.3	24.9

NA - Not Available

*Except Electrical

SOURCE: Dun's Review and Modern Industry, March 1964, pp. 106-7.

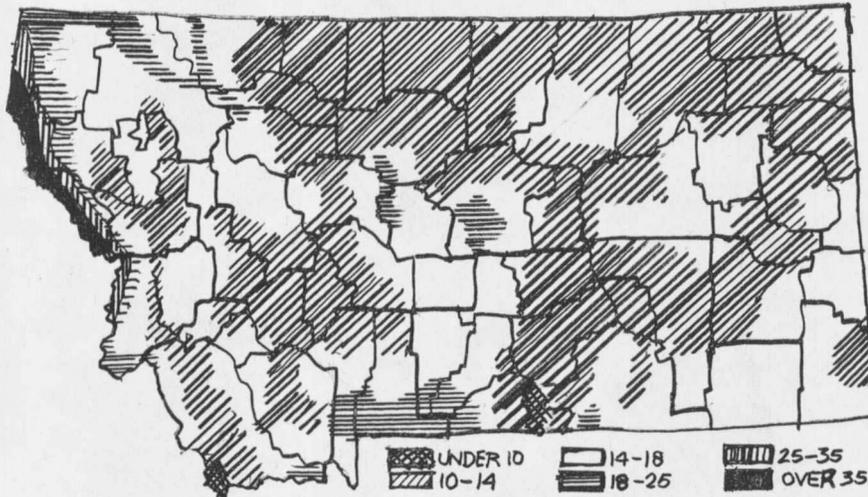


Figure 5 - Average Annual Precipitation in Montana

SOURCE: "Montana Agriculture Basic Facts," Bulletin 293, Cooperative Extension Service and Agricultural Experiment Station, Montana State University, June 1962, p. 12.

eighth in sugar beets; ninth in zinc; and eleventh in petroleum.²

Mineral Resources

The Montana Bureau of Mines and Geology lists 59 minerals all produced or found in some degree in Montana.³ Many of these minerals are awaiting further development of new uses or exhaustion of other more convenient supplies before being put into use. The minerals presently contributing materially to the economy of the state are petroleum, copper, sand and gravel,

²The Americana Annual, Grolier, Inc., 1966, p. 465.

³Commerce and Industry, Franklin O. Schroeder, Publisher, Simi, California, Second Quarter, 1964, p. 35.

zinc, cement, silver, stone, and phosphate rock. In fact, all but one or two of Montana's 56 counties regularly report an annual mineral production in excess of \$25,000.

In July 1965, mineral extraction and processing accounted for approximately 7 percent of the total civilian work force, excluding agriculture.

Land Resources

The land resources of Montana consist of 93.6 million acres. In 1960, 54.5 percent of this land was non-forested pasture and ranges, 13.9 percent was non-irrigated cropland, 2.1 percent was irrigated cropland, 10.7 percent was grazed woodland and forest, 10.8 percent was non-grazed woodland forest, and the remainder, 8 percent, includes all other land such as waste, water areas, roads, and about one million acres in urban and built-up areas. 65.4 percent of the land in Montana was in private ownership, 29.1 percent in federal ownership, and the balance, 5.5 percent, was under state ownership.⁴

Agricultural uses of land are predominant in the state and this is followed by forestry uses. Cattle and wheat are the principal agricultural products and generally account for as much as three-fourths of the total cash receipts from marketings. However, the state has other agricultural products such as barley, sugar beets, hay, apples, cherries, sheep and wool, and dairy. In certain sections of the state, each of the above products are important local agricultural products. The vast majority of agricultural

⁴"Montana Agriculture Basic Facts," Bulletin 293, Cooperative Extension Service and Agricultural Experiment Station, Montana State University, June 1962, p. 13.

products leave Montana in the raw state to be processed elsewhere. (Often mentioned as one of the hopes for the future development of Montana is that more of these products can be processed within the state.)

Forest land amounts to about one-sixth of the state's total land. Of this, the Federal Government owns 68 percent, corporations about 16 percent, farmers about 12 percent, and the state and local governments about 4 percent. As mentioned earlier (See Table IX), about 35.5 percent of Montana's total manufacturing work force is in lumber and wood products. However the U. S. Forest Service has estimated that "with full utilization and development of the state's forest resources, primary production activities could be about tripled and secondary activities increased more than eight times. . . ."⁵ Such expansion is tied to the national demand for wood products; but the future for wood products is far from bright at the present time. Even though research for new uses of wood and wood products has been promising, substitutes for wood are being developed at a high rate.

A trend worth noting with respect to land resources is the increase in the amount of land being used for recreational purposes. Montana has many attributes that are desirable and necessary in order to stimulate out-of-doors recreation activity. With care, these attributes will provide a good future for out-of-doors recreation activity in the state. The publication Commerce and Industry states: "Even though outdoor recreation has been a rapidly expanding segment of the State's economy, the overall effect of this

⁵Ibid, p. 41.

recent activity has not begun to penetrate the recreational potentials of Montana."⁶

With the increase in population projected for the United States and with the national trend toward more leisure time, it is easy to foresee that increased amounts of land resources will be devoted to recreational uses as well as an increasing utilization of land presently available for this use. Montana is in a unique position in that it now has large amounts of land that could be converted to recreation areas. In fact, recreation could well be the "ace in the hole" that could bring industry into the State in order to be near these recreation areas.

Another facet of Montana's land resources, coupled with the low population density of the State, is that it has ample room to accommodate substantially more people. In fact, with the increased demand for public services in the State, an increased population would be desirable from the tax standpoint. A fear often expressed in the State is that an increasing population would destroy the beauty of Montana. Although some of its beauty might be destroyed, the increased population would provide for a greater development of the State; this would, in turn, provide for a more abundant enjoyment of its resources.

Water Resources

The abundant water supply in Montana is truly one of the State's greatest resources. Presently, this water supply plays important roles in

⁶Commerce and Industry, op.cit. p. 63.

agriculture, industry, power production, recreation, and in domestic uses. Yet with all these present uses, there is enough water leaving the State to supply the requirements of ten industrial metropolitan areas the size of New York City.⁷ Thus, the State has ample surface water for future industrial development.

Ground water is also plentiful; and in the plains section of the State, it is frequently the only source of water. U. S. Geological Survey officials have estimated that Montana has many times as much water underground as it has on the surface.⁸ At present, ground water furnishes only about one-fiftieth of Montana's annual total withdrawal.⁹ However, as the State develops and more ground water studies are made, it is expected that ground water will be an important resource for the future especially in the development of the eastern part of Montana.

With such large amounts of water flowing in the State, it is only natural that dams be built to protect against floods, to store irrigation water, or to derive hydroelectric energy. In 1954, the hydroelectric potential for Montana was estimated at 6.2 million kilowatts; presently, the installed capacity is only about one-fourth of the potential. However as of 1967, almost all of the economically feasible sources of hydroelectric power within the State have been or are being developed. Currently, there is adequate

⁷"In Montana," Montana State Planning Board, Helena, Montana, (Unnumbered Pamphlet).

⁸Commerce and Industry, op. cit., p. 48.

⁹"Natural Resources of Montana," op. cit., p. 29.

low cost power available within the State to handle almost any demand by an industrial firm.

Labor

As illustrated in Table V (page 15), a shift in the occupations of Montana's labor force has been taking place. Fewer are now employed in agriculture, railroads, and mining, and more are employed in the other divisions. What kind of occupational skills does the Montana labor force have? Table X shows this breakdown for the years 1950 and 1960 in comparison with the whole United States. The major disparities between the U. S. and Montana exist in two groups, operatives and farm employees. The former reflects the State's lack of industrialization and the latter the predominance of agriculture in the Montana economy. Minor variations exist in clerical workers, craftsmen, and managers. This latter group, managers, was the only group where the Montana trend, between 1950 and 1960, ran counter to the United States trend.

The coefficient for occupational distributions has remained almost constant in the ten-year period. For 1950 it was .135 and for 1960, .128.¹⁰ These low coefficients indicate that occupations in Montana are not far out of line with those found throughout the United States.

¹⁰This coefficient was determined by summing all positive (or negative as the result is the same) differences in the percentage between Montana and the United States for each period and then dividing this summation by 100. If the state had a proportional mix of occupations identical with the U. S., the coefficient would have been zero. In contrast, if all labor in Montana had been in one occupation, the result would have been approximately one.

TABLE X

OCCUPATIONAL DISTRIBUTION OF THE LABOR FORCE,
MONTANA AND UNITED STATES, 1950 AND 1960

<u>Occupational Group</u>	<u>1950</u>		<u>1960</u>	
	<u>Montana</u> (Percent)	<u>U. S.</u> (Percent)	<u>Montana</u> (Percent)	<u>U. S.</u> (Percent)
Professional, Technical, and Kindred Workers	8.9	8.8	11.6	11.8
Managers, Officials, and Proprietors, Except Farm	9.6	9.0	10.3	8.8
Clerical and Kindred Workers	9.6	12.4	12.1	15.1
Sales Workers	6.3	7.1	6.8	7.5
Craftsmen, Foremen, and Kindred Workers	12.3	14.0	12.7	14.2
Operatives and Kindred Workers	12.3	20.1	12.0	19.3
Service Workers	9.9	10.3	12.8	11.7
Laborers, Except Mine and Farm	6.4	6.2	5.0	5.1
Farmers, Farm Managers, Laborers, and Foremen	<u>24.7</u>	<u>12.1</u>	<u>16.7</u>	<u>6.5</u>
All	100.0	100.0	100.0	100.0
Total Labor Force in Montana	230,143		248,073	

SOURCE: Census of Population, 1950 and 1960, Tables 59 and 60.

Table XI gives the age distribution of the Montana labor force as well as the percentage employed out of the total possible for each age group.

TABLE XI

AGE DISTRIBUTION AND PERCENTAGE EMPLOYED OF THE MONTANA LABOR FORCE,
1960

<u>Age Group</u>	<u>Male</u>		<u>Female</u>	
	<u>Labor Force</u> (Number)	<u>Employed of Total Possible Labor Force</u> (Percent)	<u>Labor Force</u> (Number)	<u>Employed of Total Possible Labor Force</u> (Percent)
14-17	7,834	33.5	5,151	23.6
18-24	22,602	80.1	11,224	38.8
25-34	38,890	95.6	11,534	28.9
35-44	41,856	96.8	16,501	38.8
45-64	59,001	90.5	25,090	41.3
65 and Over	<u>10,838</u>	<u>33.1</u>	<u>3,880</u>	<u>12.5</u>
Total	181,021	76.9	73,380	32.6

SOURCE: U. S. Census of Population, 1960, Montana, Table 54.

For all practical purposes, the adult male population of the state is in the labor force. With only about one-third of the adult female population in the labor force, it is possible that some in the other two-thirds could be induced into the labor force if the opportunity presented itself.

A small percentage of the Montana labor force is non-white. According to Table XII, slightly over 2 percent of the total civilian labor force

(total labor force less those in the armed forces) is non-white. (Less than 4 percent of the total population is non-white.) However, as is true nationally, the biggest unemployment problem is in the non-white sector. (The non-whites consist mainly of Indians that live on reservations generally at a distance from available job opportunities.)

TABLE XII
CHARACTERISTICS OF CIVILIAN LABOR FORCE IN MONTANA, 1960

	<u>Total Civilian Labor Force</u>	<u>White</u>	<u>Non-White</u>
Male	174,718	170,735	3,983
Unemployed	6.6%	6.1%	26.9%
Female	73,355	71,838	1,517
Unemployed	7.2%	7.0%	19.2%

SOURCE: U. S. Census of Population, 1960, Montana, Table 53.

Table IX gave the educational attainment for everyone over 25 years of age. As a supplement to this, the median schooling for all males over 25 years is 10.7 years and for all females it is 12.1 years.¹¹ However, in Montana, as well as in many other states, it must be recognized that the median figures on education are probably biased downward due to the relatively large older segment of the population where education was not stressed nor as readily available as at present. Today, the Montana labor force is

¹¹U. S. Census of Population, 1960, Montana, Table 47.

probably as well or better educated than in any other state. There is, however, one aspect of education that needs strengthening in the State. Too much emphasis is placed on vocational education for agriculture and not enough in those areas where the future growth in employment is projected to come from.

Although Montana is a sprawling, low population density state, labor unions are surprisingly strong and well organized. However, except for the mining industry in Butte and Anaconda, there has been very little labor unrest and very few work stoppages in the State.

Does Montana offer cheap labor? The answer depends upon the type of labor one is seeking and the area one is looking at. If one looks at state averages, Montana does not offer cheap labor. Table IX shows that in Montana the average hourly earnings in manufacturing are exceeded by only eleven other states within the Continental United States. This average indicates then that 75 percent of the states pay a lower average hourly wage than Montana. Due to the many variables concerning this labor force, this average tends to be misleading. Statistics on labor rates for different occupations are available in most communities of any size as well as through the State Employment Service. These would be of more use than using state averages. As a rule, Montana labor is not cheap nor is it by any means the most highly paid.¹²

¹²For a discussion of wage rates in the United States see Ronald J. Wonnacott, "Manufacturing Costs and the Comparative Advantage of United States Regions," Upper Midwest Economic Study, Study Paper No. 9, April 1963, pp. 4-21.

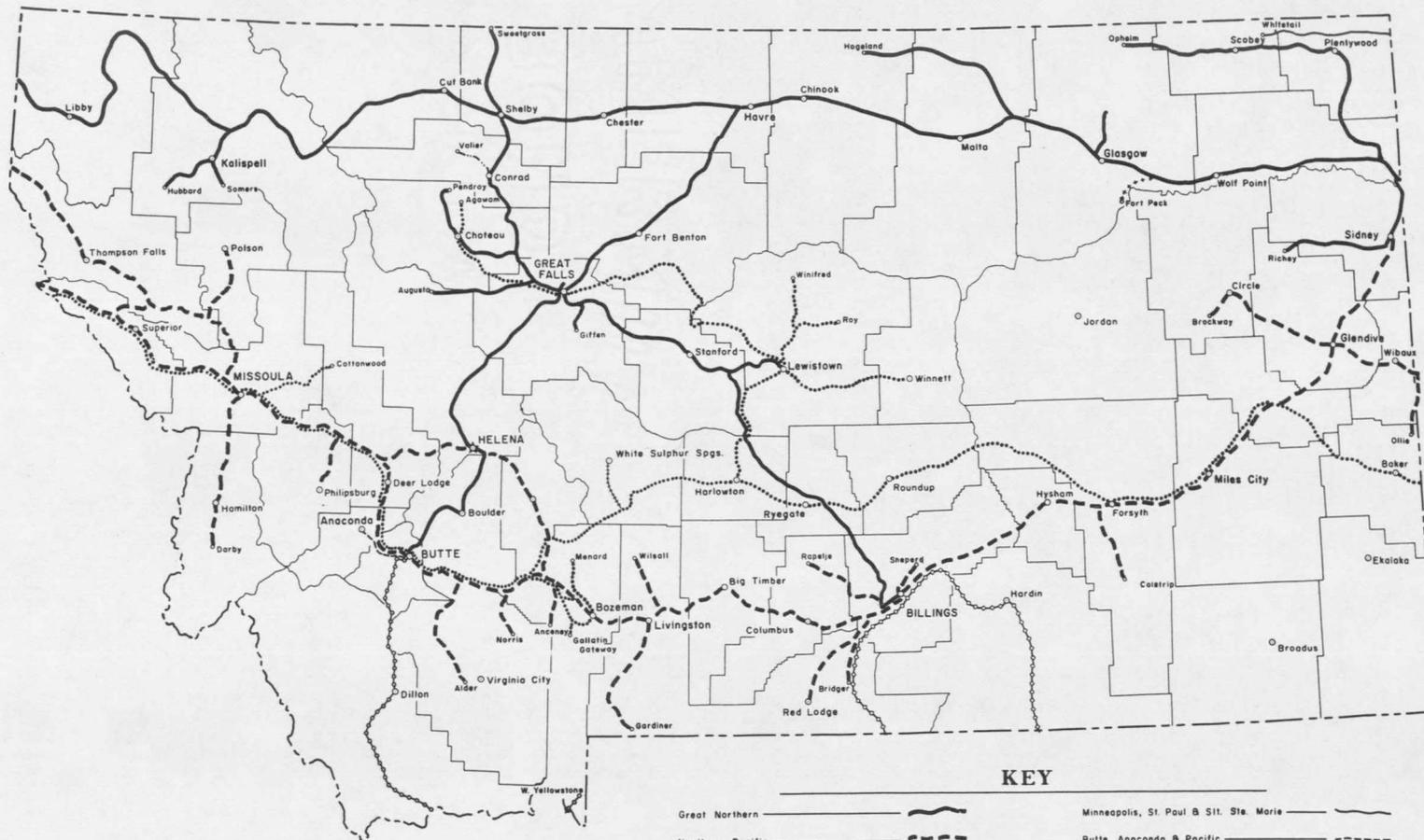
Transportation

Because of Montana's wide expanse and low population density, transportation is a problem. Many populated areas are difficult to reach by rapid transportation other than by motor vehicle. In fact, more than one-third of the cities and towns in Montana are exclusively dependent on services provided by highway transportation. Yet by and large the transportation network is reasonably good and efficient. Figures 6, 7, and 8 show this transportation network of railroads, airlines, and highways.

Montana is also working to complete its interstate highway system on schedule. By 1973 the East-West and North-South interstate systems (highways 15, 90, and 94) should be completed if construction proceeds as scheduled. This will allow an even more rapid movement throughout the State and will connect most of the larger towns.

Industrial

Montana industry is not diversified nor large. Some manufacturing companies outside Montana, such as those in automobile and airplane manufacturing, employ more workers in a single plant than are employed in the whole state of Montana. Tables XIII and XIV show selected industrial statistics for the State in 1963. From these tables, it becomes evident just how concentrated Montana industry is. Six of the 56 counties in the State (Cascade, Flathead, Lincoln, Missoula, Silver Bow, and Yellowstone) accounted for more than 50 percent of the total establishments and more than 60 percent of the total employees. The majority of the establishments and employees in the



KEY

- | | | | |
|--|--|--|--|
| Great Northern | | Minneapolis, St. Paul & St. Marie | |
| Northern Pacific | | Butte, Anaconda & Pacific | |
| Chicago, Milwaukee, St. Paul & Pacific | | Montana Western | |
| Chicago, Burlington & Quincy | | United States Government | |
| Union Pacific | | White Sulphur Springs & Yellowstone Park | |

Figure 6 - Railroads

SOURCE: Reprinted from "Montana in Maps" by permission of the Endowment and Research Foundation at Montana State University, Bozeman, Montana.

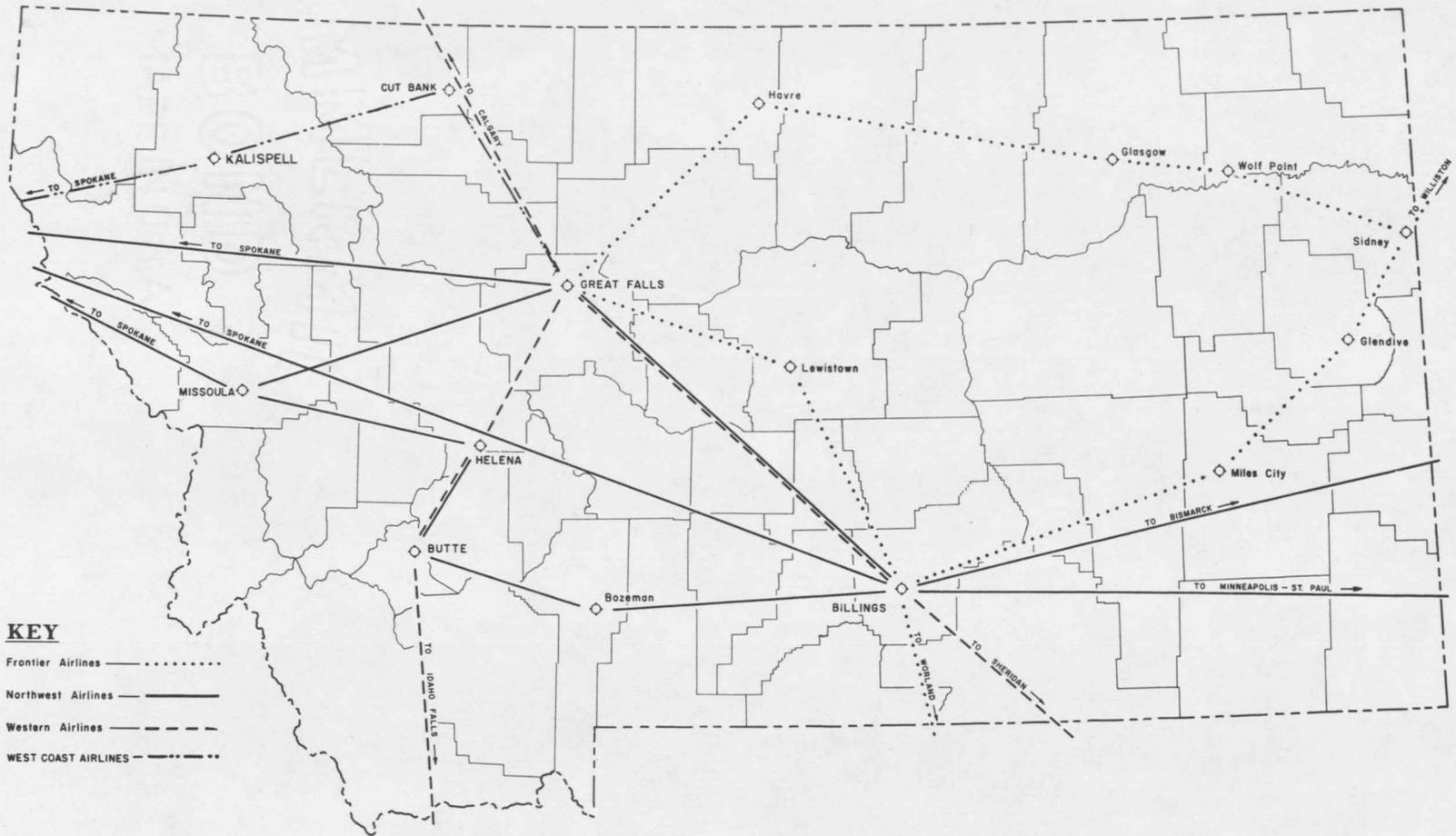


Figure 7 - Airline Routes

SOURCE: Reprinted from "Montana in Maps" by permission of the Endowment and Research Foundation at Montana State University, Bozeman, Montana.

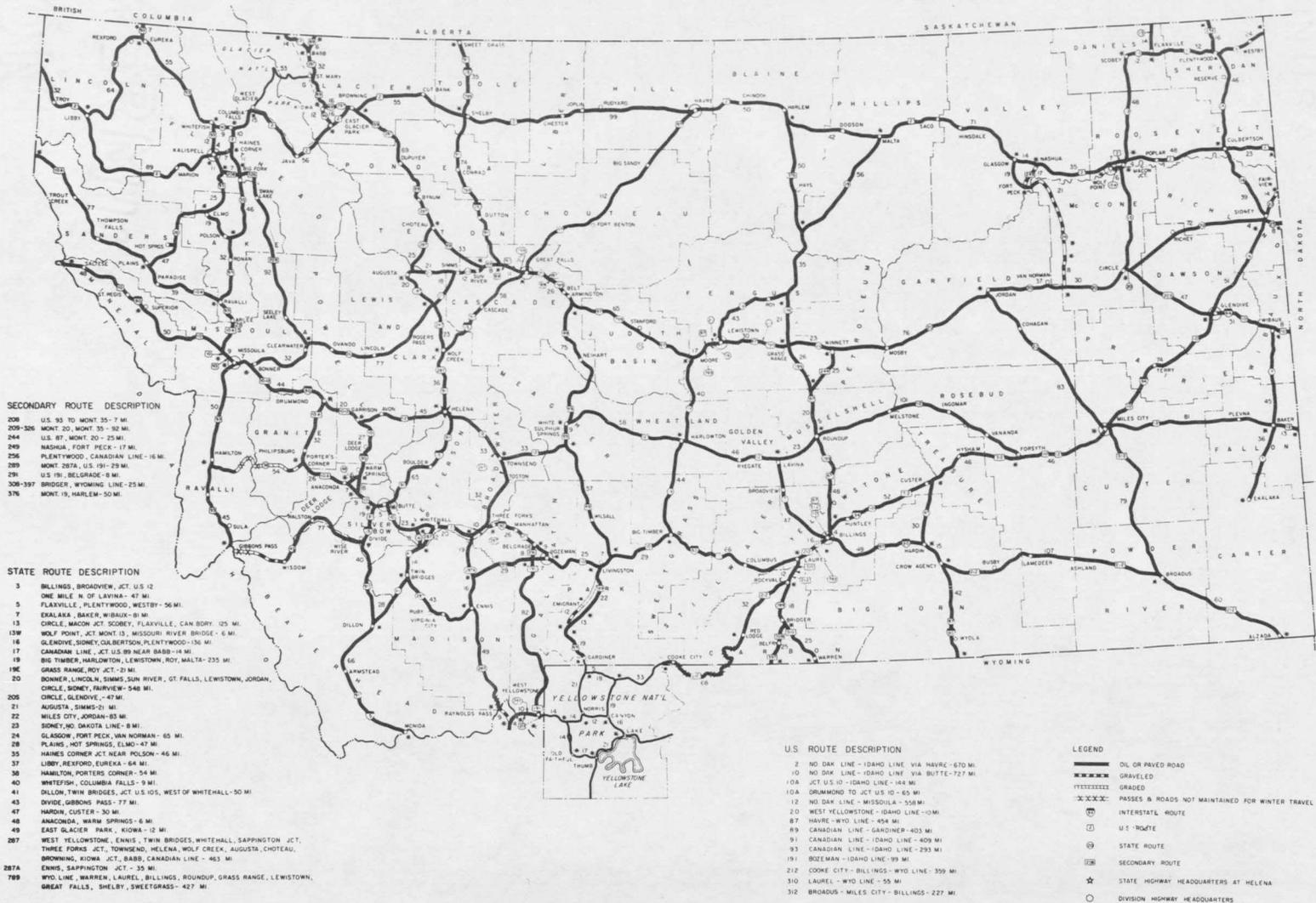


Figure 8 - Maintained Highways

SOURCE: Reprinted from "Montana in Maps" by permission of the Endowment and Research Foundation at Montana State University, Bozeman, Montana.

TABLE XIII
GENERAL STATISTICS FOR STANDARD METROPOLITAN STATISTICAL AREAS,
COUNTIES, AND SELECTED CITIES IN MONTANA, 1963 AND 1958

Standard metropolitan statistical area, county, and city	1963									1958	
	Establishments		All employees		Production workers			Value added by manufacture, adjusted	Capital expenditures, new	All employees	Value added by manufacture, adjusted
	Total (number)	With 20 employees or more (number)	Total (number)	Payroll (\$1,000)	Total (number)	Man-hours (1,000)	Wages (\$1,000)	(\$1,000)	(\$1,000)	(number)	(\$1,000)
MONTANA TOTAL	976	188	20 247	109 271	16 015	31 742	82 796	236 230	38 587	20 315	191 245
STANDARD METROPOLITAN STATISTICAL AREAS											
BILLINGS	101	22	2 501	15 485	1 766	3 581	10 146	46 270	8 145	2 655	33 518
GREAT FALLS	62	26	2 880	15 864	2 062	3 715	10 450	38 318	1 958	2 786	39 416
COUNTIES											
BEAVERHEAD	7	1	38	(D)	28	(D)	(D)	(D)	(D)	10	104
BIG HORN	5	1	174	(D)	146	(D)	(D)	(D)	(D)	143	(D)
BLAINE	4	-	29	(D)	21	(D)	(D)	(D)	(D)	40	(D)
BROADWATER	7	-	46	147	33	66	100	281	44	39	244
CARDON	8	1	57	193	46	99	152	301	(D)	67	85
CARTER	1	-	(D)	(D)	(D)	(D)	(D)	(D)	(D)	5	15
CASCADE	62	26	2 880	15 864	2 062	3 715	10 450	38 318	1 958	2 786	39 416
CHOUTEAU	5	-	21	98	16	32	72	156	17	11	40
CUSTER	8	1	78	410	47	91	231	715	64	75	1 070
DANIELS	1	-	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
DAWSON	11	-	65	277	41	87	186	586	55	52	853
DEER LODGE	11	3	1 062	(D)	862	(D)	(D)	(D)	(D)	2 431	(D)
FALLON	3	-	26	101	19	38	70	201	21	16	119
FERGUS	16	2	176	819	125	273	580	1 934	158	213	2 191
FLATHEAD	124	24	2 215	11 923	1 808	3 710	9 502	26 010	2 992	1 868	17 044
GALLATIN	53	11	786	3 891	601	1 182	3 008	9 467	2 289	771	7 666
GARFIELD	1	-	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
GLACIER	6	1	69	(D)	53	(D)	(D)	(D)	(D)	66	(D)
GRANITE	12	1	83	336	71	122	303	560	204	38	242
HILL	12	2	146	794	86	169	370	1 527	70	182	1 742
JEFFERSON	6	1	78	(D)	54	(D)	(D)	(D)	(D)	11	(D)
JUDITH BASIN	2	-	(D)	(D)	(D)	(D)	(D)	(D)	(D)	10	64
LAKE	22	6	619	3 104	561	1 184	2 668	6 158	457	212	1 206
LEWIS AND CLARK	45	12	780	4 224	605	1 071	3 125	11 300	289	723	4 436
LIBERTY	1	-	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
LINCOLN	83	11	1 787	9 293	1 551	3 123	7 752	13 318	1 102	1 442	10 742
MCCONE	2	-	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
MADISON	2	-	(D)	(D)	(D)	(D)	(D)	(D)	(D)	6	(D)
MEAGHER	22	1	176	695	156	285	588	1 205	144	173	525
MINERAL	7	2	234	(D)	219	(D)	(D)	(D)	(D)	264	(D)
MISSOULA	92	28	3 452	18 799	2 898	5 816	15 091	37 956	6 749	2 816	22 499
MUSSELSHELL	6	-	13	42	9	18	33	92	11	12	151
PARK	23	3	231	849	180	364	669	2 120	60	416	3 308
PHILLIPS	3	-	17	95	12	26	76	162	12	(D)	(D)
PONDERA	5	-	38	157	18	40	92	173	7	16	(D)
POWDER RIVER	2	-	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
POWELL	15	2	144	791	117	242	643	1 689	348	70	356
PRAIRIE	1	-	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
RAVALLI	36	7	411	1 838	367	771	1 632	3 166	478	296	1 997
RICHLAND	11	1	182	(D)	150	(D)	(D)	(D)	(D)	196	3 762
ROOSEVELT	9	1	57	205	49	86	171	1 145	99	36	218
ROSEBUD	4	-	20	58	17	30	48	123	23	84	187
SANDERS	35	6	522	2 851	503	973	2 725	4 647	464	529	3 185
SHERIDAN	3	-	23	114	12	23	50	213	12	24	137
SILVER BOW	45	8	772	4 378	534	1 051	3 011	9 947	332	1 181	10 718
STILLWATER	9	1	42	201	40	78	198	209	40	35	235
SWEET GRASS	3	-	8	(D)	6	(D)	(D)	(D)	(D)	14	104
TETON	7	-	22	94	17	33	74	251	32	20	110
TOOLE	8	1	62	(D)	48	(D)	(D)	(D)	(D)	153	(D)
VALLEY	6	1	68	312	37	82	153	654	9	50	293
WHEATLAND	2	-	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
WIBAUX	1	-	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
YELLOWSTONE	101	22	2 501	15 485	1 766	3 581	10 146	46 270	8 145	2 655	33 518
CITIES WITH 10,000 INHABITANTS OR MORE											
ANACONDA	3	-	15	(D)	11	(D)	(D)	(D)	(D)	(D)	(D)
BILLINGS	64	14	1 301	7 477	848	1 706	4 308	15 052	666	1 269	10 671
BOZEMAN	23	6	329	1 443	204	407	943	3 482	270	292	2 759
BUTTE	36	5	491	2 596	316	588	1 663	4 915	211	619	4 840
GREAT FALLS	48	20	1 264	7 047	724	1 257	3 693	13 101	368	1 001	(D)
HAYRE	9	2	134	754	78	155	343	1 467	69	155	1 549
HELENA	27	7	382	1 896	273	458	1 287	3 077	153	238	1 830
KALISPELL	36	6	403	1 971	285	594	1 363	3 621	366	171	1 324
MISSOULA	56	13	1 227	6 535	950	1 894	4 871	13 450	799	1 096	8 005

Note: See Descriptions of Standard Metropolitan Statistical Areas at end of table 1.

Standard Notes: - Represents zero. (D) Withheld to avoid disclosing figures for individual companies. (NA) Not available. (X) Not applicable.

SOURCE: Census of Manufactures, 1963, Table 4, p. 27-6.

TABLE XIV
GENERAL STATISTICS BY INDUSTRY GROUP IN MONTANA, 1963 AND 1958

Ind. code	Industry	1963									1958		
		Establishments		All employees		Production workers			Value added by manufacture, adjusted (\$1,000)	Value of shipments (\$1,000)	Capital expenditures, new (\$1,000)	All employees (number)	Value added by manufacture, adjusted (\$1,000)
		Total (number)	With 20 employees or more (number)	Total (number)	Payroll (\$1,000)	Total (number)	Man-hours (1,000)	Wages (\$1,000)					
	ALL INDUSTRIES, TOTAL ¹	976	188	20 247	109 271	16 015	31 742	82 796	236 230	(²)	38 587	20 315	191 295
20	FOOD AND KINDRED PRODUCTS.	198	51	4 048	21 182	2 689	5 599	13 147	47 544	(²)	2 892	3 996	38 825
2011	MEAT SLAUGHTERING PLANTS	31	7	724	4 243	558	1 122	2 990	7 590	42 233	259	649	4 274
202	DAIRIES.	61	13	982	4 814	469	1 003	2 018	10 347	(²)	769	871	8 313
2026	FLUID MILK	38	11	793	4 112	341	726	1 558	8 964	28 871	705	536	5 889
204	GRAIN MILLS.	19	7	318	1 728	249	537	1 304	4 541	(²)	323	371	3 873
2041	FLOUR MILLS.	5	4	172	1 021	155	320	864	3 028	17 753	152	248	2 350
205	BAKERY PRODUCTS.	28	11	663	3 315	345	696	1 665	6 636	11 602	444	701	5 771
2051	BREAD AND RELATED PRODUCTS	28	11	663	3 315	345	696	1 665	6 636	11 602	444	701	5 771
206	SUGAR.	4	4	665	3 672	580	1 293	3 013	8 561	31 068	513	594	8 193
2063	BEEF SUGAR	4	4	665	3 672	580	1 293	3 013	8 561	31 068	513	594	8 193
208	BEVERAGES.	29	7	483	2 527	315	575	1 500	7 099	(²)	245	546	6 654
2086	BOTTLED AND CANNED SOFT DRINKS	22	4	271	1 274	139	263	536	3 806	5 693	185	291	2 577
209	MISC FOODS AND KINDRED PRODUCTS.	17	1	152	643	121	239	455	2 390	(²)	158	(D)	(D)
23	APPAREL AND RELATED PRODUCTS	2	-	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
24	LUMBER AND WOOD PRODUCTS	439	80	8 297	42 126	7 423	14 861	36 287	70 670	(²)	9 755	6 669	47 549
2411	LOGGING CAMPS AND CONTRACTORS.	230	21	1 565	7 598	1 431	2 772	6 934	16 215	36 820	2 968	1 000	6 412
242	SAWMILLS AND PLANING MILLS	175	47	5 437	27 793	4 838	9 702	23 645	44 864	(²)	5 978	4 985	36 110
243	MILLWORK AND RELATED PRODUCTS.	27	10	1 213	6 386	1 089	2 256	5 424	8 308	(²)	800	568	4 406
2431	MILLWORK PLANTS.	19	3	445	2 246	392	769	1 852	2 739	6 225	119	415	3 199
25	FURNITURE AND FIXTURES	9	1	58	(D)	52	(D)	(D)	(D)	(D)	(D)	37	249
26	PAPER AND ALLIED PRODUCTS.	2	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
27	PRINTING AND PUBLISHING.	110	16	1 517	7 825	921	1 686	4 864	12 136	(²)	465	1 889	14 021
2711	NEWSPAPERS	74	11	1 173	6 185	693	1 253	3 725	9 667	13 478	309	1 589	12 135
275	COMMERCIAL PRINTING.	26	4	283	1 423	195	403	1 051	2 174	(²)	146	251	1 506
2751	PRINTING, EXCEPT LITHOGRAPHIC.	15	2	146	737	111	210	543	1 127	1 913	75	(NA)	(NA)
2752	PRINTING, LITHOGRAPHIC	11	2	137	686	84	193	508	1 047	1 403	71	(NA)	(NA)
28	CHEMICALS AND ALLIED PRODUCTS.	16	4	278	1 690	218	442	1 242	5 231	(²)	292	891	(D)
29	PETROLEUM AND COAL PRODUCTS.	10	6	841	(D)	642	(D)	(D)	(D)	(D)	(D)	1 065	24 081
30	RUBBER AND PLASTICS PRODUCTS, NEC	2	-	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	-	-
31	LEATHER AND LEATHER PRODUCTS	1	-	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
32	STONE, CLAY, AND GLASS PRODUCTS.	68	10	858	4 764	654	1 247	3 442	11 935	(²)	12 392	698	(D)
327	CONCRETE AND PLASTER PRODUCTS.	54	6	534	2 775	400	744	1 988	6 110	(²)	501	(D)	(D)
3272	OTHER CONCRETE PRODUCTS.	11	3	174	936	142	245	706	1 839	3 191	104	(D)	(D)
3273	READY-MIXED CONCRETE	34	2	245	1 198	168	295	800	2 599	5 311	255	162	1 404
33	PRIMARY METAL INDUSTRIES	12	10	3 261	18 144	2 643	4 939	14 234	47 795	(²)	(D)	4 135	(D)
34	FABRICATED METAL PRODUCTS.	27	5	282	1 565	201	389	1 059	3 184	(²)	128	317	2 461
344	STRUCTURAL METAL PRODUCTS.	20	5	246	1 388	171	330	911	2 813	(²)	86	285	2 317
3441	FABRICATED STRUCTURAL STEEL.	6	3	106	633	77	139	433	815	2 248	26	(D)	(D)
35	MACHINERY, EXCEPT ELECTRICAL	34	-	106	546	83	167	448	944	(²)	83	108	543
37	TRANSPORTATION EQUIPMENT	9	1	76	(D)	63	(D)	(D)	(D)	(D)	(D)	53	444
38	INSTRUMENTS AND RELATED PRODUCTS	5	2	81	(D)	65	(D)	(D)	(D)	(D)	(D)	(D)	(D)
39	MISCELLANEOUS MANUFACTURING.	29	-	165	876	121	217	593	1 964	(²)	28	(D)	(D)
398	} MISCELLANEOUS MANUFACTURES	17	-	113	742	76	140	479	1 686	(²)	14	(D)	(D)
399													
--	ADMINISTRATIVE AND AUXILIARY	3	1	114	815	-	-	-	-	-	-	118	-

Standard Notes: - Represents zero. (D) Withheld to avoid disclosing figures for individual companies. (NA) Not available. (X) Not applicable.
n.e.c. Not elsewhere classified.
In order to avoid disclosing figures reported by individual companies the statistics for some industries (4-digit) and industry groups (3-digit) are not shown. Industries and industry groups showing less than 100 employees are also omitted. They

are included, however, in the appropriate 2-digit industry group line and "all industries, total."
¹The total value of shipments figures for industry groups have not been published because of extensive and unmeasurable duplication arising from shipments from one establishment to another in the same industry classification (see introduction).

SOURCE: Census of Manufactures, 1963, Table 5, p. 27-7.

State are in five industry groups--food, lumber, printing and publishing, primary metals, and petroleum.¹³

The value added by manufacturing has been growing but at a rate that is not too spectacular. The Bozeman Daily Chronicle carried the following news item on December 14, 1964:

MANUFACTURING GAINS LAG IN TREASURE STATE

A federal report indicated Montana manufacturing gains are behind other mountain states and employment in manufacturing industries has remained stable.

The report shows manufacturing activity in Montana has increased 24 per cent in five years without an increase in employment.

Figures from the Commerce Department's Bureau of the Census show Montana's value added by manufacturing was \$245 million in 1963. In 1958, the year of the previous census, the total was \$197 million.

Value added is the difference between the value of manufactured goods shipped and the cost of materials used to produce them, the report explained.

Total employment in the state's manufacturing firms has remained steady at 20,000. Of this total 16,000 were classed as production workers.

In the western mountain (states) area with slightly less than 2 per cent of the total manufacturing employment, such jobs rose 24 per cent and value added rose 50 per cent.

Although the above figures are from a preliminary report issued by the Census Bureau and vary slightly from the final report (see Tables XIII and XIV for final figures), they are illustrative of the copy that the State is receiving concerning industrial growth.

¹³In July 1965, the five groups showed the following employment: food, 4,500; lumber, 9,200; printing and publishing, 1,800; primary metals, 3,800; and petroleum, 1,300. These five groups accounted for 88 percent of the total manufacturing employment on that date.

By way of comparison with the Montana total value added by manufacturing in 1963 of \$236 million, one county--Harris--in Texas advertised in a recent issue of the Wall Street Journal that its value added by manufacture for the same year, 1963, was \$1,567 million.¹⁴ This is more than six times the value that Montana added to manufacture. Yet as humble as the Montana figure is now, it is important to keep it growing.

From Tables XIII and XIV, one can also note that manufacturing employment decreased by 68 employees in the five year period, 1958-1963. In a state like Montana, where seasonal variations in employment abound, this is not an alarming difference. Because the census figures are determined in the spring, weather variation could easily account for such a difference. But the important point is that the figure did not grow during this period. Recently, the State has been experiencing some increase in manufacturing employment. This is in line, though, with that experienced throughout the United States. The Montana State Employment Service in its monthly publication, Montana Labor Market, gives the average yearly manufacturing employment since 1963 as follows: 1964, 21,500; 1965, 22,100; 1966, 22,200. Thus, through 1966 the State has increased employment in manufacturing by 2,000 jobs since the 1963 Census of Manufactures was compiled. Some of this increase is due to expansion of employment, but most is due simply to the point in time that the figures were compiled.

In looking at Montana's industrial statistics, it can be safely said that whatever change the State has had in industry--whether it be employment,

¹⁴Wall Street Journal, July 15, 1966, p.7.

value added, or capital investment--it has been small.

Taxes

The tax structure of the State is built upon the property tax. Recently this one source has accounted for about 60 percent of the state and local revenue, with the balance coming from the income tax, corporation and personal (11%), motor fuel tax (11%), business and corporation licenses (5%), plus some miscellaneous sources (13%).

Montana relies to a greater extent on the property tax than does the entire United States as well as the eleven western states, where this revenue source amounts to less than 50 percent of the total tax collections. In Montana, the State Board of Equalization has been given the power to assure uniformity in property tax assessments throughout the State. But county assessors are the ones actually making the assessments and because this is an elective position, there tends to be variations in assessments from area to area. In fact, one tax advisory service makes this statement: "Watch out for wide variation in local practice and enforcement."¹⁵

Another anomaly of the Montana property tax is that the law specifies that the property be assessed at "full and true value." Yet the practice is to assess at 40 percent of this "full and true value." Taxable value is determined by applying a percentage against the assessed value. In the case of land, improvements, machinery (other than agricultural), and fixtures, the taxable value is 30 percent of assessed value. Thus in reality the mill

¹⁵State Tax Guide, Prentice-Hall, Inc., p. 1010c. (May 18, 1965).

levy is applied to an amount that is 12 percent of "full and true value." Inventory is taxed at approximately 13.3 percent of "full and true value."

Personal income taxes yield about 8 percent of the State's revenues. The computation of State taxable income is similar to that used for the federal income tax. The State tax rates range from 1.9 percent of the first \$1,000 of taxable income to 9.5 percent on taxable income above \$25,000. In addition, corporate income taxes yield approximately 3 percent of revenues and the tax is assessed at a flat rate of 5.5 percent of net income.

All firms with one or more employees are subject to Montana unemployment compensation laws. Actual tax rates range from 0.5 percent to 2.7 percent with the average rate paid by Montana employers about midway between the two or approximately 1.5 percent.

In addition to the above taxes, there is the other usual assortment of taxes on fuels, liquor, cigarettes, business licenses, and on mineral extraction.

Per capita taxes in Montana are high relative to other areas. The pressure on taxes to finance expanding services and to maintain adequate existing services is causing concern throughout the State. Population and per capita income are not keeping up with national averages. Thus any increase in taxes is likely to come from existing taxpayers whose tax loads are apt to go even higher. If past trends continue, the future outlook for taxes in Montana is not promising as far as the average taxpayer is concerned.

Community Government

Community government in Montana is reasonably good and typically small-townish. All but two cities in the State employ the mayor-alderman form of government; the other two employ the commission-manager form. No town in Montana exceeds 75,000 population and less than a dozen exceed 10,000. Considering the size of Montana towns, it is no wonder that highly qualified people are hard to find in community government. Yet the ones who do serve are by and large dedicated individuals.

Most communities of any size have formulated some type of community planning group centered around the governmental unit. Ordinarily their plans develop more as individual wants and wishes reflecting, in some cases, the development plan of the dominant individual on the planning group. Many, if not most, of the people serving on these groups lack essential and available knowledge of community development. Thus orderly community development leaves something to be desired in most Montana communities. In a few communities these development groups are well organized, are striving to be educated concerning community development, and are doing a reasonably good job in promoting their communities.

State Government

The state government in Montana is similar to that found in most of the other 49 states. The state legislature is bi-cameral and meets regularly for sixty-day sessions in odd numbered years. As reapportioned in 1965, the legislature consists of 55 senators and 104 representatives.

Whereas the legislature has been dominated by rural people, it is expected that future legislatures will have a substantially larger urban membership due to the reapportionment. What effect this change will have on the types of legislation proposed and passed remains to be seen. As a rule, urban people have been generally more favorable to industry than those in rural areas.

In the past, the atmosphere in the State legislature has been neither for or against industry. However, three items that have been enacted into law are important to industry and should be mentioned. The first of these occurred in 1955 when the State Planning Board was reactivated and was charged with the responsibility of conservation and development of Montana resources for the social and economic advancement of the people of the State. Although the intent was good, the legislature has not been generous in supplying it with operating funds.

The second item occurred in 1961 with the passage of legislation creating a new class of property for tax purposes. The purpose of this law was to aid in the growth and development of new industry. It created a new classification, Class 7, that allows new industry to be taxed on land, buildings, fixtures, and machinery at a rate of only 7 percent of the assessed value instead of the usual 30 percent rate. In essence, the tax mill levy is applied to only 2.8 percent of the fair market value of the property instead of the 12 percent rate that would be levied in the absence of this legislation. This benefit lasts for three years. In enacting this legislation, the Montana Legislature sets out its purpose as follows:

The legislative assembly of the state of Montana hereby declares that it is the best interests of the people of this state to encourage and stimulate the establishment of new industry within Montana. It recognizes that a new industrial plant does not reach full productivity and competitive capacity during the initial years of its operation. Since taxation of property should be related to property in proportion to its use, productivity, utility, and general setting in the economic organization of society, the purpose of this act . . . gives proper recognition to these factors and places such property in the proper class for taxation purposes.¹⁶

A third item of legislation important to industry was passed in 1965. This legislation permits Montana cities and towns to issue revenue bonds for the purchase of land, construction of buildings, and the securing of machinery and equipment for the purpose of aiding in the growth and development of industrial firms wishing to locate in Montana. Bond issuance costs and construction costs are to be considered in determining the amount of the bond issue and in setting lease payments. The lease period cannot exceed 30 years. Even though the city or county that issues the bonds is the owner, the firm leasing the facilities must pay all upkeep and taxes as though it were the owner. Several advantages accrue to the industrial firm by this arrangement, however. Even though the bonds are not backed by the taxing powers of the governmental unit but only be the credit of the company for whom they were issued, the interest on the bonds is presently free of income taxes. This means that the interest rate would be lower than if the industrial plant had issued the bonds itself.¹⁷ Another advantage

¹⁶Quoted on page 151 of Volume J, Revised Codes of Montana, Cumulative Pocket Supplement, 1963, Allen Smith Company.

¹⁷The difference in interest rates between similar rated industrial

for the industrial firm is that its capital can be used for purposes other than acquiring production facilities.¹⁸ Some firms feel that returns on real estate are low compared with those on inventory. Thus by using available funds in other than real estate, firms can frequently enhance the return on their investments.¹⁹

and state and municipal bond issues have been about 1.5 percent in recent years. Recently, agitation has been stirring in Congress to remove the tax exempt feature of these industrial revenue bonds. If these bonds become taxable for federal tax purposes, the desirability of having governmental units issue these bonds would decrease substantially. Presently the prognosis for passage of this kind of legislation would be small.

¹⁸Because the saleability of the bonds depends upon the strength of the companies for whom they were issued and not the governmental units, this would help eliminate the questionable firms. Inasmuch as the bonds are revenue rather than general obligation, the bondholders must look to the lessee of the property for repayment rather than to the governmental unit.

¹⁹Present accounting practice does not show the lease arrangement as a liability nor the leased property as an asset on the balance sheet.

Successful industrialization
is a continuous and not merely
a transitional change.

Wilbert Moore

Chapter IV

DETERRENTS AND STIMULANTS TO INDUSTRIAL GROWTH

Introduction

This chapter seeks to bring together the theory of location and the characteristics of Montana in an attempt to develop a general theory of location for Montana. One must keep in mind that any theory of location for Montana must necessarily be general rather than specific. To try to explain the location of industry entirely within the framework of location theory is next to impossible. There are so many unpredictable factors involved in the location of industry that one is prevented from making a precise selection of firms to move to any given location. Yet an examination of the theory and the environment of the proposed location can give an indication as to the future of industrial growth and serve to channel the effort and resources of industrial development groups into those areas that seem to be the most promising.

Present Montana Industry

One of the biggest deterrents to industrial growth in Montana is the lack of industry. The old saying, "It takes money to make money," can be rephrased as "it takes industry to make industry." A large industrial firm

can support many smaller or satellite firms as witness the Boeing Company in Seattle, Washington.

Montana was being made a state and was trying to transform itself from a wilderness area into something more civilized at a time when American manufacturing was already firmly established in the eastern section of the United States. New industrial development found many advantages to being located in close proximity to already established industry and to dense markets. Such advantages gave little incentive for firms to disperse, especially to the sparsely settled West. Perhaps, as some suggest, colonization of the West first instead of the East would have made this region the industrial area of the United States. However, there are reasons to believe that certain geographic factors as well as economic conditions existing in the early history of our country would have still given the East a decided preference for industrialization over the West.

Another development within industry that is working against industrial growth in Montana, and that is presently observable within Montana agriculture, is concentration. Many sectors of manufacturing that were once characterized by small cottage type firms are now dominated by a relatively small number of industrial giants. These large firms have many advantages over small firms including: economies of scale; more funds for research and promotion; more bargaining power with unions, transportation groups, and retailers; and easier access to capital markets. This economic concentration is not peculiar to Montana but is national, and even international in scope; yet this does affect Montana industry.

TABLE XV

SIZE OF MANUFACTURING ESTABLISHMENTS IN MONTANA
BY NUMBER OF EMPLOYEES, 1958 and 1963

<u>Employees</u>	<u>Manufacturing Establishments</u>			
	<u>1958</u> (Number)	<u>1963</u> (Number)	<u>1958</u> (Percent)	<u>1963</u> (Percent)
1 to 4	428	484	46.3	49.6
5 to 9	192	167	20.8	17.1
10 to 19	131	137	14.2	14.0
20 to 49	103	112	11.1	11.5
50 to 99	32	40	3.5	4.1
100 to 249	27	25	2.9	2.6
250 to 499	6	6	0.6	0.6
500 and over	<u>6</u>	<u>6</u>	<u>0.6</u>	<u>0.6</u>
Total	925	976	100.0	100.0

Montana industry is small as Table XV shows. An examination of the ownership of the few medium-sized firms in the State reveals that almost all are controlled by still larger firms located outside the State. Further, these medium-sized firms have located in Montana for the purpose of utilizing some natural or agricultural resource in the State, primarily livestock, wheat, forest timber, copper bearing ore, crude oil, plus other assorted mineral resources. That these firms have and are helping the economy of the State is without question. The point being that without the attraction of the natural and agricultural resources, Montana would have

very few firms of any size that would have located in the State. (An important exception to the above is the Anaconda Aluminum Company's plant at Columbia Falls that imports its aluminum bearing ore and is located in Montana to take advantage of low power costs.) In other words, industrial concentration has excluded Montana as an industrial site except in those few instances where it is economically feasible to locate a plant near some raw material source. The balance of Montana industry was developed to serve Montana markets and is small. It will also tend to remain small, or perhaps be eliminated by industrial concentration, unless it can tap markets outside of the State.

Demand

An analysis of industry in Montana indicates that the majority of industrial firms are in business to satisfy a demand that exists within the State. These firms that service a local clientele add little to the strength of the economic base. They are important, though, in that they are keeping resources within the State that might otherwise flow to firms in other states. An example is given to clarify this. Suppose a man in Montana paid two dollars to have his hair cut by a barber in Wyoming. The two dollars is a loss to the Montana economy and a gain to Wyoming. If the Montanan could be persuaded to have his hair cut by a Montana barber, then the two dollars would remain in Montana, at least temporarily. Now the two dollars has changed hands and has helped to put another person to work within Montana but it is the same two dollars as held by the first Montanan.

Montana has not in this process increased its money resources.

A reasonable combination of industries for Montana would be to have those supplying customers outside the State, but at the same time see that many of the demands within the State are being met by in-State firms.¹ A reservation is that unless the firms are highly integrated, the State could still have an unfavorable balance of trade owing to the situation that the aggregate purchase of raw materials outside Montana might exceed the aggregate value of finished goods sold outside Montana. With Montana's agricultural exports, some advantage should accrue to the State regardless of how integrated the producing firm might be.

Is intrastate demand being satisfied by Montana producers? The answer must be an unqualified no, nor can Montanans expect that all demand could be satisfied from Montana producers. For example, there are in the State furniture manufacturers who could expand their facilities probably tenfold or more if all Montanans would purchase their furniture needs from these sources. However, because of taste and style preferences, well-known brand names that are selling in the State, status symbols of having something different, or other reasons, not all Montanans would want to purchase their furniture from Montana producers. Large national firms with healthy promotional budgets can reach and influence many Montana homes through nationally distributed magazines or network television. It must be conceded that such advertising does have an affect on people's purchases. Thus it is

¹Best use of resources would occur, however, only if each area produced those products where it had a comparative advantage.

simply impossible to expect that Montana producers would supply all of the intrastate demand. The point, however, is that there could be demand within the State that might be tapped by in-state producers that would result in economic benefit to the State.

Markets

Regardless of what one hears from industrial development groups, the number one deterrent to industrial growth in Montana is the lack of markets within reasonable distances from the State. If one drew a circle extending six hundred miles from Lewistown, Montana, this circle would encompass less than 6 percent of the population of the United States. The same circle extending six hundred miles out from Chicago, Illinois, would encompass more than 40 percent of the United States population. If transportation cost was proportional to distance, which it is not, then a firm in Chicago could reach seven times more population than the firm in Lewistown for the same transportation cost. Because transportation cost per ton declines somewhat with distance, the Chicago advantage is narrowed. Nevertheless, there is still considerable transportation cost advantage accruing to the Chicago based firm.

Fortunately not all markets are based on population. Fertilizer, for example, is a commodity whose usage is not based on population but upon usable agricultural land and to some extent upon the amount of garden and lawn space in urban areas. Thus, a fertilizer plant in Montana could serve a fairly large market area within the State and surrounding areas. Another

example mentioned by Samuel Chapman, Director of the State Planning and Development Commission, is that of horseshoes. These are presently shipped from the East to shoe Montana horses. Perhaps the raw material for these horseshoes could be imported from nearby sources in Washington or Utah and then forged and shaped in Montana. Throughout Montana and surrounding areas there probably exists a more dense market for horseshoes than in many areas of the east where they are presently made.

It must be conceded that the market for human consumption goods is the biggest and that Montana is away from the mainstream of this market. This is not to imply that Montana cannot compete in the production of any human consumption good. Where economies of scale are non-existent or limited, where a large weight gain occurs in production, or where the State has an advantage due to the location of some basic resource (for example, timber), then industry could develop to supply this market segment. But another segment of the market that appears to be promising for industrial development in the State is in the production of goods related to agriculture or timber. The field of agricultural chemicals has both an active and a latent market in Montana and surrounding states that could be tapped. Presently the active market in this area is being largely supplied by out-of-state manufacturing firms.

As long as an industrial firm tries to locate where it can produce for the lowest cost and cover the biggest market area, Montana is in trouble except in those areas where it has a large intrastate demand. From this aspect only, Montana must put her industrial development dollars into

ferreting out those areas where demand in Montana and surrounding areas is higher than, or on a par with, other areas of the same size.

Competition

Not only must demand exist for a firm to operate, but the new firm must also be able to compete with existing firms covering that market area. A steel firm in Montana would probably not succeed for two reasons: demand is small in both the immediate and adjacent areas that would preclude an economically sized operation, and firms presently supplying the Montana market would not tolerate an undercutting of price nor a destruction of some of their available markets as present capacity is more than sufficient to supply the needs of this area.

The Federal Government has at times subsidized business (for example, the airline business) to get it going. Perhaps the State of Montana should subsidize certain industrial firms that offer promise in order to help them over the hurdle for an initial period of, say, not to exceed five years. In selecting firms to subsidize, the State should be discriminating in that it selects only those that, at an economical level of operations, can supply demand that exists within the State and adjacent thereto that is presently being filled by out-of-state firms. There should be reasonable expectation that the long-run offering price can be competitive with existing firms. Permanent subsidization should not be permitted and the subsidy period should be only long enough to convince competitors that price competition will not be destructive to the incoming firm. Such a plan would allow new

firms to meet the price of competitors and at the same time stress service and quality to the buying public.

Summary of Demand

Where possible, industrial firms in Montana should attempt to satisfy internal demand before being concerned with external demand. Some processes (for example, copper refining) have a very small demand within the State but are successful because of the shortage of the basic raw materials in areas where the demand is high. Those firms competing for a market who do not have a raw materials advantage must, of necessity, supply near-by demand before trying to tap the more removed demand. If they are unable to tap that demand close to the source of their operation, chances are that the firm is not going to be successful. Intelligent market research on demand characteristics and demand possibilities could have saved the investment of many Montana firms.

Selective help for some firms in their infant stage could, perhaps, help them through their initial period and bring both immediate and long-run economic benefit to the State.

Cost Factors

Economies of Scale

If one postulates that demand is present in or near Montana, this does not necessarily mean that a Montana based firm should operate to fill that demand. One must examine the cost structure of the firm in relation to its demand in order to determine if production is warranted. An example would,

perhaps, clarify this.

Suppose that two firms, each producing a different and non-competitive product, are considering a Montana location. Market research has indicated that a demand of 100,000 units exists within the State and immediate surrounding areas for the product of each firm and that this market is willing to pay \$2 for the product. Firm 1 estimates its variable costs (those expenses that are relatively constant per unit of product) at \$1 per unit of product and estimates its fixed costs (those expenses whose total remains relatively constant over increasing units of output) at \$50,000. Firm 1 would break-even (no profit or loss) with sales of 50,000 units; whereas, if sales reached 100,000 units, the firm would have a profit of \$50,000. (Sales revenue, $100,000 @ \$2 = \$200,000$, less variable costs, $100,000 @ \$1 = \$100,000$, and fixed costs, \$50,000, for a net profit of \$50,000.)

Firm 2 has variable costs that are the same as those for firm 1 (\$1 per unit) but its fixed costs are substantially higher and amount to \$200,000 owing to the situation that firm 2 must make a substantially larger capital contribution for production machinery than firm 1. Under these conditions, firm 2 could not operate within Montana as it would lose \$100,000 per year. (Sales revenue, $100,000 @ \$2 = \$200,000$, less variable costs, $100,000 @ \$1 = \$100,000$, and fixed costs, \$200,000, for a net loss of \$100,000.)

How does this relate to Montana? In essence, it is the way that industry has reacted in recent years. Competition, as well as the increased cost of some variable costs (notably labor), has forced many individual firms to innovate and accept new production and distribution technology. Much of

this innovation has been in the area of capital equipment (to automate the production, distribution, and record keeping of the business). This investment has increased the fixed costs within the firm (and hopefully, improved or maintained its competitive position within its industry). The result has been that greater production is necessary for the firm to be profitable. Thus fewer firms are needed to satisfy existing demand if the firms are to be profitable. To the extent that this trend away from the "cottage-type industries" and toward larger plants has taken place,² it would have adversely affected the industrial development of Montana except in the processing of raw materials where abundant and economical in-State sources (such as lumber and copper) exist and are being utilized in manufacturing processes. Firms that have low production break-even points perhaps could be attracted to a low population density state such as Montana, but those firms that must have a high volume to break-even would be at a disadvantage in a Montana location because of the transportation cost incurred to reach the required population. (Again, except for firms that can economically utilize some raw material presently found within the State.)

A priori, one would expect then that industrial development within Montana would be of two major types: small cottage-type industries where economies of scale are small or non-existent, or industries having scale

²An indication of the extent is to be found in an examination of the following manufacturing statistics: production employment, capital investment on new equipment, and value added to manufactures. In the period 1954 to 1963, production employment decreased about 1 percent whereas value added increased 64 percent and capital expenditures increased 45 percent.

economies but of the type that are raw materials oriented. A look at the Montana statistics on number and size of firms indicates that the above is true; also these statistics point out that opportunities for cottage-type industries are decreasing for most industry groups except lumber (and this is primarily an increase in logging and sawmills).

Economies of Agglomeration

Are there cost advantages to being located in proximity to other firms? Obviously, yes. How else can one account for the fact that over 40 percent of the value added to manufactures is added in just five states--New York, Pennsylvania, Ohio, Michigan, and Illinois. These states are not more highly endowed with natural resources than some others, but by fortune and luck or for other reasons, they got their start and other firms have found it advantageous to locate in those areas.

Do such advantages still accrue to firms in the 1960's? Again, the answer is yes, but now with qualifications. Table XVI brings out some interesting developments that are taking place in our industrial maze. For example, the growth areas in value added to manufactures are now located in the southern and western border states--Virginia down and around to Washington, except Oregon and South Carolina--and in those states immediately adjacent to them. The five heavily industrialized states, mentioned above, have decreased their percentage contribution to value added--46.88 percent in 1947 to 40.03 percent in 1963. The upper-midwest states (including Montana) have exhibited little change during this same period. There are

TABLE XVI
 INDEX BY STATE OF RELATIVE GROWTH IN VALUE ADDED
 AND PRODUCTION EMPLOYMENT*
 (1947 = 100)

State	Value Added by Manufactures				Production Employment			
	1947	1954	1958	1963	1947	1954	1958	1963
Alabama	100	96	106	111	100	97	104	104
Arizona	100	145	227	300	100	178	289	356
Arkansas	100	108	117	139	100	112	131	159
California	100	137	159	166	100	140	162	166
Colorado	100	103	141	159	100	105	127	141
Connecticut	100	96	89	92	100	95	88	87
Delaware	100	120	120	136	100	100	104	100
Florida	100	145	213	262	100	144	195	222
Georgia	100	99	109	123	100	111	119	126
Idaho	100	107	120	127	100	133	158	167
Illinois	100	92	92	85	100	91	90	88
Indiana	100	99	97	101	100	97	91	99
Iowa	100	118	132	132	100	105	111	111
Kansas	100	145	134	123	100	158	148	138
Kentucky	100	106	125	133	100	103	115	124
Louisiana	100	109	109	108	100	98	95	91
Maine	100	83	76	71	100	97	95	91
Maryland	100	105	110	102	100	100	106	98
Massachusetts	100	82	80	74	100	86	85	78
Michigan	100	106	85	97	100	95	76	82
Minnesota	100	99	106	107	100	100	105	111
Mississippi	100	98	110	129	100	110	134	151
Missouri	100	107	106	103	100	102	103	100
Montana	100	100	117	100	100	109	127	118
Nebraska	100	97	109	111	100	113	119	123
Nevada	100	250	250	300	100	200	150	200
New Hampshire	100	85	85	80	100	95	100	100
New Jersey	100	96	94	92	100	97	96	93
New Mexico	100	150	200	200	100	120	160	160
New York	100	93	87	78	100	99	94	85
North Carolina	100	85	98	107	100	104	114	124
North Dakota	100	75	100	100	100	100	133	133
Ohio	100	101	95	94	100	96	89	87
Oklahoma	100	109	111	111	100	132	135	113
Oregon	100	97	95	89	100	121	123	125
Pennsylvania	100	91	87	78	100	90	87	82
Rhode Island	100	83	90	103	100	104	113	122
South Carolina	100	67	61	56	100	78	72	69
South Dakota	100	100	114	100	100	100	114	114
Tennessee	100	111	121	133	100	107	117	135
Texas	100	128	153	158	100	125	145	146
Utah	100	141	176	218	100	106	135	159
Vermont	100	95	85	80	100	96	88	84
Virginia	100	99	106	113	100	103	111	123
Washington	100	112	130	134	100	115	130	120
West Virginia	100	94	101	110	100	87	86	81
Wisconsin	100	93	92	91	100	93	95	96
Wyoming	100	80	80	80	100	100	100	100
District of Columbia	100	100	108	100	100	125	125	113

*A percentage for each of the four years was computed by dividing the total for each state by the aggregate of all of the continental United States and the District of Columbia. The percentages thus obtained for the four years were divided by the 1947 percentage to arrive at each year's index.

SOURCE: Basic data derived from Table 2, General and Comparative Statistics, Census of Manufactures, 1963.

numerous factors to account for this movement, chief of these would be the trend to move to a more moderate climate, population changes, and, especially in the southeastern area, the desire to obtain low cost labor.

Lest anyone get the impression that agglomeration is no longer important, it should be emphasized that even though there is some spreading out of firms into other areas, it is mostly a case of forming new areas in which to agglomerate--for example, Seattle, Los Angeles, Denver, and Phoenix. In most cases it has been a large firm or industry complex that has formed the nucleus to attract other firms.

Montana has had limited benefit from agglomeration. A case worth mentioning, and there are others, is that of Chemtron Corporation, that built an oxygen plant in East Helena for the purpose of supplying the needs of the American Smelting and Refining Company plant in that area. However, the State, being composed primarily of small firms, has little that can be used to form the nucleus for agglomeration to work. The best hope at the present time lies in lumber, copper, aluminum, and possibly petroleum. If past events are an indication for the future, Montana will not realize any great agglomeration advantages from these three areas. Recreation or a Federal Government decree could be the "ace in the hole" that could change these agglomerating tendencies, however.

Transportation

Without doubt transportation is a major deterrent to industrial growth in Montana. If a firm occupied a monopoly position, then transportation

cost would be no problem as this cost could be passed on to the user of its product. Unfortunately, most of the products being produced in Montana are in competition with others being produced elsewhere and must be delivered to the consumer at a price competitive with other products.

What does a Montana firm expect from a transportation system? As mentioned in Chapter 2, it expects its transportation costs to be such that they will not seriously disadvantage the firm, in relation to others, in reaching its markets and that the service on incoming raw materials and outgoing finished products will be reasonably efficient. Perhaps an actual but simplified case will point out the type of problem that the State faces. A firm investigated Montana but found that its investment would soar because of the transportation system. By locating in the East, the firm could have one-day service from its suppliers, have almost no risk of production shortages, and only a small amount of capital tied up in inventories. In Montana, the raw material needs would have to be anticipated for a longer period, as the suppliers were all located in the East, with the result that the risk of production shortages increased. In addition, substantially larger quantities would have to be ordered in each shipment in a Montana location to take advantage of a transportation cost break, thus tying up a substantial amount of capital in inventories. Although this example oversimplifies the actual problem in the State with regard to transportation cost, it is, nevertheless, indicative of the type of problem found.

A review of Figure 6 (Railroads), shows that the State has reasonably good east-west railroad transportation. The railroad system to the north

is limited by the U. S. - Canadian border; to the south, railroad service leaves something to be desired. Perhaps a word should be mentioned about changing attitudes on the part of railroads toward shipments. Railroads have found that LCL (less than car load) shipments are not economical under present rate structures. As a result, they have been trying to discourage LCL quantities by imposing substantially higher rates on these small shipments. This trend would indicate that perhaps railroads may be unavailable as a source of transportation to the small producer; a penalty being imposed, if you will; for being small. Such a trend would, of course, lead to a greater development of the trucking system to handle the many small firms existing in Montana that would have LCL shipments, providing truckers continue to find that LCL shipments are profitable. If neither trains nor trucks are interested in small shipments, then transportation cost for small firms would increase and further limit market areas.

As a rule, industrial growth occurs at or near the point where the transportation systems converge. Looking at the Montana transportation network (Figures 6, 7, and 8) indicates that industrial growth would seem to have the best chance of success in approximately three locations: Great Falls, Butte, and Billings. These cities have both north-south and east-west connections with all forms of transportation. That these areas have over 20 percent of the manufacturing establishments and add over 40 percent of the value to manufacture lends proof to this statement. However, in a raw material processing state such as Montana, one finds industrial activity occurring frequently at the site of the raw material resource--such as the

lumbering activity in Lincoln, Flathead, and Missoula counties--and away from the transportation centers. Hence a summary of this paragraph would be that those firms not raw material oriented would be influenced to gravitate their plant sites toward the loci of the Montana transportation network.

A statement that one hears around Montana is that as soon as the State finishes its interstate highway system then this will open new avenues of industrial expansion within the State. That such thinking does not offer much hope of bearing fruit is obvious when one looks at the situation that is occurring in the rural communities throughout the State. As better roads have been developed, rural business goes to the larger cities with the result that many rural retail stores have closed their doors. Would not the same thing happen to Montana industry? This is a real possibility. Before leaving this topic a quote given over 30 years ago is pertinent: ". . . merchants would do well, instead of organizing improvement clubs and booster associations to better the roads, to make transportation as difficult as possible."³ It seems perfectly clear that the better our transportation network becomes, the less becomes the need for cottage-type industry--the backbone of Montana industry.

Another statement heard during a transportation seminar is worth repeating and elaboration. The statement, made by a representative of one of the transportation carriers located in Montana, was, in effect, that if Montana was a consuming state where carriers brought in more than they took

³Harold Hotelling, "Stability in Competition," Economic Journal, 1929, p. 50.

out, then shippers within the State could exert some pressure to obtain back haul rates; however, because Montana is a head haul state, they are in less of a position to bargain effectively for rates. This means that relatively empty units come into Montana to be loaded with Montana goods--primarily wheat, cattle, and lumber--for shipment outside the State. A Montana carrier would like to try to pass along to the shipper as much of the cost of returning the empty unit as he would the cost of sending out the full unit. Another implication inherent in the statement by the transportation representative is perhaps more important to industrial growth in Montana. Suppose shippers outside of Montana were aware that empty transportation units were returning to Montana. Would not they be in a good position to obtain back haul rates?⁴ To the extent that these goods could have been produced competitively in Montana except for transportation cost, then such a pricing structure would impede Montana's industrial growth.

Because Montana is not located near industrial areas, chances are that any industry locating in Montana would have to ship most of its capital investment and probably most of its raw materials (except where the raw material--such as lumber--is located in the State) over long distances. This added cost plus the cost of reaching the finished goods market would have its effect on the type of industries that would locate in the State. The future of industry in Montana is not, then, one of assembling components shipped into the state but rather of manufacturing from material found

⁴Most state regulatory agencies discourage back haul pricing but ample proof exists that some back haul rates are permitted.

within the State.

Labor

"Most Montana labor is not only competitive on a rate basis, but it is more than competitive on a productivity basis."⁵ If this statement is true, then Montana should appeal to those firms where labor is an important cost of production.

In an attempt to determine the validity of the above statement, selected statistics were compiled from the 1958 and 1963 Census of Manufactures for each of the contiguous states within the United States. From these statistics, hourly earnings were computed for the major industrial groups found within Montana. (The nine industry groups in Tables XVII and XVIII account for over 90 percent of the production workers in Montana.) The hourly earnings in each of these industrial groups were then compared between states with Montana being the norm or 100 percent figure. Table XVII gives the results for 1963. Table XVIII summarizes the information found in Table XVII plus the statistics for 1958 by giving the ranking of Montana in relation to the other states. Table XVIII discloses that in only one industry group--primary metals--was Montana labor receiving lower wages than the majority of states where information was available. This indicates that production employees in industries other than primary metals are being paid more, on an average, in Montana, than are employees in most of the other states.

⁵From an unnumbered pamphlet entitled "In Montana," published by the Montana State Planning Board, Helena, Montana.

TABLE XVII
 PERCENTAGE COMPARISON OF PER HOUR EARNINGS FOR PRODUCTION WORKERS
 BETWEEN MONTANA AND OTHER CONTINENTAL STATES, SELECTED
 INDUSTRIAL GROUPS AND ALL INDUSTRY, 1963
 (MONTANA = 100%)

	Standard Industrial Code Number									State Average
	20*	24	27	28	32	33	34	35	39	
Montana	\$2.35 100%	\$2.14 100%	\$2.88 100%	\$2.81 100%	\$2.76 100%	\$2.88 100%	\$2.72 100%	\$2.63 100%	\$2.73 100%	\$2.61 100%
Alabama	69	51	89	90	76	112	88	83	58	82
Arizona	96	96	101	89	99	111	88	93	87	104
Arkansas	54	87	74	71	76	93	68	72	59	66
California	115	113	118	105	105	109	105	112	84	110
Colorado	106	72	121	97	93	113	100	107	69	110
Connecticut	104	87	103	98	96	102	89	105	89	100
Delaware	72	63	114	D	80	105	102	114	148	99
Florida	73	86	88	87	69	77	79	86	66	30
Georgia	71	55	88	74	69	79	75	79	63	71
Idaho	83	105	96	111	89	D	94	95	64	92
Illinois	112	89	113	98	97	114	99	112	80	104
Indiana	102	77	97	105	90	119	97	107	88	107
Iowa	121	88	92	95	88	102	89	112	71	103
Kansas	111	76	79	101	94	D	89	85	74	100
Kentucky	101	63	94	115	81	115	94	111	74	90
Louisiana	79	60	89	118	88	102	95	88	62	94
Maine	72	69	80	67	74	71	96	31	53	76
Maryland	33	68	96	92	92	119	99	99	76	98
Massachusetts	94	84	96	98	100	92	90	104	73	90
Michigan	106	78	109	117	100	115	101	121	83	118
Minnesota	113	84	100	94	97	106	96	100	74	100
Mississippi	66	66	69	75	67	71	63	72	56	66
Missouri	114	65	99	97	99	101	98	101	68	95
Nebraska	109	79	85	89	78	93	84	83	62	90
Nevada	115	111	92	116	121	D	112	103	D	115
New Hampshire	83	68	87	79	78	74	74	86	66	77
New Jersey	114	86	104	108	95	102	100	109	73	101
New Mexico	78	80	92	112	83	D	77	93	D	87
New York	108	87	110	96	101	110	92	111	72	97
North Carolina	66	55	77	79	63	77	70	72	55	66
North Dakota	84	69	93	D	74	D	D	76	58	84
Ohio	104	80	102	105	98	117	102	112	81	112
Oklahoma	81	64	81	87	86	89	84	90	71	74
Oregon	100	114	93	102	107	D	108	111	81	105
Pennsylvania	97	73	102	99	97	117	102	108	80	98
Rhode Island	98	76	102	82	90	84	79	97	65	79
South Carolina	64	55	75	92	73	75	67	80	59	67
South Dakota	114	73	79	D	74	D	D	84	60	92
Tennessee	79	57	87	102	83	99	81	91	60	75
Texas	77	63	87	120	70	98	84	91	65	90
Utah	92	79	93	99	95	D	103	103	78	104
Vermont	87	68	88	74	81	76	77	99	62	83
Virginia	72	57	83	97	71	88	79	82	72	79
Washington	112	114	115	127	113	118	121	120	92	114
West Virginia	77	59	65	120	94	130	89	100	71	105
Wisconsin	100	74	100	95	94	105	93	111	76	102
Wyoming	83	87	88	125	96	D	77	84	D	104

*See Table XVIII for the name of the industry for each SIC number. D - Data not available

SOURCE: Basic data derived from Table 5, Area Statistics, Census of Manufactures, 1963.

TABLE XVIII

MONTANA'S RANKING OF HOURLY EARNINGS FOR PRODUCTION WORKERS WITH OTHER
CONTINENTAL STATES, ALL INDUSTRY AND FOR SELECTED INDUSTRIAL GROUPS,
1963 AND 1958

SIC Number	Name of Industry	States With Higher Hourly Earnings		States With Lower Hourly Earnings		States With Same Hourly Earnings		Hourly Earnings Not Available	
		1963 (Number)	1958 (Number)	1963 (Number)	1958 (Number)	1963 (Number)	1958 (Number)	1963 (Number)	1958 (Number)
20	Food and Kindred Products	19	20	27	27	1	0	0	0
24	Lumber and Wood Products	5	5	42	42	0	0	0	0
27	Printing and Publishing	13	1	34	46	0	0	0	0
28	Chemicals and Allied Products	17	D	27	D	0	D	3	D
32	Stone, Clay, and Glass Products	5	D	42	D	0	D	0	D
33	Primary Metals	22	D	16	D	0	D	9	D
34	Fabricated Metal Products	9	11	36	35	0	1	2	0
35	Machinery, Except Electrical	20	18	27	26	0	1	0	2
39	Miscellaneous Manufactures	0	6	44	30	0	0	3	11
	All Industry	17	12	28	34	2	1	0	0

D - Data not available

Tables XIX and XX compare productivity (as measured by sales per dollar of production labor) for selected industrial groups between Montana and the rest of the contiguous states. Table XIX shows the comparison with Montana and Table XX shows how Montana ranks among the states. Information was not available for the same industrial groups as those used in Tables XVII and XVIII; therefore, major Montana subgroups were used for this comparison.⁶ Among the six industrial groups in Tables XIX and XX, only in the logging camps and contractors group was productivity in Montana higher than in the majority of states where information could be found. In four of the groups (meat slaughtering, fluid milk, millwork, and fabricated structural steel), the evidence indicates that not only is productivity in Montana lower than the average state, but that Montana is getting dangerously near the bottom of the rankings. From such information as above, one cannot conclude that industry would reap benefits from either low labor cost or high productivity by locating in Montana.

From the theory of location as discussed in Chapter 2, one finds that as adequate labor supply near a proposed plant is important. However, in Chapter 3 it was noted that Montana does not have a surplus of labor, except possibly some female labor that could be attracted into the labor market. Does this mean then that industry would not be attracted to Montana because there is no surplus of labor? Not necessarily. One has to be

⁶Some major sub-groups were omitted because of the lack of available information. For example, industry 2063 (beet sugar) was included but the only state where information could be found was Montana.

TABLE XIX
 COMPARISON OF PRODUCTIVITY¹ BETWEEN MONTANA AND OTHER
 CONTINENTAL STATES FOR SELECTED INDUSTRIAL GROUPS, 1963
 (MONTANA = 100%)

State	Standard Industrial Code Number					
	2011 ²	2026	2041	2411	2431	3441
Montana	\$14.12 100%	\$18.53 100%	\$20.55 100%	\$5.31 100%	\$3.36 100%	\$5.19 100%
Alabama	107	122	D	83	230	92
Arizona	112	85	D	77	168	78
Arkansas	123	127	D	92	232	191
California	163	103	126	93	152	97
Colorado	146	109	D	75	96	90
Connecticut	93	145	D	D	127	131
Delaware	D	D	D	96	D	D
Florida	133	145	78	79	149	122
Georgia	108	D	D	82	168	82
Idaho	150	111	66	76	151	131
Illinois	104	88	99	85	148	96
Indiana	85	104	115	D	206	103
Iowa	101	115	117	D	132	148
Kansas	88	107	129	D	105	112
Kentucky	89	105	83	78	D	94
Louisiana	125	138	D	102	185	144
Maine	D	D	D	76	D	159
Maryland	81	127	D	85	175	125
Massachusetts	209	128	D	D	155	95
Michigan	158	104	D	69	190	120
Minnesota	78	102	127	73	183	112
Mississippi	116	115	D	92	154	174
Missouri	99	98	129	84	153	132
Nebraska	110	111	D	D	155	200
Nevada	D	93	D	D	D	D
New Hampshire	D	D	D	119	156	D
New Jersey	148	85	D	D	166	94
New Mexico	146	110	D	60	157	D
New York	94	98	104	80	151	92
North Carolina	111	135	86	82	196	151
North Dakota	D	101	D	D	D	D
Ohio	97	101	148	91	196	110
Oklahoma	92	119	D	D	157	130
Oregon	100	108	D	92	149	122
Pennsylvania	110	90	79	88	170	80
Rhode Island	D	111	D	D	96	99
South Carolina	98	D	85	71	D	165
South Dakota	D	132	D	D	D	D
Tennessee	105	123	D	86	D	155
Texas	119	149	108	85	165	103
Utah	108	133	115	D	D	119
Vermont	D	127	D	74	D	D
Virginia	97	110	96	77	194	130
Washington	110	77	87	83	125	79
West Virginia	85	96	D	76	D	D
Wisconsin	86	108	D	84	133	147
Wyoming	D	109	D	67	D	D

¹ Productivity obtained by dividing production labor cost into value of shipments.

² See Table XX for the name of the industry for each SIC number. D - Data not available

SOURCE: Basic data derived from Table 5, Area Statistics, Census of Manufactures, 1963.

TABLE XX

PRODUCTIVITY RANKING OF MONTANA WITH OTHER CONTINENTAL STATES FOR SELECTED INDUSTRIAL GROUPS, 1963

<u>SIC Number</u>	<u>Name of Industry</u>	<u>States With Higher Productivity (Number)</u>	<u>States With Lower Productivity (Number)</u>	<u>Information Not Available (Number)</u>
2011	Meat Slaughtering Plants	23	15	9
2026	Fluid Milk	33	9	5
2041	Flour Mills	10	9	28
2411	Logging Camps and Contractors	2	32	13
2431	Millwork Plants	33	2	12
3441	Fabricated Structural Steel	25	13	9

realistic and from past trends the size of industry attracted to the State would be small and would employ very few workers.⁷ Industry of this size would probably have little difficulty in securing labor and their impact on employment in most communities would be negligible. A situation that tends to discount the importance of nearby labor supply is frequently observable in construction work. Here, a labor influx is noted that generally satisfies existing demand. For example, the construction of Yellowtail Dam

⁷The age-old chicken and egg paradox (which came first) seems to exist here. Does large industry stay out of Montana because of the lack of labor or is it a case where only small industry is attracted to the State because of limited opportunities? Some feel that if the State had a large supply of the right kind of labor it could easily attract industry. What the State would do with this unemployed labor force of the right kind while waiting for industry that may never come has not been answered. Nevertheless it is an interesting speculation.

brought many hundreds of workers flowing into Montana. A caution here is that construction workers are mobile and there is good pay in construction work which is an enticement to draw workers to the construction site. In industry, the lure of high pay to obtain the required labor supply may be an important factor to keep industry out of the State as this would drive their costs up and make a plant uneconomical. Perhaps the present high wage in Montana industry (relative to other states) was the result of trying to entice labor into industry. However, the fact that labor has gravitated to Montana when opportunities exist and when the price was right is important when selling industry on the adequacy of the Montana labor supply.

Stability of labor is also important in most industrial plants. As mentioned in Chapter 2, it is one of the factors that a plant must examine in selecting a location. In Montana, stability of labor is influenced in two ways which have opposite effects on labor stability. Because good paying jobs are somewhat difficult to find in the State, this tends to weld employees to their jobs. The other, but opposite, effect is that because Montana industry is small, employees frequently do not have the fringe benefits--pensions and insurance--to keep them attached to one employer. Thus they are in a position to be bought out by other firms operating in the area. Statistics published by the Montana State Employment Service seem to indicate that labor is reasonably stable in Montana and as such this should not be a deterrent to industrial growth in the State.

Another deterrent that should be mentioned is that of union-management labor disputes. These disputes are not widespread in Montana, but they seem

to occur far too frequently in the Butte and Anaconda areas. On at least two occasions, stories have been related by industrial development experts of firms that investigated but spurned a Butte location because of the labor unrest in that area. As a possible transportation hub in Montana, the reputation gained by Butte can only serve as a deterrent to industrial growth in that area. Fortunately, labor management disputes in the rest of the State are minimal and should not serve as a deterrent to industrial growth.

Utilities

One of the basic attractions in Montana that has been mentioned as a lure to potential industry is utilities--water, power, and fuel. Although abundant low cost utilities do not exist in every area of the State, they are found in many areas where industry is likely to locate. Unfortunately for Montana the cost of utilities is so small in most manufacturing processes that they lose significance as determinants of plant location. Table XXI gives the cost of labor, material, and utilities (fuels consumed and purchased electric energy) as a percentage of the total value of goods produced by each 2-digit SIC (Standard Industrial Classification) group. In only 9 of the 21 SIC groups does the cost of utilities exceed 1 percent of the total value of shipments. In none of the groups does this cost exceed 5 percent of the total value. By way of comparison, a 10 percent increase in the cost of labor would add more cost than that now existing for the total cost of utilities in 16 of the 21 SIC groups listed in Table XXI. The 5

TABLE XXI

LABOR, MATERIAL, AND UTILITIES AS A PERCENTAGE OF
TOTAL VALUE OF SHIPMENTS BY INDUSTRY GROUP, 1963

<u>Industry Group</u>	<u>Labor</u> (Percent)	<u>Material</u> (Percent)	<u>Utilities*</u> (Percent)
Food and Kindred Products	13	68	.86
Tobacco Manufactures	7	63	.27
Textile Mill Products	22	61	1.43
Apparel and Related Products	25	55	.36
Lumber and Wood Products	26	56	1.99
Furniture and Fixtures	30	48	.78
Paper and Allied Products	21	55	2.88
Printing and Publishing	34	36	.56
Chemicals and Allied Products	16	45	3.18
Petroleum and Coal Products	7	79	2.24
Rubber and Plastic Products	26	49	1.41
Leather and Leather Products	29	51	.68
Stone, Clay, and Glass Products	26	43	4.69
Primary Metal Industries	22	57	3.94
Fabricated Metal Products	28	49	1.05
Machinery, Except Electrical	31	44	.85
Electrical Machinery	31	43	.73
Transportation Equipment	21	59	.57
Instruments and Related Products	32	35	.66
Miscellaneous Manufacturing	28	46	.74
Ordnance and Accessories	41	40	.62

*Fuel consumed and purchased electric energy.

SOURCE: Computed from statistics found in Table 5, Industry Statistics,
U. S. Bureau of the Census, Census of Manufactures, 1963, pp. 69-71.

groups where the above statement would not apply are those whose cost of utilities exceeds 2 percent of the total value of shipments. In none of the industry groups listed in Table XXI does the cost of utilities exceed the cost of labor or material.

By further analysis of the 2-digit SIC groups into 4-digit ones, it is possible to generate a little more enthusiasm toward utilities as a location determinant. Extreme optimism is not warranted, however, because in only a few industry groups could utilities become an important factor of location. Table XXII gives those 4-digit industries where power and fuel exceed 5 percent of the total value of shipments. Comparing utility and labor cost, in only ten of the nineteen groups in Table XXII does utility cost exceed 25 percent of labor cost; in only two groups (3241 and 3334) does utility cost approximate labor cost.

From the evidence, it must be concluded that the availability of utilities (fuel and power) would not be a deterrent to plant location, but at the same time low cost utilities would also not be an important stimulant to plant location except in possibly two 4-digit industry groups--hydraulic cement and primary aluminum. Both of these groups have limited potential growth in Montana due to the absence of markets within reasonable distances.

Water, another utility, has a cost that is also an insignificant part of total costs. The availability of water, however, is important in some industrial processes. Because Montana is a surplus water state, will its water be a sufficient attraction to bring industry to the State? The answer must obviously be that it is not, for as one looks at Montana industry

TABLE XXII

FOUR DIGIT INDUSTRY GROUPS WITH UTILITY COSTS EXCEEDING
FIVE PERCENT OF TOTAL VALUE OF SHIPMENTS, 1963

<u>Industry Group</u>	<u>Percentage of Total Value of Shipments¹</u>			<u>Plants in Montana²</u> (Number)
	<u>Utilities</u> (Percent)	<u>Labor</u> (Percent)	<u>Material</u> (Percent)	
2812-Alkalies and Chlorine	13	22	40	0
2813-Industrial Gases	10	15	39	6
3031-Reclaimed Rubber	5	28	44	0
3211-Flat Glass	5	31	34	0
3221-Glass Containers	6	33	39	0
3229-Pressed and Blown Glass, n.e.c.	5	22	27	0
3241-Cement, Hydraulic	16	19	33	2
3251-Brick and Structural Tile	13	40	33	2
3255-Clay Refractories	8	33	39	0
3259-Structural Clay Products, n.e.c.	10	37	33	0
3274-Lime	16	24	42	0
3295-Minerals, Ground or Treated	5	20	50	39
3312-Blast Furnaces and Steel Mills	5	22	55	0
3313-Electrometallurgical Products	11	18	63	0
3322-Malleable Iron Foundries	5	44	36	0
3333-Primary Zinc	7	17	62	1
3334-Primary Aluminum	12	13	52	1
3399-Primary Metal Industries, n.e.c.	5	33	33	0
3717-Motor Vehicles and Parts	5	14	66	0

SOURCES: ¹ Computed from statistics found in Table 3, Detailed Statistics, U. S. Bureau of the Census, Census of Manufactures, 1963.

² 1965-1966 Montana Directory of Manufacturers and Buyers Guide, State Planning Board, Helena, Montana.

it becomes apparent that few, if any, plants have been attracted to the State because of water. A few firms have selected their particular locations because of the availability of water, but it is doubtful that the general area where these plants operate was selected because of water. For example, the pulp mill at Missoula was no doubt located in that area because of the availability of the main ingredient--wood. But having selected the general area for the plant, it is also likely that the particular site was selected because of the availability of water.⁸

Water, although important in some production processes, appears to be a secondary factor of location rather than a primary one. Like fuel and power, the lack of water would tend to inhibit industrial growth; however, the availability of water would seem to have little effect toward stimulating industrial growth.

State Taxes

State taxes, like utilities, normally are not a major cost of operations. Professor William V. Williams analyzed tax differences and found that tax differences between states are quite wide on the average, but that even in the highest state, tax burdens approximate only 2 percent of the value of shipments. Further, Williams felt that inter-state variations for

⁸Nelson estimated that a pulp mill with a daily capacity of 200 tons would require from 7 to 18 million gallons of water per day to dilute its wastes. (Clarence W. Nelson, op. cit., p. 46.) Technological innovations can and have reduced this water requirement. The pulp mill in Missoula is now producing about 900 tons per day at a water requirement of approximately 18 million gallons per day. This is a substantial reduction since Nelson compiled his statistics.

other cost items, such as transportation and labor, are so large in most cases that even a major change in a state's tax structure would not substantially change a state's total share of national manufacturing activity.⁹

Yaseen concluded from his study of state taxes that "few industries have relocated their plants solely because of unfavorable state taxes--it is rather the cumulative effect of this and other high costs that prompt a manufacturer to consider relocation."¹⁰

In Montana, there are two factors in relation to taxes that need mentioning. The first of these is that owing to the small percentage that taxes bears to value of product, one would expect that tax burdens would be neither a deterrent nor a stimulant to industrial growth in any state. In other words, taxes should not be a primary factor of location. In Montana's case, this is just as well. As will be discussed presently, taxes in Montana would be more of a deterrent than a stimulant to industrial expansion.

The second factor pertains to the tax image presented by Montana. How does industry feel about the tax situation in Montana? Wonnacott reports that some factory locating services have been instructed not to consider certain states.¹¹ Apparently these states have conveyed an unfavorable image to industry. In Montana, the tax image has not been favorable.

⁹Related in Ronald J. Wonnacott, op. cit., p. 48.

¹⁰Leonard C. Yaseen, op. cit., p. 107.

¹¹Ronald J. Wonnacott, op. cit., p. 57.

Property taxes have won more than one headline within the State. Perhaps a look at the facts will give some indication as to whether or not the unfavorable tax image in Montana is warranted.

According to a Bureau of the Census publication titled "Governmental Finances in 1963-64," Montana ranked number one out of the fifty states in property taxes per \$1,000 of personal income (\$68.35 in Montana compared with \$16.77 in Delaware, the fiftieth state); ninth in total state and local taxes per \$1,000 of personal income (Wisconsin, number one, was \$126.07; Montana, number nine, was \$116.60; and Alaska, number fifty, was \$80.78); and seventeenth in per capita total state and local taxes (New York, number one, with \$351.47 per capita tax; Montana, seventeenth, with \$256.87; and South Carolina, number fifty, with \$145.57). In addition, Montana ranked fifth highest in total state and local taxes as a percentage of personal income, second in property tax collections as a percentage of personal income, and sixth in per capita property tax collections.

In none of the above statistics does Montana rank below the top third. It is no wonder that Montana has an image of being a high tax state. Yet one should quickly point out that even though the rankings appear unfavorable, the differences between states are relatively small. For example, state and local taxes as a percentage of personal income run in the range of 8 to 12 percent, a difference of approximately 4 cents per dollar of personal income.

Although industry pays business taxes and is not concerned directly with per capita taxes, industrial management still must be concerned as

these tax loads can assert themselves in business decisions. Personal tax increases have been known to influence labor unions into demanding more money, thereby causing production costs for labor to increase. Some other writers feel that high taxes reduce employee incentives although evidence of this is far from convincing at the present time.

Aside from the indirect effects of taxes, industrial management must also consider the direct effects of taxation--those taxes levied directly against the firm. Because federal taxes are uniform throughout the United States, state taxes are the only ones that would influence site selection within the United States. Owing to the lack of uniformity in levying taxes, it is extremely difficult to obtain information that can be useful in making comparisons between states.

Table XXIII is an attempt at making tax comparisons. In this table, the eight states showing the largest growth in value added to manufactures in the period 1947-1963 were compared along with Montana. Information was sought that might give some clues in regard to the Montana tax climate. Although current data were not available for most of the comparisons, it was felt that the data presented in the table were, nevertheless, useful in making comparisons. The data seem to justify the following statements: (1) State tax burdens are not a significant percentage of sales; (2) Montana taxes on industry are higher than in those states having the largest growth in value added to manufactures; (3) Property tax as a percent of value added is higher in Montana than in any of the eight growth states listed (California was a close second to Montana but the other seven were approximately

TABLE XXIII

TAX COMPARISONS BETWEEN MONTANA AND THE EIGHT STATES THAT SHOWED THE LARGEST INCREASE IN VALUE ADDED TO MANUFACTURES IN THE PERIOD 1947 to 1963

State	Growth in Value Added (1947=100)	Total State and Local Taxes as a Percent of Personal Income, 1964 (Percent)	Unemployment, Workmen's Compensation, and Property Taxes as a Percent of Value Added to Manufactures, 1958 (Percent)	Effective State Corporate Tax Rates on Net Income, 1966* (Percent)
Montana	260	11.66	2.9	5.50
Arizona	748	12.01	1.7	0.65% on first \$1,000 to 3.3% on all above \$6,000
California	430	12.06	2.5	5.50
Colorado	416	11.07	2.0	5.00
Florida	672	10.54	1.9	None
Nevada	615	10.31	1.0	None
New Mexico	466	11.64	0.9	1.50
Texas	410	9.66	1.7	None
Utah	554	11.31	1.8	3.00

*Some states permit Federal Income Taxes to be deducted before applying the state rates. The rates listed above have been adjusted to reflect an effective rate on corporate net income before deducting any Federal or state income taxes.

SOURCES: Column one was computed from information given in 1963 Census of Manufactures; column two from "Government Finance in 1963-64"; column three from 1958 Census of Manufactures; and column four was obtained from Prentice-Hall State Tax Guide.

only half as large.); (4) Montana taxes are not significantly higher so that they should deter industrial growth.

In summary, the crux of the Montana situation seems to be based on the following question: Would industrial activity in Montana be stimulated with the elimination of or a severe reduction in taxes levied against industry? The answer, of course, is multi-faceted. From available evidence, the indications are that taxes would not stimulate or deter industrial growth in Montana or in any of the other states. Leading to this conclusion was the following: (1) state and local taxes are a small percentage of the selling price (usually less than 2 percent); (2) tax differences between states as a percentage of the selling price would be small even though the dollar magnitude might be large; and (3) industry is as concerned with benefits received from taxes as it is with taxes. Tempering the above conclusions would be: (1) the tax image which might eliminate some areas from being considered at all, and (2) the continued growth of state and local taxes so that they reach a point where they become material costs and thus would be a primary location determinant.

In addition, states probably should not accord industry major tax concessions that shift the tax load to others. Such inequities can create ill-will against industry that could lead to harassment of existing industry and a stifling of future industrial development. Concessions to industry should aim toward equity for all, not expediency and benefit to some.

Land

Because land is a fixed factor of production, it exhibits wide variations in its price. Normally the higher its price, the more intensive its use; conversely, the lower its price, the less intensive its use. Industry is not able to shift this factor with any degree of speed to benefit from factor substitution (see page 44). Hence land, once acquired, is a cost committed for future use.

The reason for the concern with land values in plant location is the profit opportunities afforded at different locations. One parcel of land is more valuable than another because it can produce more profit, *ceteris paribus*. Land located near the market usually has greater profit potential than land located away from the market.¹² Hence the former should sell for more than the latter.

The availability of low cost land is not a sufficient condition to attract new industry if other and more important primary location determinants are not present. If these other primary determinants are present, then low cost land would attract industry. In Montana, there exists sufficient low cost land to attract industry.¹³ However, as noted above, this is a

¹²In addition, cities offer certain economies to industry that tend to offset the higher land values. Better transportation services, broader and more flexible labor markets, better banking facilities, lower utility and insurance rates, and better police and fire protection are examples of items where economies can be obtained in a city location.

¹³It may take a lot of imagination to foresee the potential in some tracts advertised or promoted as industrial sites. For example, it was reported to the author by one industrial consultant that personnel from a prospective industrial firm were shown a barren plot of ground that was on

necessary but not a sufficient condition to attract industry. Yet some of the provincially minded citizens of Montana feel that it is (see some representative answers to question 7 in Chapter 6). At least some people in Montana feel that the eastern half of the United States is becoming so crowded that industry must come to Montana to find a location. Nothing could be further from the truth. Although many of the metropolitan areas of the east are crowded, there is lots of room to expand in suburbia and in rural areas. Until markets expand in the West, it is highly doubtful that land would be a sufficient condition for industrialization of Montana. In addition, the practice of corporations acquiring land for future expansion (discussed on page 63) does not appear to be a large factor in Montana, although the full extent of it is unknown. At any rate, it has won few press releases within the State in recent years.

Even though land adds nothing to production expenses, the business net income must be sufficient to give a reasonable rate of return on the total business investment, including land. If the purchase price of land is too high in relation to income, then the return on investment will be lowered. Business management must be concerned with acquiring the right location at a fair price that will enhance return on investment. To that extent the price of land is important in site selection. However, it would not be advisable for a firm to move from a maximum profit location into another area

open range, had no nearby transportation facilities, and the nearest connections for water and sewage were a mile away. Needless to say, the interest shown was reported to have been less than exuberant.

of lower profits unless the cost of other factors, in addition to land, were sufficiently lower to offset the lower profit. For example, assume that land and building costs were \$50,000 in area A, \$70,000 in area B, and that the net income (ignoring income tax) was \$10,000 in area A and \$13,000 in area B. The maximum profit location would indicate a location at B, but greater return on investment would be realized at A ($\frac{10,000}{50,000} = 20\%$ at A, $\frac{13,000}{70,000} = 18.6\%$ at B). Rarely, though, would lower land prices be expected to move the maximum profit location any great distance, for example, New York to San Francisco. What would be expected is the selection of a site within the general vicinity of the maximum profit location. Thus Montana, even with relatively inexpensive land sites, would not be expected to benefit from industrial expansion unless the State was one of those considered as being in the vicinity of the maximum profit location.

In addition, the investment in land is usually a small part of the total investment of a firm excepting perhaps, small sized firms. Thus it would take a large difference in the price of land to offset a small difference in profit. It is doubtful that such large differences would exist or even be important in most cases so as to lead a firm away from its maximum profit location.

Management

According to Richard Setterstrom, Manager, Area Development Department, Montana Power Company, a big deterrent to industrial expansion in Montana is the lack of managerial talent. Such a factor was brought out in a study

of the South done by Hoover and Ratchford. They reported that the lack of managerial training and the consequent shortage of business leaders was a cause for the delay in the industrialization of the South.¹⁴

If management ability is limiting industrial growth in Montana, why not develop or import managerial talent? Development of managerial talent from within is difficult because most of the people in Montana are not manufacturing oriented. (An analogy sometimes used is that of trying to explain how an electric light works to someone who has never been exposed to electricity is the same as trying to explain modern manufacturing methods to someone who has never seen these methods being applied.) In other words, Montana citizens are not yet manufacturing oriented. This is not only true at the managerial level but it is also true for laborers working on production lines. At least one company in Montana was said to be having labor turnover problems due mainly to the problem of adapting workers to production line techniques. As industrial activity grows within the State, this problem should diminish, however.

With regard to bringing managerial talent into Montana, firms have found themselves to be at a disadvantage. Risks appear too great and salaries too small. The monetary offerings from the size of the majority of firms in Montana are simply not attractive enough that it will entice good talent to move to Montana. That there is good managerial talent in Montana is not being questioned. Only that there is not enough good talent is the

¹⁴Calvin Hoover and B. U. Ratchford, Economy of the South, U. S. Government Printing Office, 1947, pp. 30-31.

problem. According to Setterstrom, most of the business failures in Montana are due more to managerial ineptitude than to any other reason.

Trying to determine the loss caused by managerial ineptitude or the potential gain from having good management is next to impossible. One can see instances where the lack of good management caused losses, but one cannot measure what would have resulted if good management had been present. One can only postulate that things would have been different. So it is with industrial development in Montana. With more and better managerial talent things would be better, but just how much better is an unanswered question. In any event, the shortage of managerial talent is a deterrent to industrial growth in Montana; as to how much of a deterrent, this will be left for a future research project.

Capital

A questionnaire on small business finance was sent to some retail stores in Montana near the end of 1965. One of the questions was an attempt to determine if there was a shortage of capital to these firms in the period 1960-1965. The results of the questionnaire disclosed that there was no shortage of capital to these retail stores in this five-year period.

Normally manufacturing will demand a larger investment than retail stores so a conjecture from the above that manufacturing had no shortage of capital would not be appropriate. Yet, because small manufacturing firms and retail stores would be competing for available capital in the same market place, it seems reasonable to conclude that if one is satisfied, then

probably the other is also satisfied. Because most Montana financial institutions are agriculturally and not manufacturing oriented, this would no doubt impose more constraints on industry in Montana than would be imposed in those areas where lenders are geared to the needs of manufacturing firms. However, the lack of research in this area limits one in making more positive statements concerning adequacy of capital.¹⁵

Taking the capital markets as a whole, two observations can be made that seem pertinent to the Montana scene. First, no widespread complaints have been heard about a shortage of capital except during periods of monetary restraint, and these have been of relatively short duration. This indicates that perhaps the system of financial institutions is covering adequately the demands of business--at least where the risks are reasonable.

The second observation is that interest rates are not uniform throughout the country. In the April, 1967 issue of the Federal Reserve Bulletin, the following area interest rates were given for December, 1966 on bank loans of \$1 to \$10,000: New York City, 5.74%; seven other northern and eastern cities, 5.95%; eleven southern and western cities, 6.07%. August Losch found in 1936 that interest rates in Texas were higher the greater the distance from the nearest Federal Reserve Bank.¹⁶ What the interest rate

¹⁵Even in the research that has been done, the results are inconclusive and often conflicting. For example, see Edward Chambers and Raymond Gold, A Pilot Study of Successful and Unsuccessful Small Business Enterprises Within Montana, Bureau of Business and Economic Research, University of Montana, 1963, pp. 20-22.

¹⁶August Losch, The Economics of Location, Yale University Press, 1954, p. 464.

differential, if any, would be between Montana and other areas is not known. The West is labeled as a high demand area, indicating a high interest rate. The Federal Reserve data seemingly lend credence to this view.

From such observations, it appears that Montana does not have abundant capital at a low interest rate that would stimulate industrial activity. On the other hand, it seems likely that industry in Montana is importing some capital, is paying slightly higher interest rates for it, and meeting the needs of industry adequately, but not lavishly. The higher costs of capital in Montana, if coupled with other unfavorable location factors, may act as a deterrent to industrial growth. Of itself, it would be doubtful that cost of capital would deter industrial growth in Montana. To any given firm at any given point in time, it is more likely to be a shortage of capital, not its cost, that would be a deterrent to industrial growth.

The availability and cost of capital in Montana should not affect the location decisions of large firms wishing to establish branches or subsidiaries within the State, since these firms have access to capital markets in other areas. It should be expected, though, that this type of firm will make greater use of Montana's new Industrial Revenue Bond Law if the constitutionality of this law is upheld. The saleability of these revenue bonds is dependent upon the financial condition and reputation of the company for whom they were issued. No doubt, the financial condition and reputation of large well-known firms would be a lot easier to sell than small or untried new firms. Thus Montana's Industrial Revenue Bond law will be of most help to those firms that need financing help the least. Yet, such a law was

needed to put the State on a par with other states having similar legislation.

Climate

In analyzing growth in population, value added, or production employment (see Tables IX. and XVI), one can observe that most of the major percentage increases in these three areas have occurred in those areas of the United States that have the warmest climate--Florida, Texas, New Mexico, Arizona, and California. On the other hand, some of the slowest growth in these three areas has been in the northern border states--Montana, North Dakota, Minnesota, Wisconsin, Michigan, and Maine. There are exceptions to the above--for example, some interior states such as Nevada, Utah, and Colorado have shown good percentage growth--but for the most part the South has been the growth area. Not all firms would want to locate in South--for example, a snowmobile manufacturer would probably prefer a production area closer to its northern market area than to the Southern states. Yet for those firms not tied to the North for some economic reason, it could become fashionable to locate in the warmer climate. At least past trends indicate that this is a distinct possibility, especially if these areas are able to obtain adequate water.

Climate is not the sole reason industry has been moving south. Other influences have contributed. For example, the movement of textile manufacturing from the Northeast to the Southeast was due more to labor cost and the desire to become closer to the raw material source than to climate. At the same time, climate was a leading reason for the presence of the two

factors that led to the shift. At any rate, one must conclude that climate is a strong contributing cause for the growth of industrialization in the South.

Does climate increase operating costs in Montana over those found at other locations? No precise cost measurement of the influence of climate was found. However, from available evidence some conclusions about climate and production costs are warranted. These are as follows:

1. Workers in the South have lower living costs than those in the North so presumably could work for lower wages.
2. There are more respiratory infections (colds, sinusitis, etc.) and rheumatic ills in the North than in the South, with greater employee absenteeism.¹⁷
3. Winter storms in the North have a more paralyzing effect on economic activity than most of the storms found in the South. (Hurricanes are an exception, but these occur infrequently.)
4. Worker productivity is substantially the same between the northern and southern areas.
5. Building and maintenance costs are higher in the northern than in the southern areas because of the necessity to construct working areas that will protect against the colder temperatures and that will withstand the more violent temperature fluctuations.

From the standpoint of a Montana location, the above items do not necessarily indicate that a location in the State would cost more than a location elsewhere. However, they are far from encouraging in suggesting that a Montana location would cost less.

A measurement to determine heating costs often used by engineers is

¹⁷Dr. Clarence A. Mills, Climate Makes the Man, Harper and Brothers, 1942, p. 112.

"degree-day" variations.¹⁸ The following comparison of annual degree-day variations is given for selected cities in the United States: Phoenix, Arizona, 1,765; Los Angeles, California, 1,349; Denver, Colorado, 6,283; Chicago, Illinois, 6,155; Detroit, Michigan, 6,258; Minneapolis, Minnesota, 8,382; Buffalo, New York, 7,062; Cincinnati, Ohio, 4,806; Portland, Oregon, 4,635; Houston, Texas, 1,396; Seattle, Washington, 5,145; Billings, Montana, 7,049; Great Falls, Montana, 7,750; Butte, Montana, 9,760; Missoula, Montana, 8,125.¹⁹ Although Montana is not far out of line with other northern cities, there is a substantial difference between Montana and some central, southern, and coastal cities. The result would be that heating costs in Montana would be higher. Yet, as indicated earlier in this chapter, utility costs for most firms would be negligible and not an important factor.

Climate, then, would seem to exert its most profound influence not by its direct effect on costs (although climate would affect them) but by the psychological effect it creates in the minds of those making the location decisions. In discussions with those living outside Montana, one cannot help but be convinced that the low temperatures reported from such Montana cities as Cut Bank have given Montana the reputation of being the ice box of the nation. In a state as diversified in terrain as Montana, there are bound to be areas of temperature extremes, especially in the winter. These

¹⁸A "degree-day" is officially defined as "a departure of one degree per day in the mean daily temperature from an adopted standard reference temperature, usually 65°F."

¹⁹Obtained from U. S. Weather Bureau statistics covering the period 1931 to 1960.

extremes are what make the headlines and give the state unfavorable publicity about its temperatures. To the extent that the extremes adversely influence location decisions, then climate will be a deterrent to industrial growth in Montana. To combat this unfavorable publicity concerning the Montana climate, state and local development agencies will have to promote favorable climate factors, such as low humidity, low pollen counts (if they exist), absence of plant closures or transportation delays due to weather, and average temperatures. No doubt, some areas will have far less favorable climatic factors to promote than other areas, with the result that these areas will have to talk down climate and talk up other and more favorable location factors.

In summary, the Montana climate is not likely to win an overwhelming number of new industrial plants. The effect of climate on costs is probably small, whereas the psychological effect is probably fairly large. As long as the trend is for people to live in a less severe climate than that found in Montana, one would expect that future markets within the state will remain relatively small. Water, a resource created by the Montana climate, is needed if the warmer climates are to continue to sustain this increased growth. From past trends (for example, the Feather River project in California) one can foresee that the growing areas will wield the necessary power to move the water to these areas. In conclusion, the Montana climate is expected to be more a deterrent than a stimulant toward future industrial expansion.

Personal Factors

How does one measure the impact upon industrial growth of factors that are purely subjective in nature? A personal factor that would be a deterrent to one firm could well be a stimulant to another firm. From this maze, however, certain generalities can be expressed concerning personal factors of location with regard to Montana locations.

Firms with a definite resource attraction are influenced only to a small degree by personal factors of location. These firms locate to be near the source of their raw material and are less concerned with personal factors of location. In other words, if a plant location close to the raw material is economic, personal factors, in most cases, would not be a deterrent to a plant being located in that area. Inasmuch as most of the larger firms in Montana are resource oriented, personal factors should not have been a major factor in the selection of their locations.

At the other extreme, a plant that is market oriented would be expected to have a somewhat broader base for selecting its operating site than a firm that is resource oriented. A few market oriented firms would be tied to particular locations (for example, a small local baker or a franchised soft drink bottler). Those firms having broad markets have the opportunity to select a plant location from several sites. To these, costs should now be the first consideration (as demand--market area--has already been determined) with the final site selection being determined probably by personal factors.

In Montana, most of the industrial firms produce for local markets and thus personal factors would not be an important consideration of location. Lest someone criticizes the above statement as not being true, it should be

pointed out that there are many instances where these small firms have passed from consideration one or more communities because of personal factors to select the community they are now operating in. At the same time, however, it must also be noted that if an economically sized market exists in those communities bypassed by the first locators, then chances are that a subsequent investigator will settle in that market area. To emphasize these points a little more, if a bakery was needed, for example, in Billings, then Billings would probably get its bakery; if a bakery was needed to satisfy a Montana rather than a Billings market, then personal factors could become extremely important in the decision as to which location in Montana would be selected. Thus the broader the market, the greater becomes the influence of personal factors in selecting a plant location.

To summarize, because most market oriented firms in Montana owe their existence to a demand within or very close to where these firms operate, personal factors would not be a strong influence to the location of these firms. To those market oriented firms that have state or regional markets and where operating costs do not clearly single out one location as being the best or where operating costs are ignored, personal factors would be important in site selection.

Between these two polar extremes, market and resource oriented firms, a third category is found that normally would be greatly influenced by personal factors of location. These are the so-called "footloose industries." They are not tied to locations by either markets or resources; hence, they are largely free to choose almost any operating site, thus it is to these firms as well as the larger market oriented firms discussed above that the

State and communities within the State must sell themselves if Montana is to have more than normal industrial expansion.

An example of a footloose firm that has brought about a large increase in industrial activity in the State of Washington is the Boeing Company. Montana, unfortunately, has no footloose firms that would appear to be a budding Boeing Company. In fact, Montana has very few footloose firms even of small size. Yet the future of industrial diversification is tied to the ability of the State to attract more of these footloose firms. Without them, the State remains resource oriented; with them, perhaps it will have a balanced and diversified industrial sector with minimal amounts of economic fluctuations.

Now that the broad categories of industry have been examined to determine those most influenced by personal factors of location, the remaining discussion in this section will be devoted to examining those personal factors most likely to be a deterrent or stimulant to industrial growth in Montana.

Recreation

Recreation is a factor frequently mentioned within Montana as a possible stimulant to industrial growth. However, there is little evidence that would indicate that the kind of recreation found in Montana has stimulated industrial activity within the State. There is more to recreation than hunting and fishing, the two items most frequently mentioned in Montana. Many people would just as soon take their recreation vicariously, as witness the many people who attend sports events and who do not participate in

them. It is likely that many of these people would not be satisfied with the type of recreation stressed in Montana. Thus there are two sides to the recreation question.

Because recreation is being mentioned more and more as a factor of location, it would pay those in Montana to give more balance in advertising its recreation. If a prospect shows interest in those areas of recreation where Montana excels, then that prospect can be "hit with both barrels." For those prospects not interested in these types of recreation, moderation may keep the prospect interested long enough to inform him of the other location advantages in Montana. It is difficult to sell a prospect one never sees. Many times the bait offered is not attractive enough to get a nibble. Yet it is from these nibbles that the State will have a chance to grow industrially.

There has been a trend in recent years to place a premium on the type of recreation activities so abundant in Montana. This trend is expected to continue as population and leisure time grow. The difficulty, of course, is to convince locators to live in Montana, not just visit it. However, one cannot help but feel that the State's recreation can only serve as a stimulant to industrial growth. As a stimulant one should not expect that it will be a big flame that will ignite industrial growth. Rather, one should expect that it will give off enough sparks so that occasionally an ignition will be made in the form of a new industrial plant.

Community Attitudes

Another personal factor that is usually high on the list of regional

location determinants is that of attitudes of the community and its residents toward industry. Though it is appropriate to discuss those attitudes at this point, it was felt that attitudes are of sufficient importance to industrial location and to Montana that they should be discussed apart from other considerations. This topic is then deferred and becomes the subject matter of Chapter 6.

Living and Social Conditions

Living and social conditions have been mentioned as important personal factors of location. Living conditions have been discussed earlier in this chapter under climate. To reiterate, climate is thought to be a deterrent to industrial growth in Montana. As for social conditions, this depends upon what customs the plant locator is used to. If he comes from a small city, chances are that he would fit into most Montana cities. If the locator is contemplating moving from a big city, then there is a good possibility that the Montana social conditions may be hard to accept.

With the trend nationwide to locate new plants in towns of less than 50,000 population, the type of social conditions found in Montana could well become the type that plant locators are looking for. However, as mentioned earlier under recreation, the pitch should be made to fit the prospect. Here, though, the chances are fairly high that many locators have eliminated Montana as a possible site because of social and living conditions without anyone in Montana being aware that the State was eliminated. Thus the prospects who investigate Montana have already probably determined that they can adapt to the social and living conditions within the State.

If such selectivity has occurred, this would indicate that the cultural activities found within Montana do serve as a deterrent to industrial growth within the State, but the amount or size of the deterrent is unknown.

Educational Facilities

Educational facilities is another personal factor considered in site selection. Starting with the Montana institutions of higher learning and working down, some observations can be made. It is expected that not everyone will agree with these observations, though. First, the State is supporting too many colleges and universities within a political background of quantity rather than quality. With but few exceptions, the departments of these institutions are not well recognized nationally and would not be a drawing power to attract the type of industry likely to benefit from proximity to institutions of higher learning. Having these schools is certainly not a deterrent to industrial growth; but having them is not a stimulant either unless other favorable location factors are present.

With regard to vocational schools, too little emphasis in Montana is being placed on this aspect of education. Although present demands by industry in Montana is mainly for unskilled labor, the demand nationally is for less unskilled and more skilled labor. Montana must recognize this change and be able to supply an adequate pool of skilled labor--with the right kinds of skills--if the State is to have industrial growth. For example, a machine shop in most, if not all, sections of Montana would have a real problem in filling a vacancy due to a statewide shortage of machinists. Many established firms in the State use an apprentice system to train

qualified employees. However, a new firm without such a system could find itself at a disadvantage in the procurement of skilled labor. This is an area where vocational schools could help to supply the needed labor. Until adequate training facilities for skilled labor are established,²⁰ industry is going to be cautious about establishing a facility that would require the importation of most of its labor force. In addition, one way the State can overcome its transportation cost disadvantage is by attracting technical industries to produce finished goods that have a high value relative to weight. Unskilled labor does not do this, but skilled labor can. Thus the present shortage of skilled labor in the State can only serve as a deterrent to industrial growth.

The third factor of education in Montana concerns the elementary and secondary school system. The quality of education received in Montana schools is extremely variable. Normally a good rule of thumb is that the quality of education varies directly with the number enrolled, i.e., the higher the number enrolled, the higher the quality of education received. As for new industry, the higher the quality of employees that they will use, the higher the quality of education they will demand. Here the prospect must again be matched to the area. At least one community within Montana has verbalized that it was being discriminated against as all prospects were being sent to examine locations other than theirs. What this community failed to recognize was that the needs of the prospects simply did not

²⁰The State may export most of these trained laborers in the formative years of this program, but, hopefully, future industrial growth would more than compensate for this cost in later years.

include what they had to offer--and one of the problems could well have been a poor educational system. It is not prudent to send prospects helter-skelter over the entire State. Some selection must be made at the contact point and an attempt made to match the prospect with the most desirable location(s). In a state as varied and diverse as Montana, it should be no problem to find elementary and secondary schools that would fit the needs of any prospect. Therefore, the elementary and secondary educational system should not be a deterrent to industrial growth if one considers the whole of Montana rather than selective bits.

Other Personal Factors

There are other personal factors--such as medical facilities, housing, churches, streets, police and fire protection, zoning laws--that would enter into specific site selections. For the State as a whole, they should not be too important. If the prospects can be sold on Montana, then finding a site within the State that will meet their personal desires should be no problem. To a community that wants but is continually being overlooked for industrial development, this would be a big problem and that community must evaluate its assets and liabilities in an attempt to change its image.

Governmental Factors

Montana government could not be labeled as pro-industry. In almost every case of legislation favorable to industry that was passed by recent legislatures, action on this legislation was taken only after similar legislation had already been enacted by many of the other states. This would indicate that the State is not a leader but a lagger in promoting a

favorable industrial climate.

That the passage of industrial legislation is beneficial, even though late, is not being questioned. The fact that Montana is always one step behind is certainly not helping to promote industrial development. There is still plenty of sentiment in the Montana legislature to raise taxes on and, perhaps, tax out of existence one of the biggest industries in the State. In other words, the industrial climate in Montana is not the best and some improvement is in order. Positive leadership in both political parties will be necessary to develop a pro-industry attitude in action as well as word. Montana does not have such an abundance of prospects looking to locate industry within the State that it can afford to antagonize industry by unfriendly governmental attitudes. Until the State develops a stable and long-run pro-industry atmosphere, it is to be expected that Montana government will be somewhat of a deterrent to industrial growth.

Summary

In this chapter the purpose has been to examine the major deterrents and stimulants to industrial growth in Montana. Montana has one major stimulant--resources--that will help industrial growth as well as several minor ones that could influence some location decisions. However, Montana has several major deterrents in the areas of markets, labor, transportation, industrial concentration and agglomeration, climate, and managerial talent, plus many minor ones that cannot help but impede industrial growth. Firms operating outside the traditional resource-local market areas will probably find that they are operating under an economic disadvantage in a Montana

location. Indications are that such firms will have to be satisfied with smaller dollar profits, but perhaps this can be offset by area amenities."

Some of the deterrents mentioned in this chapter can be eliminated by concerted action on the part of responsible citizens within the State. Other deterrents are beyond much control and exist simply because of the location of the State. The recognition of the latter factors should help to channel effort within the State into proper areas--those subject to change and control. In addition, much of the time and effort spent to beat the bushes looking for industrial prospects can now be spent looking for prospects within a much narrower area. A simple recognition that many types of industry cannot be economically located in Montana will help to channel time and effort toward those industries most likely to be satisfied in a Montana location.

Economic theory does not make mandatory the quest for greatest profits . . . ; the science involves simply the maximization of ends through the optimum distribution of means . . .

Melvin Greenhut

CHAPTER V

EMPIRICAL STUDIES

The previous chapter examined a Montana location from the standpoint of location theory. This chapter delves into real life to examine location factors of actual firms to determine how close the theory is to actual location practice. The actual firms used in this chapter were selected from three different categories: firms now operating within Montana; firms operating outside of Montana that have investigated but as yet have not located in Montana; and firms that operated within Montana but have now discontinued these operations. The reason for the selection of firms in these three groups was that each group would be looking at Montana from a different perspective and thus give a different slant on location problems.

Firms Operating Within Montana

From the 1965-1966 issue of the Montana Directory of Manufacturers and Buyers Guide, a stratified random sample of 180 firms was selected.¹ A questionnaire was prepared consisting of 47 questions. (See Appendix I for a copy of this questionnaire.) The questions were designed so as to bring

¹The following industry groups were omitted due to the nature of their work and the limited locale of their operations: logging camps and logging contractors, newspapers, ready mix concrete, sheet metal work, jobbing and repair machine shops, and signs and advertising displays.

out answers to the major questions that must be answered in establishing or operating from a Montana location.

Of the 180 questionnaires sent to operating industrial firms in Montana, responses were elicited from seventy-seven firms. Of these responses, sixty-nine were tabulated. The remaining eight questionnaires were excluded either because the businesses were no longer operating or had changed the nature of their businesses and were no longer manufacturing. Responses were received from all but three of the 2-digit industry groups represented in Montana. Of these three groups, one (printing and publishing) had been omitted from the selection of the sample and the other two (paper and allied products, and ordnance and accessories) have only one and two firms, respectively, in each group. Hence the returns include most segments of Montana industry. Table XXIV gives the percentage returns for each industry group to whom questionnaires were mailed.

From the sixty-nine usable questionnaires, nine were selected for a descriptive analysis to be included in this paper. The nine were selected either because they represented the typical type of firm likely to be found in Montana or because of interesting location factors found in the Montana operations.

Firms 1 and 2

Firms 1 and 2 are interesting examples of how personal location factors influenced the location decision, but the decision to locate in Montana has also been costly to the growth of the firms. Both firms import their raw

TABLE XXIV

PERCENTAGE OF RETURNS ON INDUSTRY QUESTIONNAIRE

<u>Name of Industry</u>	<u>Questionnaires Returned (Number)</u>	<u>Questionnaires Returned of Total Question- naires Mailed (Percent)</u>
Ordnance and Accessories	0	00
Food and Kindred Products	14	38
Apparel and Related Products	2	67
Lumber and Wood Products	12	36
Furniture and Fixtures	3	43
Paper and Allied Products	0	00
Chemicals and Allied Products	11	69
Petroleum and Coal Products	4	67
Rubber and Plastic Products	1	33
Leather and Leather Products	1	25
Stone, Clay, and Glass Products	9	53
Primary Metal Industries	2	40
Fabricated Metal Products	5	29
Machinery, Except Electrical	4	50
Electrical Machinery	1	25
Transportation Equipment	3	43
Instruments and Related Products	1	50
Miscellaneous Manufactures	<u>4</u>	<u>44</u>
Total for All Industry	<u>77</u>	<u>43</u>

materials into the State and for the most part will have to export their finished goods from the State in order to achieve sales success. Labor is the primary cost item and amounts to over 50 percent of total production costs. Both firms were organized in the 1950's but have shown little growth since that time in both number employed and capital investment. Initial capital investment of both firms came almost exclusively from sources in the same locale where these firms operate. Both firms are content with present locations even though one of them is not in production at the present time.

These two firms represent a type of situation that often leads to

frustration and bankruptcy or perhaps the sale of their single item to a larger and more diversified company. These firms are trying to tap an industrial market but a similar situation would also be found in the consumer market. These firms have new items, they have locations at the periphery of their markets, they have financing problems in getting into their markets, but at the same time they are reluctant to leave those locations where they were nurtured into existence. In many cases of this type, the products are good but the selection of a location is the beginning of the end. It is difficult to break into the market for established goods from an unfavorable location let alone trying to tap markets for new products from such a location. The risks are usually so high in this type of firm that lenders show little inclination to finance them, and as a result they are almost always tied to areas where the organizer is best known. Generally this is not the type of firm that one would recommend to state and local development groups for financial help. The best recommendation to these firms would be to move closer to the center of their markets and then look for financial help in that area.

Chances are high that most firms similar to firms 1 and 2 have neglected to assess any of the major demand and cost factors of location and have relied almost exclusively upon personal factors to determine their locations. These latter factors are not those that sound business decisions should be built upon, however.

Firm 3

Firm 3 is the case of a firm that was established over 50 years ago to satisfy a demand existing within Montana. It brings its raw materials into the State, processes them, and then sells the finished product to Montanans. This firm has a 5 percent weight loss, but this is not sufficient to attract it to its source of supply. Labor is the major cost item and amounts to 60 percent of total production cost. The firm is not a large employer but requires skilled labor. There is little employee turnover and management rates its employees as being above average in productivity. The firm owns its land and buildings and is content with its present location.

The future of this firm is very much in doubt at the present time. It is manufacturing and selling a product that has remained virtually unchanged since its beginning. In recent years, new and better products have been developed that are eroding away the market for this firm's product. This firm is likely to die in the near future unless it can adapt and produce some new products.

Firm 3 is an example of a firm trying to maintain the status quo in a world where innovations are such that the status quo cannot be maintained. Either one must progress with the state of the arts or look forward to closing one's plant. It is on this crossroad that some of the cottage-type firms in Montana now find themselves. The future for some of these firms is not bright as the situation of firm 3 indicates.

Firm 4

This firm was selected because it is the kind likely to be found in Montana in a market oriented firm. Firm 4 is independent, producing for a consumer market where personal contact is important and competition abounds, and buys most of its raw materials from sources located outside of Montana. The transportation cost to bring in these raw materials is substantial and amounts to approximately 20 percent of the cost of the raw materials. There is no weight loss in processing the raw materials. Unskilled non-union labor of average productivity converts the raw materials into finished products. These products are then sold largely to Montana consumers with some selling effort being spent to develop markets in those states surrounding Montana, notably Idaho, Eastern Washington, Wyoming, and North and South Dakota. Production is year-round and climate and pollution are not important production or location problems. Although freight-in is an important cost, freight-out is unimportant because most of the market is close to the location of the plant. This firm uses public motor carriers and railroads to ship its product and does not require any special facilities in this process. It owns its own plant and equipment but has only a small amount of capital invested in them. It obtained most of its capital from sources within the community where it operates. This firm has moved once in its short existence and the move was made to obtain better facilities for its growing business.

Firm 4 likes its Montana location and if it moved in 1967, its only change would be to move closer to a more heavily traveled road and toward

a more densely populated area of Montana. The firm recognizes that its present location has reduced its sales over those that could have been made at other locations but feels that a lower cost of operations at their present location has offset the reduced sales. Seemingly, this firm is content to stay small and have lower sales just to stay in a Montana location.

Firm 5

Firm 5 could well represent the resource oriented firms in Montana. Like most resource oriented firms, firm 5 had a high initial capital investment for its plant and equipment. To finance such large investments requires financial institutions with more capital than those found in Montana. Firm 5 financed all of its initial capital investment from sources outside Montana. The fact that firm 5 is a subsidiary to a company located in the Midwest would indicate that financial help outside Montana was available.

Firm 5 is one of the top 36 employers in Montana and employs mostly semi-skilled and unskilled labor on a year-round basis. The employees are considered to be of above average productivity; they receive a rate of pay that is felt to be tops for the community where the plant is located; they belong to a labor union but the company has experienced no labor stoppages in the last five years; and, something not consistent with the above, the company has a high labor turnover rate. This firm feels that there is a shortage of trained labor in their area of operations and would like to see a trade school established near-by.

In processing, the raw materials lose approximately 50 percent of their input weight. The cost of freight-in is negligible owing to the closeness

of raw materials. Freight-out, on the other hand, is an important cost item and creates problems during periods of reduced national economic activity as buyers purchase their needs from closer sources having lower transportation costs. (The market for this firm's product is located primarily in the East.) This firm uses public motor carriers and railroads to haul its products and does not require any special freight facilities in handling either its raw materials or finished product. (Generally it is expected that most resource oriented firms would require special transportation facilities on inputs and frequently on outputs as well.)

Firm 5 has some air pollution problems that would not be eliminated even if it changed locations. In other words, the pollution is due to the nature of the operation and would exist at any location. This firm indicated that considerable time has been spent and expense incurred to minimize the problems associated with pollution.

Firm 5 is tied to its location because of the resource in that area and would not move. However, it finds that the cost of freight-out and taxes are a definite disadvantage to its Montana location.

Firm 6

Firm 6 commenced operations over 50 years ago to take advantage of a Montana resource. Since that time, a declining resource base and expanding markets have forced the firm to seek raw material inputs from near-by states. Competition is prevalent throughout this industry that is aimed toward a consumer market.

Production is seasonal and uses mostly unskilled labor. Labor productivity is only average but the pay is considered good for the area where this plant operates. Because of seasonal work, labor turnover is high. Raw materials lose weight in processing and are semi-perishable. These two items more than any other dictate a location close to the source of its inputs. Firm 6 stated that it liked its present area because it was centrally located to its raw materials. Climate affects its operations but it is not a primary location determinant. Personal factors (including climate) may have influenced the exact site of this plant within the area where it obtains its inputs, but it is doubtful that these factors would have influenced the selection of the area of operations.

Most of the market for firm 6's products is located outside Montana. However, transportation of finished goods is nominal and this allows the firm to compete with others on a delivered price basis. In other words, transportation would not be a primary determinant of location to this firm, but it could become a secondary factor to select the exact site within the area where transportation cost could be minimized. The firm stated that it would move to another location within the general vicinity of its present plant if it were re-locating in 1967. It gave no reason why it would move but from looking at the area where it operates, it seems highly possible that the move would be toward the center of the transportation system that now serves this plant.

Firm 6 is independently owned and it started with a low capital investment obtained from local sources. Over the years it has expanded its plant

considerably (350 times the original investment) and at the same location where it started. This firm has no pollution problems and no trend is evident to indicate that consolidation or automation will affect the future of this firm. From the standpoint of the Montana economy, the only disadvantage of having this plant is that it provides only seasonal employment to unskilled labor. Otherwise, one could say that this plant is a real asset to the Montana economy.

Firm 7

Firm 7 buys its raw materials out of Montana and aims its product toward a national consumer's market. It has only a few competitors and these are located almost exclusively in the East. Hence it is selling in an oligopolistic market situation where direct price competition is probably limited. The Eastern competitors are larger and are selling their products in Montana markets. As a result, firm 7 is probably a price follower instead of a price leader. Firm 7 indicates that freight costs are a deterrent to its growth and this would indicate that its production costs, including freight-out, are putting its products at a disadvantage in the more populated consumer markets.

Labor cost for firm 7 is small, whereas material cost accounts for over 50 percent of total production cost. Transportation cost is again reflected here as raw material is shipped in from out of state. Freight-in amounts to roughly 30 percent of labor cost and 10 percent of material cost. Firm 7 has shown reasonably good expansion since its inception in the 1950's.

The firm uses mostly unskilled labor that is of average productivity and is paid the prevailing wage rate for the community where the plant operates. Employees belong to a labor union but no labor stoppages have occurred in the last five years and employee turnover is very small.

The firm obtained its initial capital locally. It rents its facilities but has substantially increased its equipment investment since its inception. The firm is happy with its present location although it recognizes that the location has some disadvantages. The reason given for the selection of its location was that Montana is a pleasant place to live and that labor was cheap and available. From labor statistics examined earlier in this paper, one would conclude that personal factors have far outweighed any demand or cost factors (such as labor) that were considered. It is such situations as this that indicate that the search for a maximum profit location is not always the guiding beacon of plant selection. It also indicates to industrial development groups that industrial location is not entirely a science but to some extent an art.

Firm 8

Firm 8 is a recent addition to Montana. It is a branch plant and sells consumer products. The raw material is purchased in the East, processed in Montana, and then sold on a national basis with a market potential based on population. The firm has many competitors and because the product is distributed nationally, the firm did not gravitate to Montana to establish a monopoly market position within the State. Hence other location factors must account for its existence in Montana.

Production is year-round with no weight change occurring in the production process. The cost of transportation-in is significant but would not be considered as a primary location determinant. The cost of transportation-out would be similar at any location.

Firm 8 leases its location but has been expanding its investment in equipment at a rapid rate. Two-thirds of this firm's initial capital investment came from local sources and the other one-third came from sources outside Montana, presumably from the branch's home office.

Labor is the single most important cost of production. The firm has doubled its number of employees since its inception and would be one of the top 75 firms in Montana in terms of number employed. Its employees have not unionized and the firm has had no labor stoppages, but labor turnover is high. Ninety-five percent of its employees would be classified as unskilled and the firm feels that it is paying a higher wage than that presently existing in the community where it operates. This firm stated that its reason for locating in Montana was labor availability. The firm also stated that it likes its present site and would move only if another location within Montana could be found that had a larger potential labor force than its present site. In other words, it apparently is outgrowing the labor supply at its present location.

A comment or two seems pertinent to the location of this firm. With unskilled labor available at many locations in the United States, why choose Montana? One factor is that this firm needs labor that is willing to work for wages close to that set by the minimum wage law. If wage rates are

much higher than this, this firm would undoubtedly find itself a new location. If Montana had a large pool of unemployed and unskilled workers, then this firm would benefit the Montana economy. Indications are, however, that the State does not have a big surplus of unemployed labor. Thus the wages paid by this firm would no doubt serve to draw the Montana per capita income even farther away from the United States average. Community or state concessions to this type of firm should not be made as they have been known to leave an area once concessions end.

Firm 9

Firm 9 was started in the late 1940's. It is independently owned and produces for all types of markets (consumer, industrial, and government). Its market area is located mainly in Montana but the firm does have a limited access to markets in those states to the south and west of Montana. This firm has many competitors but there are two factors that give an advantage to a Montana location. The high weight per dollar of finished product gives a small transportation cost advantage to regional firms. A second advantage is that the products produced by firm 9 are formulated especially for the type of climate found in Montana. This firm was the only one answering the questionnaire that indicated the Montana climate was a favorable location factor; the other respondents felt that the Montana climate was a deterrent to their location or that it was neutral and did not affect their operations.

This firm is still small but has shown good growth in labor and capital

investment since its inception. Slightly more than 50 percent of the labor force is classed as highly skilled. Management feels that the pay of their employees is higher than that paid by the average firm in their area but that these workers are only of average productivity. There is no shortage of labor in their area, labor turnover is small, and they do not feel that any special facilities are needed within Montana to train labor. Employees of this firm do not belong to a labor union and labor problems have been small.

The raw materials used by this firm come largely from the east and west coast cities. The cost of transportation on inputs was not given so the importance of this cost is unknown. However, the distance from their suppliers would indicate that their investment in raw material inventories would be higher in Montana than it would be in a coastal location. This added cost to this plant would be partially offset by offering better customer service.

Firm 9 financed its start from sources outside Montana. Its investment has expanded rapidly and current plant facilities are owned but inadequate in view of its expansion. It would select a similar location but a larger plant site if it were to select a new location in 1967.

This firm appears to occupy a semi-monopoly position by its Montana location. Some outward expansion appears possible but it will be limited by the presence of its many and more established competitors. This firm should grow as population expands within its present market area or if it is able to capture a larger share of the demand now existing in this market

area. The success of this firm would appear to be that it has captured a reasonable share of local demand before expanding outside Montana. Some economies of scale should be present in its manufacturing process but these should be minor enabling it to start small and expand.

In summary, if one was looking for the ideal industrial firm for Montana, this firm would certainly have to rank near the top. It employs mostly skilled labor, pays good wages, appeals to a Montana market before expanding outward, has a reasonably good growth potential, and it likes the Montana climate. It is toward finding and establishing firms needing similar location factors that much of the emphasis throughout Montana should be directed.

Analysis of Responses on Questionnaires

Because of the diversity of operating conditions and circumstances found within industrial firms, no attempt was made to compile the results of the questionnaires to find an average or typical Montana firm. In the discussion that follows, the answers to some of the more important of the 47 questions are given and analyzed.

Question 4 - Year the company was established in Montana.

Of the respondents answering this question, 14 firms were established during the 1960's, 12 during the 1950's, 19 during the 1940's, and 22 established prior to 1940. Thus problems of recently established as well as old-time firms could be examined. Percentage-wise, the old-timers came primarily from the food and kindred products industry and the newcomers

were from the chemical and allied products industry. The former is a well established industrial group whereas the latter has been a rapidly expanding area since World War II. Worth noting here is that Montana appears to be obtaining some growth from areas having recent technological advancements. Perhaps more important is that the State is not being entirely bypassed by technological changes.

Question 5 - Is your company independent, a branch, or a subsidiary?

Of the respondents answering this question, 47 were independent, 18 were branches, and 4 were subsidiaries. An interesting parallel to this is that the average number of employees in the independent firms was 26, in the branches and subsidiaries it was 109. It would appear that the biggest employers within Montana are those having connections outside the State and are largely resource oriented. Other data have confirmed that this is the case.

Question 6 - Is your company planning on moving its present facilities in the near future?

Sixty-four of the respondents indicated that they were not planning on moving, whereas 5 indicated they were. Of the 5 moving their facilities, 3 are contemplating a move from Montana and the other two are moving within Montana. In the case of the 3 firms leaving the State, the reason given was to move closer to their markets.

Question 8 - Who are the principal users of your products?

Forty-three checked consumers as the principal users, 41 checked industrial, and 17 checked government. The majority of the industrial and

governmental markets exist in the resource oriented firms; the consumer market is found mainly in those firms that are market oriented.

Question 9 - Where is the principal market(s) for your product located?

Twenty-five of the respondents indicated that their principal market was in Montana, 35 indicated it was both in and out of Montana, and 9 indicated that their principal market was outside of Montana. From other questions on the questionnaire, one can conclude that some firms answered this question in terms of potential markets. Several firms were known to presently operate only in Montana that indicated their markets were both in and out of the State. Thus firms that now have only Montana markets would rank higher than indicated on the questionnaires. Those firms producing for both Montana and non-Montana markets were mainly producing for regional rather than national markets. Some lumber and mineral resource firms were producing for national markets, however.

With two exceptions, those firms producing exclusively for out-of-Montana markets are processing natural and agricultural resources found in Montana. A desirable objective for increasing the industrial development in Montana would be to explore the possibility of further processing of Montana resources before they leave the State. Some drawbacks to this are that the initial weight loss in first processing these resources cannot be maintained in subsequent processing and transportation costs usually increase with the higher values inherent in further processing. The result is that it forces further processing toward the market. However, if transportation concessions could be obtained, such as in-transit privileges, possibilities may exist

that would be worth exploring for further processing of Montana resources.

Question 14 - Where are your principal raw material(s) suppliers located?

Of the respondents to this question, 29 listed a Montana location as the principal source of raw material, 24 listed a location outside Montana, and 15 have principal suppliers both in and out of Montana. Resource oriented firms, for the most part, obtained their raw materials within Montana and market oriented firms obtained theirs from outside the State. Two firms obtained their raw materials outside Montana and had markets that were also outside Montana. The location factors attracting these two firms to a Montana location were cheap electrical power and a location at the center or hub of their raw material suppliers. However, both firms indicated that these location factors were of reduced importance in 1967.

Question 15 - Is production seasonal or year-round?

Fourteen respondents listed seasonal production and 54 listed year-round. As expected, seasonal production was concentrated in the processing of agricultural and timber resources. Some respondents indicated that production was sustained in the winter period but at a reduced activity. Only three of the fourteen firms that began their Montana operations in the 1960's listed their production as seasonal. However, the average employment in the three firms with seasonal operations was almost double the average employment for those firms operating year-round. Apparently, then, the wide seasonal swings in the Montana employment can be expected to continue in the future. Although Montana will have to accept whatever industry comes her way, greater

effort to attract large scale and year-round employers would help the Montana employment picture.

Question 16 - Does the raw material input(s) lose, gain, or stay at the same weight during processing?

Location theory indicates that industry will locate at the point where it has the lowest aggregate transportation cost in assembling its raw materials and shipping its finished goods. The responses to question 16 seemed to be in accord with the theory. The resource oriented firms were the weight losers (losing an average of 28 percent of the input weight) and the market oriented firms were either the weight gainers or those whose inputs stayed at the same weight. From freight information given by several of the resource oriented firms, it seems highly possible that some of these are now at the margin where a small change in transportation rates could shift their locations away from the resource and toward their markets. If this happens, industrial growth in Montana will be lower than it would normally be. It is not expected that such a change would occur overnight but rather would develop over several years. Montana must watch and carefully assess any transportation rate changes. If it does not, Montana may find its major industries moving to out-of-state locations with better market possibilities.

Question 18 - Does climate have any affect on your production process?

Over one-third of the respondents to this question indicated that climate does affect production. Some mentioned that special facilities were required in the winter season, thus incurring an added cost. Others

mentioned that production was seasonal due to the winter climate. In almost all cases where climate affected production, the firms were resource oriented. That climate does affect operations in these firms is generally recognized, but it is doubtful that climate would be a primary location determinant. In fact, only one respondent out of the 69 questionnaires tabulated indicated that climate was a location factor and this respondent felt that it was a favorable location factor.

One might obviously conclude from the above that climate is not a factor to consider in the industrial development of Montana. Before drawing that conclusion one must keep in mind that the responses were from firms operating in the Montana climate and undoubtedly have largely accepted climatic conditions within the State. Luring others to accept them may be a different story. Nevertheless, a point worth mentioning to firms interested in Montana is that the representative firms in this survey do not feel that the Montana climate is unfavorable to their Montana locations.

Questions 21 through 31 - Labor.

The respondents to the questions on labor employed an average of 3,633 employees during 1966. This represented approximately 16 percent of the average manufacturing employment for that year. The average yearly number of employees in the respondent firms varied from one to over 500, with a good mixture of those in between. Twenty-eight percent of the employees were classed as highly skilled, another 28 percent as unskilled, and the balance, 44 percent, were classified as semi-skilled. Thirty-three respondents felt that there was an adequate supply of labor in their area of operations, 34

felt that there was not. Eleven respondents felt that a good apprenticeship program would take care of their labor needs; 16 respondents indicated that trade or vocational schools are needed to train prospective employees.

No respondent rated their employees as below average in productivity and 27 and 42 respondents rated their employees as above average and of average productivity, respectively. It appears that Montana employers rate their employees very high. As for pay, 30 respondents indicated that employee pay was above average for the community, 4 indicated the pay was below average, and 30 indicated the pay was the same.

The employees of 31 respondents belong to labor unions and 38 do not. 85 percent stated that they have had no labor problems in the last 5 years and of the remaining 15 percent, only one out of the nine firms that have had labor problems had these problems within the last three years. Average labor turnover for all firms was 6 percent. This figure is biased upwards because of the seasonal work found in several of the respondent firms.

Responses to the questions on labor indicate that Montana employers think very highly of their labor force and that the employees in the respondent firms think highly of their employers. It should be pointed out that three of the respondents were from Butte (employing a total of 20 employees) and their answers indicated that they were happy with their employees and that none of them have had any labor problems. Thus labor peace is attainable even in communities noted for labor unrest.

Questions 32 through 35 - Transportation.

Respondents to these questions indicated that almost all use the

standard means of transportation--public motor carriers and railroads. In addition, many of the resource oriented firms use private motor carriers or, in two cases, pipelines. Nine respondents indicated that airline facilities were used on incoming or outgoing freight. In three of these cases, the nature of the item being produced (heavy durable goods) would preclude the extensive use of airlines; in fact, one might question its usefulness at all for these three firms. In only one firm would airlines be considered from a location standpoint as an acceptable means of transportation. Here the unit selling price of the item is large, the weight is small, and time could be important in the selling transaction. Over 75 percent of the respondents indicated that no special facilities were required on incoming or outgoing freight. Those requiring special facilities were concentrated in four industrial groups--food, chemicals, lumber, and stone products.

It would appear from the responses that the transportation needs of Montana firms are relatively simple. If special facilities are required, several of the respondents indicated that they have developed their own. Cost of transportation is another matter. It was one of the most frequently mentioned disadvantages in a Montana location. With a low density of population, this factor should continue to be an important limitation for most firms in Montana. Significant, though, is that none of the respondents commented about transportation service, only its cost. One commented that the long distance away from his suppliers was a problem but the respondent made no mention of transportation service or cost as being a disadvantage. It would appear that Montana firms are satisfied with the service received

from the private enterprise transportation system (or they have developed their own), but are not satisfied with its cost. However, there is little prospect for any change in the immediate future.

Questions 36 through 38 - Facilities.

Seventy-six percent of the respondents to these questions owned their plant, 18 percent rented, and 6 percent had a lease-purchase option. In addition, 15 percent of the respondents had changed locations in recent years. The reason given for the location change along with the number of times that it was mentioned are as follows: To expand production facilities, (6); to obtain better facilities, (3); and for an economic advantage, (1).

The majority of respondents that own their facilities should lend some stability to the industrial sector of Montana. Although the fact that these firms have committed their capital into owned facilities is no guarantee of their financial solvency (in fact, some of them undoubtedly would have been better off by renting and using the capital saved in this process to expand inventories or production equipment), it is indicative of their attitudes toward their locations. They are here to sink or swim. On the other hand, firms that rent can frequently use this device to try out an area. If it works out, they will stay and possibly invest; if it does not, they can move along to a new area. Only 4 out of the 14 firms established in the 1960's that responded to the questionnaire are renting and one of these is renting only part of its facilities due to expansion. Apparently most of the recently established firms are willing to make a permanent (or relatively permanent) investment in Montana. In only one case did the respondent's answers

indicate that it was trying out a Montana location. In this particular case, the expansion of employees and capital investment in equipment would lead one to conclude that a Montana location has proven very satisfactory.²

Question 41 - What percentage of the original plant investment came from each of the following: Sources outside Montana, governmental sources, sources located within or close to the community in which you operate, and sources other than local but within the State of Montana?

For respondents answering this question, 39 percent of the original capital came from sources outside Montana, 50 percent came from local sources, 4 percent came from governmental sources, and 7 percent came from other Montana sources. For firms commencing operations since 1950, 42 percent of their initial capital was obtained from sources outside Montana, 46 percent came from local sources, 3 percent from governmental sources, and 9 percent from other Montana sources. Classifying firms organized since 1950 by average number of employees in 1966, the responses indicated that firms employing less than 25 employees obtained 37 percent of their funds from sources outside Montana, 59 percent from Montana sources, and 4 percent from governmental sources. Respondents having more than 25 employees obtained 78 percent of their initial funds outside Montana, 22 percent from Montana sources, and none from governmental sources. As expected, small firms are tied to a greater extent to local sources for their initial capital than

²The mere fact that a firm is renting is not proof that it is trying out an area. Many firms feel that the return on investment in a plant is low as compared to that obtainable in other assets. Such firms, as a matter of policy, rent or lease whenever possible.

are the larger firms who have access to capital outside Montana. The expansion of small manufacturing firms in Montana is probably highly dependent upon the availability of local risk capital.

Questions 42 and 43 - Pollution.

Approximately 80 percent of the respondents indicated that they have had no air or water pollution problems. Those respondents having pollution problems were located primarily within three groups: lumber, chemicals, and petroleum. Of the respondents having pollution problems, 25 percent could eliminate or alleviate their problem by a change in location. Pollution for the other 75 percent is inherent in the process itself and a change in location would simply transfer the problem.

Because most of the major pollution problems are found in the resource oriented firms, any growth among this type of firm (and it is likely that if major growth occurs it will be in this area) would likely lead to greater (but not necessarily insurmountable) pollution problems in Montana.

Question 44 - Does a trend exist in your industry toward consolidation or automation that will affect your company?

The respondents were almost evenly divided on this question, 32 answering yes and 33 answering no. Those answering yes were asked to indicate how automation or consolidation would affect their company. Twelve respondents indicated that the trend would probably eliminate their companies for the reason generally that their small plants were no longer economically justified. In other words, economies of scale were such that firms providing a small output for a small regional market were at a cost disadvantage to

firms producing large outputs in more centrally located markets. Other respondents indicated that their firms would either have to automate or lose their present competitive position. One respondent indicated that automation would have the effect of reducing employment.

Question 45 - List as many factors as you can that influenced your present plant location.

The following list indicates the factors listed by the respondents along with the number of times that the factor was mentioned: availability of raw materials, (25); availability of transportation facilities, (17); availability of markets, (15); availability of labor, (13); availability and cost of utilities, (11); location where organizer of business lived, (7); availability of suitable plant facilities, (5); availability of land, (4); taxes, (4); good highway traffic trade, (3); good living conditions, (3); availability of financing, (3); lack of competition, (2); adequate community housing, (2); good community, (2); plus several other factors mentioned only once including climate, lower overhead, closeness to other industrial firms, good educational facilities, to obtain a freight advantage, because of harmonious labor relations, and adequacy of sewage facilities.

It is not surprising to find that a large number of respondents would select availability of raw materials, markets, and labor as these are primary location determinants for most firms. What was surprising was to find that the availability of transportation facilities was mentioned by 17 respondents. As mentioned earlier in this paper, the service provided by the transportation network is important to many firms, but it could hardly be

called a primary location determinant. It seems apparent that many of the respondents must have already narrowed their location to Montana and then selected their exact site in Montana because of the transportation system. The Montana transportation system is not that good nor that efficient that it would be a primary location factor and bring industry to Montana.

Another interesting disclosure was that 11 respondents mentioned utilities as being highly important in the selection of their locations. From the information gathered on utility costs and presented in Chapter IV, only 3 out of the 11 respondents would have utility costs that would be material. The cost of utilities for the other 8 should be insignificant and not an important location factor. The other possible explanation for these firms listing utilities was their availability at the location selected. Because utilities are available at many locations, they would certainly not be a primary but rather a secondary location factor. Thus utilities would help to select the exact site but not the general area for the plant location.

Another point apparent in the responses was that several firms have selected their locations simply because the organizers already lived in that community. Perhaps in many Montana communities there exists the embryo for future industrial expansion. This brings out another point often stressed by professional plant locators. That is, look for expansion or development within one's own community before going outside to attract industrial development.

Question 46 - What factors do you feel are unfavorable in your present location?

The following is a list of factors mentioned by the respondents along with the number of times that the factor was mentioned: High freight rates, (16); inadequacy of markets, (14); a reducing or unstable raw material supply, (6); high taxes, (6); no room for expansion, (5); remoteness from suppliers, (4); labor shortages, (3); high production costs, (2); high property costs, (2); water shortage, (2); wrong location due to flood conditions, (3); plus other factors mentioned only once such as presence of non-union competitors, reluctance of controlling industry group to support industrial development, capital shortage, politics, inadequate building facility, lack of a good technical library in area, too much competition, high cost of utilities, and the lack of a favorable industrial climate on the part of the general population of Montana.

There were few surprises in the responses to question 46. As stated in Chapter IV, markets and transportation costs are the two biggest limitations to industrial growth in Montana. The responses indicate that Montana industry is acutely aware of these two limitations. As for the third and fourth items most frequently mentioned, declining raw material supply and taxes, the former is not subject to location policy except to find more raw materials; the latter, from the analysis in Chapter IV, is not an important cost item but apparently in the minds of some respondents, and this is important, it is thought to be a limitation to their present locations.

Question 47 - If you were selecting a new plant site in 1967, would you select the same location as your present plant, a location in another part of the same general area of the present plant, a location in another area

but still within Montana, or a location other than in Montana?

This question was designed to determine how satisfied the respondents were with their present locations. Of the 68 respondents, 33 (49 percent) would select the same location, 13 (19 percent) would select a location within the same area as their present site, 5 (7 percent) would select a location in another Montana area, and 17 (25 percent) would select a new location outside Montana. Thus about one-third of the respondents are unhappy with their present location area. Of the 22 respondents who would change areas, 10 are resource oriented, 9 are market oriented, and 3 would be classed as footloose firms. Approximately 60 percent of the 22 that would change areas have a consumer market and the balance an industrial market.

The reasons mentioned by the respondents for staying at their present location were: source of raw material, (9); central market location, (12); personal considerations, (9); solved most of the problems at this location, (1); and reputation of the firm is outstanding at this location, (1). For those respondents moving to another location in the same area, their responses were: obtain a better traffic location, (2); move from flood area, (2); reduce property taxes, (1); market goodwill, (1); to expand, (1); nearer to personal residence, (1); and to be out of the city, (1).

Those respondents selecting a location in another area within Montana gave as their reasons the lack of support for industry at the present location, business would be more appreciated elsewhere, and to obtain a larger labor force. The respondents who would select a location outside Montana indicated that lack of markets (mentioned 6 times) was the primary reason

for the move and this was followed by high taxes, (2); too many major location factors against present location, (2); declining raw material source, (2); freight disadvantage, (1); power cost, (1); too much competition, (1); and lack of support for industry within the State, (1). From the variety of answers given by those respondents who would change areas, it becomes apparent that for the theory of location to be useful it must be tailored to fit the needs of a variety of firms and locators. A particular part of the theory that might be important to one firm may not be important to another.

General Comments

Overall, the results of the questionnaires were about as expected in light of location theory. It was obvious, though, that many of the small independent firms in Montana have given very little thought to demand and cost considerations in selecting a location. They exist where they are because of minor or secondary factors of location that they considered to be of major importance at the time of location. It is to be expected that such location policies will have the effect of creating a high mortality rate among these firms. On the other hand, most of the larger firms seemed more knowledgeable about their firms, gave more complete and precise answers to the questionnaire, and gave mostly primary factors (and far fewer secondary factors) as reasons for the selection of their locations.

Firms Investigating Montana Locations

Forty-five questionnaires were mailed to firms or individuals that had contacted an industrial development agency within Montana. (See Appendix II

for a copy of this questionnaire.) Of these 45 questionnaires, 2 were returned unopened with the notation that the addressee was unknown or had moved and left no forwarding address. Twenty-one responses were received from the remaining 43, although the response from one was that he had made no contact with anyone in Montana. Three of the respondents did not return the questionnaire but made their comments in the form of a letter.

A summary of the results of this questionnaire are as follows:

Question 1 - How did you make your first contact in Montana?

Thirteen respondents made personal visits to Montana, 3 had their first contact by mail, and 1 made the first contact by telephone. Thus, most of the respondents would have some first hand knowledge of Montana.

Question 2 - How did you feel that you were treated on these contacts in Montana?

Without exception the respondents indicated that they received excellent treatment. Two of the comments made by the respondents were interesting and worth repeating. One stated: "In fact, (the treatment was) as well or better than in any other state." The other felt that the treatment went a little overboard for the "cursory investigation" that was made. The latter comment would seem to indicate that perhaps some groups in Montana are a little too hungry for industry.

Question 3 - Were you supplied with adequate information concerning site locations in Montana?

Only one out of the 14 respondents answering this question indicated that less than satisfactory site information had been received. This

respondent indicated that a few cities had responded to his requests but some had not. From the answers, it would appear that the respondents were entirely satisfied with the information that had been given them. Because most of the contacts were by personal visits, the respondents would have had an opportunity to check out the information supplied by the Montana development groups.

Questions 4 and 5 - Which of the following indicates the interest you have (or had) in a Montana location: A Montana natural resource, a Montana market, or other. Do you have plans that would include Montana as an industrial location in the next one, three, or five years?

Eight respondents indicated an interest in a resource, nine in Montana markets, two in utilities, and one had an interest in a manufacturing activity that was neither resource nor market oriented. Of the 8 that indicated an interest in a Montana resource, six indicated that a Montana location could be in the offering within the next five years; the other two indicated that lack of markets presently made the resource unattractive as a plant location.

Of the 9 respondents indicating an interest in Montana markets, 5 indicated no further interest within the next five years in a Montana location, 2 indicated the possibility of a plant being established in Montana within five years, one in possible three years, and one possibly within the next year. Without exception, the 5 indicating no interest within the next five years gave as one of their reasons the lack of markets in and surrounding Montana.

Of the three respondents that indicated an interest in neither markets nor resources, only one gave an indication of continued interest in establishing a Montana location, and he qualified his answer with a "maybe."

Question 6 - How would you rank Montana as compared to other states as an industrial site?

Of the fifteen who answered this question, 3 ranked Montana high, 6 as average, and 6 as low. Of the ones ranking Montana high, each ranked it high for a different reason: labor, abundant resources, and utilities. Of the other 12 respondents, only 8 completed the "why" part of the question; of these 8, 7 listed markets as the reason for ranking Montana as average or low as an industrial site.

Question 7 - What factor(s) led you initially to consider Montana as a possible plant location?

Four of the respondents indicated that resources led them to consider Montana, 2 indicated cheap and available labor, 2 indicated a Montana market, 2 indicated utilities, and the following were each mentioned once: availability of low cost land, no competition in Montana, recreation facilities, future growth of the state, personal knowledge of the state, possible acquisition of an existing Montana firm, happenstance, living conditions, and a potential customer requesting our consideration.

As expected, the big attraction was the State's resources, but one can also note the variety in the responses. This would seem to indicate that industrial growth can occur as the result of many location factors.

Question 8 - What disadvantages did you find in Montana locations as

compared with other locations considered (or selected) for your facility?

Markets were the major disadvantage mentioned by 8 respondents. Five of those mentioning markets stated they were too far away; the other 3 stated that Montana and near-by markets were too small to support an economically sized operation. Taxes were mentioned on 6 questionnaires with 3 respondents indicating that high state and local taxes was the disadvantage, another indicated high fuel taxes, and one indicated the threat of a sales tax as a disadvantage. (With 43 states having sales taxes, it is hard to see how the threat of a sales tax could be a disadvantage; nevertheless, it apparently disturbed one of the respondents.) Five respondents indicated labor as a disadvantage in Montana with its cost, availability, quality, and labor problems mentioned as the reasons. Four respondents mentioned that distance, order time, and service from their raw material suppliers were distinct disadvantages to locating in Montana. Other factors being mentioned and the number of times that each was mentioned are as follows: cost and service received from the transportation system, (2); difficulty of obtaining mineral rights, (2); shortage of capital, (2); Montana climate, (2); cost of utilities, (1); over regulated economy in Montana, (1); high building costs, (1); and resentment from local businesses, (1).

Most of the disadvantages were as expected and as mentioned in Chapter IV with the exception that distance to suppliers was more of a problem than had been anticipated. Although the example given on page 116 indicates that the problem does exist, it was not anticipated that it would be as large a problem in a Montana location as it apparently is.

Question 9 - What factors would you consider to be an advantage in a Montana location?

The advantages and the number of times that each was mentioned are as follows: availability of natural resources, (6); good living conditions, (5); good labor, (4); present and future market potential, (4); cost and availability of land, (4); abundant and low cost water and power, (2); favorable environment for mineral exploration, (1); no pollution, (1); rigorous Montana climate, (1); and availability of recreational opportunities for employees, (1).

Living conditions were mentioned more than had been anticipated, and recreation was mentioned less. However some respondents may have considered recreation as part of the amenities included in living conditions. Notwithstanding, living conditions may be more important as a location pull than was thought. However, as mentioned on page 152, the number that have excluded Montana as a location before investigating is unknown. At least caution seems to be indicated before giving too much importance to living conditions in Montana as a location pull.

It was also interesting to note the opposite points of view taken by a number of respondents. Labor, for example, was a disadvantage mentioned by 5 respondents to question 8 and an advantage by 4 respondents to question 9. This points up the fact that not only do the factors vary from location to location within Montana but also that in the estimation of any factor it is subject to the varying needs of the locator. Thus, one canned set of location factors is simply not an attractive package to attract a broad base of

interest in industrial growth.

Question 10 - Do you have any recommendations that might help to stimulate industrial growth in Montana?

The responses to this question are as follows:

No, as markets are too remote and taxes too high.

Only more and better air schedules which will probably follow your industrial expansion.

The taxes on business and industry in Montana are numerous and complex. There seems to be no source to give complete information on this area of costs which, of course, must be considered in the planning of a future operation. We suggest a publication outlining the applicable taxes.

Make loan money available at a low interest rate. Provide buildings at a reasonable cost. Develop industrial areas that are not controlled by real estate people and building contractors.

I couldn't offer any specific ones in that from our point of view geography was a distinct disadvantage.

Freight rates must be equitable and air transport convenient. Greater utilization and manufacture of existing raw materials. Industries manufacturing products where transportation was not critical. Small manufacturers might start as suppliers to local markets and expand outward.

Get more people.

Think as industry does, although a "cow-country" legislature has trouble in this area. The State must also find a way to keep some of the talent that now leaves the State.

Market studies for uses of non-metallic minerals in Montana and surrounding areas, including freight rates, power and gas rates, taxes, etc.

Transportation rates and airline routings are problems. Manufacturers must operate under a handicap due to cost of moving the product around. Airline schedules are poor causing a great deal of wasted time in conducting business.

Have reasonable taxes and power rates and available labor markets.

Continued publicity on advantages.

In summary, the questionnaires to investigators on Montana locations revealed very little information about industrial development of Montana that was not already known by examining location theory and the characteristics of Montana. Markets are the biggest deterrent to growth and resources are the biggest stimulant.

Firms No Longer Operating in Montana

By comparing listings in the 1965-1966 and 1967-1968 issues of the Montana Directory of Manufacturers and Buyers Guide, twenty firms were selected as having been listed in the 1965-1966 issue but were no longer listed in the 1967-1968 issue. Questionnaires were then mailed to these firms either at the home address of the person listed as being head of the firm or, where this address was not available, to the business address as listed in the 1965-1966 issue. (A copy of this questionnaire can be found in Appendix III.) Of the 20 questionnaires mailed, two were returned by the Post Office as being unable to locate, two were returned with the notation that they were still in business, two were returned by firms that were no longer operating (only one questionnaire was returned, the other was a letter), and the other fourteen questionnaires were apparently received at their intended destinations but were not returned. From the poor response to this questionnaire, this group was apparently not willing to share their problems nor give their suggestions with regard to industrial growth in Montana.

From the information supplied by the two respondents that were no longer operating in Montana, one indicated that they were operating to fill a market demand in Montana but had been unable to tap enough of this demand that they could continue in business. The other respondent was engaged in processing a Montana resource and trying to tap an out-of-state demand. Due to "low prices, high cost of manufacture, and unreliable sources of necessary machinery and parts," the company was forced to suspend operations. Having a high cost of manufacture could indicate that the company was operating in an industry having economies of scale. The company was probably unable to expand to a point where its costs of manufacturing were competitive with other firms. The firm had no diversification and had put its available resources on the fortune of one product.

This company suggested giving tax relief to new firms as a way of stimulating industrial growth in Montana.

Summary

A common complaint about theory is that it is exceedingly abstract, impractical, and belongs only to those in their ivory towers who are far removed from reality. This chapter attempted to determine how wide the gap was, or if any gap existed at all between location theory and practice.

The theory of location indicates that a location should be selected that will maximize profit. Some firms in Montana have found their maximum profit locations within the State. Most of these are either small firms oriented to Montana markets or those oriented to Montana resources. Other

firms have recognized that Montana has demand and/or cost limitations that preclude the State from being a maximum profit location. The major demand limitation is markets and the major cost limitation is transportation.

For those firms that have largely ignored the major location factors of demand and cost, they could very well be seeking a maximum satisfaction location rather than a maximum profit one. If these firms succeed (and the odds would be against them), chances are high that they will remain small. At least the empirical studies in this chapter indicate that the larger firms are more concerned with demand and cost factors and are less concerned with personal factors than are the small firms.

Overall, the results of the empirical studies in this chapter are in major agreement with location theory. The main point of dispute between them lies in the emphasis placed upon the different location factors. Montana firms place more emphasis upon personal factors of location and somewhat less upon those factors leading to a maximum profit location. Stable growth in the industrial sector of Montana will come only by greater adherence to the demand and cost factors of location. Nevertheless, indications from the empirical studies are that Montana will have some expansion of industry through personal factors of location.

The comparative success or failure of an industrial development program depends primarily upon the spirit and enthusiasm of the community itself.

Luther H. Hodges

Chapter VI

ATTITUDES TOWARD INDUSTRY

Importance of Attitude

Basically all human beings want to feel accepted by their families, friends, or acquaintances. Those who make the decisions as to where to locate industrial plants also want to feel that their plant will be accepted within the area where they will operate. A special report in a popular periodical had this to say on the subject:

On the whole, the record shows that industry is giving a lot of attention nowadays to the public atmosphere, the attitude toward business they will find in any locality where they decide to put up a new plant. Over the years, some companies have found that costs of doing business in an unfriendly climate can outweigh savings on such things as freight or power or wages.

Luther Hodges, former governor of North Carolina, stated that: "It has been my experience that the most important requirement from the community standpoint is attitude--the attitude of the people in a community toward the industry they now have, and the industry they may acquire."² Hodges

¹"The Way Business Rates the States," U.S. News and World Report, October 26, 1956, p. 109.

²Luther H. Hodges, "Does Your Town Want Industry," Rotarian, April, 1959, p. 31.

then quoted from a speech given by the president of a large corporation who said: "We have come to this community because on our earlier visits here we were greeted by people who, in our opinion, proved the existence of the environment necessary for successful human relations."³ An editorial in the magazine The American City stated that "basically every industry wants some indication that the community is on its side."⁴

Results of Questionnaire

If industry is looking for positive attitudes, do these attitudes exist in Montana? In an attempt to determine this answer, a questionnaire was prepared (Appendix IV) that was used to interview a cross section of the Montana population. Seven hundred questionnaires were completed by the adult population of the State and of these 663 were in a condition complete enough for inclusion in the tabulation. In addition, 300 questionnaires were given to students at Montana State University to determine their attitudes inasmuch as many of them will be forced to leave the State to find suitable employment. Of the 300 questionnaires given students, 279 were used in the tabulation. Thus the total number of questionnaires used in the following tabulations amounted to 942 or approximately 0.25 percent of the Montana population over 18 years of age.

Table XXV shows the overall result of the questionnaire plus a breakdown between students and non-students. The responses to most of the

³Ibid, p. 31.

⁴"Want New Industry," The American City, April 1959, p. 5.

TABLE XXV

SUMMARY OF RESPONSES ON "ATTITUDE TOWARD INDUSTRY" QUESTIONNAIRE

Question		Non-Student	Student	Total	
1.	Are you in favor of trying to stimulate industrial growth in Montana?	YES 90%	85%	89%	
		NO 10	15	11	
2.	Are you familiar with the operation of the State Planning Board?	YES 30	12	25	
		NO 70	87	75	
		NO RESPONSE --	1	--	
	If yes, do you think that it is doing the job that they should be doing? (% based on yes responses to question above.)	YES 49	33	47	
	NO 51	67	53		
	NO RESPONSE --	--	--		
3.	Does the community in which you live have a R & D council or some other similar group that is trying to stimulate industrial development?	YES 41	29	38	
		NO 23	19	22	
		NO RESPONSE 36	52	40	
	If yes, in your opinion has it been effective in promoting industrial growth in your area? (% based on yes responses to question above.)	YES 32	34	32	
	NO 62	57	61		
	NO RESPONSE 6	9	7		
	Are you now or have you ever been affiliated with such a group (to promote industrial development)?	YES 11	--	8	
		NO 79	88	82	
		NO RESPONSE 10	12	10	
4.	Are you in favor of concessions or inducements to attract new industry to locate in Montana?	YES 80	77	79	
		NO 19	22	20	
		NO RESPONSE 1	1	1	
	If yes, what kind of concessions or inducements would you give? (% based on yes responses to question above.)	REDUCING INCOME TAX 28	30	29	
		REDUCING PROPERTY TAX 65	67	66	
		REDUCING INVENTORY TAX 37	28	35	
		ENACTING FREEPORT LAWS 23	26	24	
		USING REVENUE BONDS 43	42	43	
		TRAINING LABOR 40	26	36	
	OTHER 9	15	11		
5.	In your opinion, does industrial growth pose any major problems in such areas as:				
	Air Pollution	YES 66	75	68	
		NO 26	22	25	
		NO RESPONSE 8	3	7	
	Congestion	YES 33	50	38	
		NO 51	45	49	
		NO RESPONSE 16	5	13	
	Social Adjustments	YES 45	50	47	
		NO 41	42	41	
		NO RESPONSE 14	8	12	
	Recreation	YES 37	44	39	
		NO 46	46	46	
		NO RESPONSE 17	10	15	
	Types of People Employed by Industry	YES 38	40	39	
		NO 42	50	44	
		NO RESPONSE 20	10	17	
	6.	In your opinion, are there some types of industry more desirable than other types?	YES 69	80	72
			NO 24	18	23
		NO RESPONSE 7	2	5	
7.	Does Montana have anything special to offer industry?	YES 87	91	88	
		NO 9	7	8	
		NO RESPONSE 4	2	4	
8.	Does Montana have any disadvantages which would prevent industry from locating in the State?	YES 80	93	84	
		NO 16	7	13	
		NO RESPONSE 4	--	3	
TOTAL NUMBER OF QUESTIONNAIRES TABULATED		663	279	942	

questions as between the non-student and the student were quite similar. Both groups were overwhelmingly in favor of trying to stimulate industrial growth in the State. Some typical answers to the question "Are you in favor of trying to stimulate industrial growth in Montana?" were as follows:

Yes--I'm in favor to a certain degree to increase the tax base so hopefully property taxes will be reduced.

No --As long as our elected officials don't seem in favor of our growth, why should I?

Yes--I live here and am looking for more employment for my boys.

No --I prefer rural life.

Yes--To see Montana grow--better schools, roads--Montana needs more people and money.

No --Leave the State like it is--I like elbow room.

Yes--To keep our talented young people in the State.

No --Too many people coming and not enough resources--it will interfere with my cattle ranch.

Yes--Their income to the State might help our institutions.

No --Because I want to preserve the beauty of the outdoors.

Yes--It is inevitable, so why not control and direct it.

No --Montana is attractive to me personally because it's not overcrowded and does not suffer from effects of industry such as smog, pollution, etc.

Yes--I feel Montana is lagging behind the times. With greater industrial growth, we could eventually have in Montana opportunities for more cultural growth, better employment, and fewer well-educated young people wanting to leave Montana for better opportunities.

No --I believe industrial growth will come to Montana in time as has everything else we have.

Yes--I really can't see Montana becoming one big resort area. We need something more reliable.

No --We don't need any more people in Montana.

Yes--But only if they are privately owned--not government sponsored.

The reasons most frequently mentioned with a "yes" response were to lower taxes, keep our young people in the State, improve our public facilities--roads, schools, etc., and develop the resources of the State. With a "no" response, the reasons most frequently given were pollution of air and streams, make the State too crowded, and that industrialization will come so why try to stimulate it.

It was a pleasant surprise to find that most of the respondents seemed highly knowledgeable about industrial growth. Most of the respondents seemed to have been sold on the merits of industrial growth at some previous time. The writer had anticipated that the majority of the respondents would be against industrial growth. This anticipation was based on some personal conversations with a few people throughout the State. Such an anticipation was not borne out by the answers to the questionnaire.

The majority of the respondents were not familiar with the State Planning Board and by a bare margin those familiar did not think the State Planning Board was doing the job it should be doing. In fact, a number of respondents wanted to know what the State Planning Board was. In fairness to the State Planning Board, its budget has been so small that most of its available funds have been used to promote Montana outside the State rather than within. Some comments made to improve its operations were:

Let the people around Montana know more about its operations to further its support.

Get busy and list the advantages and put them before the people that could use them.

As a beginning they are not satisfied to start small with assets at hand but rather talk of Montana as a big industrial state to begin with.

Give them more state funds.

Remove it from all political connections.

I think more literature put out to the public by the board would be of great help.

From the responses, few of those who completed the questionnaire were familiar with the monthly publication Industrial Horizons published by the State Planning Board. Perhaps wider exposure of this publication would have helped to publicize the operation of the Planning Board.

The majority of the respondents were in favor of granting concessions to new industry but the percentage was less than the question of being in favor of trying to stimulate industrial growth. This indicated that some who were in favor of trying to stimulate industrial growth were not in favor of stimulating it through the granting of concessions. In general, the yes-no responses as well as the statements on the "Why" part of the question were similar for both questions (1 and 4). Some typical comments to question 4 were:

Yes--If we don't attract industry, Montana is going further and further backwards.

No --Treat everyone alike--old and new.

Yes--It is probably the only way that industry will locate here.

No --I feel the natural resources and ample space should be sufficient inducements as you would discriminate against existing industry.

Yes--To make up for location.

No --Because this area has so many things in its favor it doesn't need to give concessions.

Yes--Concessions of some sort are essential to get industry to locate initially--once some industries are established, others will follow.

No --There is now enough industry in Montana for present population.

Yes--I think that Montana needs industry enough that it is important to use all means to draw it in.

No --Because industry that comes to Montana on its own would be more sincere and resourceful than one that has been subsidized.

Because the majority want to give concessions, what kind of concessions were they willing to give industry? The number one concession was to reduce property taxes, number two was to sell state or local industrial bonds to build the facilities industry wants, number three was the free training of the labor needed by industry, number four was the reduction of inventory taxes, five was the reduction of income taxes, and sixth was to enact freeport legislation. Other concessions frequently mentioned under "other" were those improving transportation in the State and giving new industry free land upon which they could build their plants. Several of the interviewers reported that respondents were not familiar with "freeport" laws so that this concession probably ranked much lower than it would have otherwise. In fact, in one group of 53 students that filled out the questionnaire and where "freeport" laws were explained, it ranked number two as a concession, right behind reduction of property taxes.

Over two-thirds of the respondents felt that air pollution is a major problem in industrialization. Yet experts in the area of industrialization point out that only a very small number (about 10 percent) of industrial plants will cause any kind of air or water pollution. Perhaps, the notoriety of the Missoula area and the phosphate plant at Garrison may have influenced the respondents into classifying most industry as air and water polluters.

The student respondents (50 percent yes) expected more problems in congestion than the non-students (33 percent yes) but overall (38 percent yes) it was not a major problem. Social adjustment was considered to be more of a problem (47 percent yes) than recreation (39 percent yes) and types of people (39 percent yes). A priori, recreation was expected to be classed as a major problem as many Montanans seem very jealous of keeping the recreation areas of the State for themselves. Yet the tabulation showed that Montanans were more broadminded than perhaps they were given credit for being.

Three out of four respondents felt that some types of industry were more desirable than others. The respondents listed the following as some of the more desirable types:

Any type that could effectively use the natural resources of the State.

Those requiring skilled labor.

Any industry that employs local people.

Any offering fulltime employment.

Agriculture and related industries.

Electronics and drug manufacturers.

Aircraft and missiles.

Research companies.

Those not harming natural streams and wildlife.

Those hiring employees of higher intelligence.

The respondents listed the following as being the least desirable types of industry:

Those that bring most or all of their raw material in.

Industries that lead to pollution problems.

Mining.

Industries that bring their own people with them and industries that are looking for a cheap location to operate and don't plan to put any benefit back to the people.

Pulp and paper mills.

Chemical industries.

Steel mills.

Plants paying starvation wages and low taxes.

Plants using unskilled labor.

Those offering seasonable employment.

In analyzing the answers to least and most desirable types of industry, one could find just about all types of industry on either side. Most frequently mentioned as being most desirable were those using the natural resources of the State--which most of our present manufacturing does--and

those industries using skilled labor on a year-round basis. The undesirable industries most frequently mentioned were those that lead to pollution problems, such as pulp mills, and those using unskilled labor. In summary, the most desirable industry would seem to be one that used skilled labor on a year-round basis in the processing of the State's natural resources in a setting that provides no pollution problems of any kind.

Almost nine out of ten of the respondents felt that Montana does have something special to offer industry. The respondents most frequently named water, power, and climate as that something special. Some of the other favorable attributes named were:

Natural resources and lots of space.

Surely the climate, unlimited room, and the friendly people already here.

Above average workers, good recreation, and a healthy climate.

Good transportation.

Freedom from sales tax and plenty of space.

Environment for worker satisfaction.

Scenery and recreational opportunities.

Over eight out of ten respondents indicated that Montana has disadvantages that would prevent industry from locating in the State. Some of these disadvantages were:

High taxes.

High freight rates and low population.

Winter climate.

Too far from markets.

An archaic tax system that penalizes industry and improvement.

Not centrally located and an inadequate labor force.

Anaconda Company and Montana Power to contend with.

Retired people are against it.

Unions which make industrial growth prohibitive.

A state government which seems reluctant to cope with the problems of the 20th Century.

Attitude of people in general--not wanting change.

Republicans.

Democrats.

Too many people that sit on their backsides and wait for something to be handed to them.

In regard to questions 7 and 8, all states and all areas have some advantages and some disadvantages and Montana is certainly no exception.

The last question on the questionnaire (question 9) was open-ended to give respondents a chance to sound off their ideas on promoting industrial growth in Montana. Some answers reflected a positive viewpoint on the part of the respondents while others reflected a feeling of frustration in not knowing what to do. Some representative answers were:

Encourage communities to offer low cost plant sites--obtain and publish more complete information about location and cost of power, water, land, and workers--investigate more fully and promote finishing of Montana products (cattle, wheat, lumber).

Advertise our advantages and try to overcome some of our disadvantages.

I don't know--but I wish I did.

Advertise.

Go to meetings of planning groups and help plan.

Elect people that are trained in this type of business and know what it is all about.

Election of legislators favoring industrial growth in the State.

Vote for it! Pay taxes for its support.

Convince politicians that development and growth of Montana should be their first concern.

I don't know what I could do as an individual.

Being at near retirement age, I can do nothing.

Nothing, it's not my job.

I would advertise and try to come into contact with industrial leaders who were interested in expanding.

Table XXVI analyzes the non-student respondents by sex and age to determine if certain attitudes were characteristic of a certain age or sex or if they were characteristic of the entire group.

No major difference existed within any age group or between sexes with regard to trying to stimulate industrial growth. However, the over 60 male and female groups appear to be slightly less inclined toward trying to stimulate industrial growth than do the other age groups. The 30 to 60 and over 60 male groups plus the over 60 female group appear to be more knowledgeable concerning the operation of the State Planning Board than do the younger groups.

No major difference existed in the yes-no responses with regard to concessions or inducements to attract industry with the exception that the

TABLE XXVI

RESPONSES ON 663 NON-STUDENT "ATTITUDE TOWARD INDUSTRY" QUESTIONNAIRES BY AGE AND SEX

Question		Male				Female				Grand Total		
		Age				Age						
		18-29	30-60	Over 60	Total	18-29	30-60	Over 60	Total			
1.	Are you in favor of trying to stimulate industrial growth in Montana?	YES	87%	91%	85%	89%	89%	96%	80%	92%	90%	
		NO	13	9	15	11	11	4	20	8	10	
2.	Are you familiar with the operation of the State Planning Board?	YES	17	37	38	33	11	25	45	24	30	
		NO	83	62	62	67	89	75	55	76	70	
		NO RESPONSE	--	1	--	--	--	--	--	--	--	
	If yes, do you think that it is doing the job that it should be doing? (% based on yes responses to question above.)	YES	16	55	40	48	20	48	89	53	49	
		NO	84	45	60	52	80	52	11	47	51	
		NO RESPONSE	--	--	--	--	--	--	--	--	--	
3.	Does the community in which you live have a R & D council or some other similar group that is trying to stimulate industrial development?	YES	31	46	42	42	22	45	55	40	41	
		NO	30	25	28	27	7	12	25	12	23	
		DON'T KNOW	39	29	30	31	71	43	20	48	36	
	If yes, in your opinion has it been effective in promoting industrial growth in your area? (% based on yes responses to question above.)	YES	29	34	23	32	50	27	27	31	32	
		NO	68	62	68	63	40	61	55	57	62	
		NO RESPONSE	3	4	9	5	10	12	18	12	6	
	Are you now or have you ever been affiliated with such a group (to promote industrial development)?	YES	4	18	21	15	2	1	--	1	11	
		NO	83	71	68	74	87	96	100	94	79	
		NO RESPONSE	13	11	11	11	11	3	--	5	10	
4.	Are you in favor of concessions or inducements to attract new industry to locate in Montana?	YES	76	80	79	79	84	89	65	85	80	
		NO	23	19	21	20	16	10	35	14	19	
		NO RESPONSE	1	1	--	1	--	1	--	1	1	
	If yes, what kind of concessions or inducements would you give? (% based on yes responses to question above)	REDUCING INCOME TAX	26	29	26	28	16	32	38	28	28	
		REDUCING PROPERTY TAX	54	71	52	65	68	62	77	65	65	
		REDUCING INVENTORY TAX	37	44	43	42	16	27	46	26	37	
		ENACTING FREEPORT LAWS	29	25	21	26	26	14	--	16	23	
		USING REVENUE BONDS	31	49	24	42	58	45	23	46	43	
		TRAINING OF LABOR	29	44	36	39	47	44	23	43	40	
		OTHER	13	8	12	10	8	8	8	8	9	
5.	In your opinion, does industrial growth pose any major problems in such areas as:	Air Pollution	YES	69	63	68	65	73	67	65	68	66
			NO	25	28	24	27	20	24	25	24	26
			NO RESPONSE	6	9	8	8	7	9	10	8	8
		Congestion	YES	40	32	34	34	38	29	15	30	33
			NO	46	52	58	52	49	50	45	49	51
			NO RESPONSE	14	16	8	14	13	21	40	21	16
		Social Adjustment	YES	41	45	38	44	64	44	35	48	45
			NO	48	40	51	43	31	39	20	35	41
			NO RESPONSE	11	15	11	13	5	17	45	17	14
		Recreation	YES	40	35	45	37	38	39	20	36	37
			NO	46	47	47	47	49	40	40	43	46
			NO RESPONSE	14	18	8	16	13	21	40	21	17
		Types of People Employed by Industry	YES	39	35	47	38	47	39	40	41	38
			NO	48	45	42	45	40	34	20	34	42
			NO RESPONSE	13	20	11	17	13	27	40	25	20
6.	In your opinion, are there some types of industry more desirable than other types?	YES	65	69	72	68	84	63	75	70	69	
		NO	30	24	23	25	9	27	15	21	24	
		NO RESPONSE	5	7	5	7	7	10	10	9	7	
7.	Does Montana have anything special to offer industry?	YES	86	87	89	87	84	88	85	87	87	
		NO	12	9	7	10	5	6	5	5	9	
		NO RESPONSE	2	4	4	3	11	6	10	8	4	
8.	Does Montana have any disadvantages which would prevent industry from locating in the State?	YES	86	81	81	82	71	79	55	74	80	
		NO	11	15	19	14	20	17	35	20	16	
		NO RESPONSE	3	4	--	4	9	4	10	6	4	
TOTAL NUMBER OF QUESTIONNAIRES TABULATED			111	320	53	484	45	114	20	179	663	

over 60 females were less inclined to give concessions to industry. In the second part of the question, the younger females were more inclined toward building industrial facilities through community or state bonding and the females as a group showed less desire to reduce inventory taxes and enact freeport laws than the males.

With but few exceptions, all groups followed a similar pattern with regard to social problems. The exceptions were that the 18 to 29 females felt that social adjustments (delinquency, crime, etc.) would be a major problem in industrialization, a belief not shared by the other groups; also, the over 60 females seemed to think that congestion and recreation were less of a problem than did the other groups.

The 18 to 29 females seem more positive that some types of industry are more desirable than others; otherwise, a similar response pattern was exhibited by all groups. The responses of the different groups were similar and no material differences were noted with regard to Montana having something special to offer industry.

The female group was more inclined to state that Montana has some disadvantages that would prevent industry from locating in the State than were the males. In addition, the over 60 females were substantially different in their responses from those found in the other groups. Perhaps this was due to their attitude to earlier questions, as they seemed to be less inclined toward stimulating industry than did the other groups.

In summary, Table XXVI shows that except for a few variations there is very little attitude differences between ages and between sexes.

Table XXVII breaks down the occupation of the 663 non-student respondents. Thirty of the respondents listed no occupation so were deleted from this tabulation; thus only 633 questionnaires were included in Table XXVII. The occupations used were those listed in the "Dictionary of Occupational Titles" prepared by the U. S. Employment Service with the exception that "housewife" and "retired" were added. The interviewers were instructed to gather a cross-section of occupations but the results were weighed heavily by the "professional and managerial" and "clerical and sales" groups. In some cases, the groups were too small to be meaningful in drawing comparisons. In the following discussion, comparisons were made for only four out of the eight groups--professional and managerial, clerical and sales, agricultural and forestry, and housewife.

The agricultural and forestry group were slightly less inclined to try to stimulate industrial growth than the other three groups. The housewives, followed by agricultural and forestry, are less knowledgeable concerning the operation of the State Planning Board than are the professional and clerical groups. Those in the agricultural and forestry group were slightly less inclined to grant concessions to industry than were the other groups. Of the agricultural and forestry respondents who were willing to grant concessions to industry, a much larger percentage than in the other three groups felt that the concessions should not be bonding or through free training of labor, but rather the concession, if granted, should be through tax reduction. Industrial growth posed a bigger problem in recreation and types of people employed to the agricultural and forestry group than to the other

TABLE XXVII

RESPONSES ON 633 NON-STUDENT "ATTITUDE TOWARD INDUSTRY" QUESTIONNAIRES BY OCCUPATION

Question		Occupation*								Total
		1	2	3	4	5	6	7	8	
1. Are you in favor of trying to stimulate industrial growth in Montana?	YES	94%	95%	85%	92%	97%	94%	73%	79%	91%
	NO	6	5	15	8	3	6	27	21	9
2. Are you familiar with the operation of the State Planning Board?	YES	36	38	28	20	21	12	10	32	30
	NO	63	61	72	80	79	88	90	68	69
	NO RESPONSE	1	1	--	--	--	--	--	--	1
If yes, do you think it is doing the job that it should be doing? (% based on yes responses to question above.)	YES	47	58	37	59	--	50	50	33	48
	NO	46	38	53	41	100	50	50	50	46
	NO RESPONSE	7	4	10	--	--	--	--	17	6
3. Does the community in which you live have a R & D council or some other similar group that is trying to stimulate industrial development?	YES	48	47	30	40	31	23	27	32	42
	NO	25	19	34	10	28	18	23	37	23
	DON'T KNOW	27	34	36	50	41	59	50	31	36
If yes, in your opinion has it been effective in promoting industrial growth in your area? (% based on yes responses to question above.)	YES	29	35	25	27	56	100	36	17	32
	NO	67	57	70	58	44	--	64	83	62
	NO RESPONSE	4	8	5	15	--	--	--	--	6
Are you now or have you ever been affiliated with such a group (to promote industrial development)?	YES	21	8	9	2	7	6	3	5	12
	NO	70	80	82	83	76	94	85	90	78
	NO RESPONSE	9	12	9	15	17	--	12	5	10
4. Are you in favor of concessions or inducements to attract new industry to locate in Montana?	YES	85	85	75	84	93	88	65	63	82
	NO	15	15	25	13	7	12	35	37	17
	NO RESPONSE	--	--	--	3	--	--	--	--	1
If yes, what kind of concessions or inducements would you give? (% based on yes responses to question above.)	REDUCING INCOME TAX	22	25	32	29	33	40	35	17	26
	REDUCING PROPERTY TAX	62	67	70	63	63	47	65	75	64
	REDUCING INVENTORY TAX	37	42	40	24	19	33	46	67	37
	ENACTING FREEPORT LAWS	25	18	32	20	15	33	35	42	24
	USING REVENUE BONDS	50	40	20	47	52	47	46	25	44
	TRAINING OF LABOR	38	40	24	44	48	40	50	50	39
OTHER	6	7	4	6	11	20	4	25	3	
5. In your opinion, does industrial growth pose any major problems in such areas as:	Air Pollution									
YES	YES	62	69	72	71	52	59	70	74	66
	NO	33	24	25	18	34	29	25	21	27
	NO RESPONSE	5	7	3	11	14	12	5	5	7
Congestion	YES	33	33	37	31	21	18	38	26	32
	NO	55	46	52	50	58	64	45	63	52
	NO RESPONSE	12	21	11	19	21	18	17	11	15
Social Adjustment	YES	46	43	46	46	48	35	43	32	45
	NO	45	37	46	38	38	47	40	47	42
	NO RESPONSE	9	20	8	16	14	18	17	21	13
Recreation	YES	35	37	49	37	38	6	38	42	37
	NO	52	41	40	45	48	59	38	42	46
	NO RESPONSE	13	22	11	18	14	35	24	16	17
Types of people Employed by Industry	YES	36	34	52	44	38	35	33	58	39
	NO	50	40	34	31	38	47	50	21	42
	NO RESPONSE	14	26	14	25	24	18	17	21	19
6. In your opinion, are there some types of industry more desirable than other types?	YES	70	75	70	65	62	76	55	63	69
	NO	22	21	27	22	24	24	43	21	24
	NO RESPONSE	8	4	3	13	14	--	2	16	7
7. Does Montana have anything special to offer industry?	YES	89	89	85	82	90	88	73	95	87
	NO	7	7	13	6	3	12	25	5	8
	NO RESPONSE	4	4	2	12	7	--	2	--	5
8. Does Montana have any disadvantages which would prevent industry from locating in the state?	YES	86	79	79	72	69	76	68	79	80
	NO	10	17	21	18	31	24	27	21	16
	NO RESPONSE	4	4	--	10	--	--	5	--	4
TOTAL NUMBER OF QUESTIONNAIRES TABULATED		244	134	67	83	29	17	40	19	633

*The occupational groups are: 1. Professional and Managerial; 2. Clerical and Sales; 3. Agricultural and Forestry; 4. Housewife; 5. Services; 6. Skilled; 7. Semi-skilled and Unskilled; and 8. Retired.

groups; otherwise, the responses were similar. The professional and managerial group had greater feeling that Montana has no disadvantages that would deter industrial growth; the housewives, on the other hand, seemed to have more feeling that Montana has some disadvantages that will deter industrial growth.

In summary of Table XXVII, within the four groups analyzed (professional and managerial, clerical and sales, agricultural and forestry, and housewives), only the "agricultural and forestry" group was different in their responses and this difference was only minor. They were less inclined to try to attract industry in the State and their big objection seemed to be that industry would somehow hurt agriculture.

Chi-Square Test for Homogeneity

In an attempt to determine if there was a significant difference in the response to question 1 among the different groups, a chi-square test was made. The results of this test are indicated in Table XXVIII. This table discloses that the responses given by the over 60 females were significantly different from those given by the other two female age groups. This would indicate in this situation that their attitudes were less in favor of trying to stimulate industrial growth than were the other two female age groups.

In the occupational classification, the semi-skilled and retired had attitudes toward industry that were significantly different than those of the other occupational groups. By eliminating these two groups, the chi-square test changed from one of significance to being not significant at

TABLE XXVIII

CHI-SQUARE TEST OF HOMOGENEITY ON QUESTION 1
OF "ATTITUDE TOWARD INDUSTRY" QUESTIONNAIRE

<u>Groups</u>	<u>Significance at .05 Level</u>
Male and Female	Not Significant
Male--Ages 18-29, 30-60, Over 60	Not Significant
Female--Ages 18-29, 30-60, Over 60	Significant
Female--Ages 18-29, 30-60	Not Significant
Student and Non-Student	Not Significant
Professional, Clerical, Agricultural, Housewife, Service, Skilled, Semi-skilled, and Retired	Significant
Professional, Clerical, Agricultural, Housewife, Service, Skilled	Not Significant

the .05 test level.

Summary

One of the important things about the responses to the questionnaires was that, with a few minor exceptions, there was a high degree of uniformity to be found in the different groups. This dispelled some preconceived notions that certain groups would be much more pro-industry than others. For example, it was thought that males, those in the middle age group, and the professional and managerial occupation classification would be more pro-industry than would females, the younger age group, and those in the less highly trained occupations. Yet the responses do not bear this out as the results for the different groups were very similar.

If the results of these questionnaires are representative of the attitudes of the people in the State, then one can only conclude that there is an understanding by the people of this State that industrial growth is desirable and that there is wholehearted support for taking those steps necessary to stimulate industrial growth. In other words, there is a P M A (positive mental attitude) in Montana toward industry.

Live with thy century, but be
not its creature; give to thy
contemporaries, but give what
they need, not what they laud.
Schiller

CHAPTER VII

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

Summary

An examination of the Montana economy reveals that the leading indicator of economic growth, per capita income, is increasing but at a rate below that found in the majority of states. The Montana economy needs an infusion to reverse this trend. Projections indicate that growth will come from the trade, services, and government divisions. Two of these, trade and services, are traditionally low paying and can be expected to continue to be so. These two, then, are areas where an expansion would not substantially help the State's economy unless large unemployment exists and over the years this has not been a major problem in Montana. The third sector of projected growth, government, is an area where many have questioned the desirability of an expanding government. Nevertheless, from a purely economic standpoint the growth in Federal Government employment will help the State's economy by bringing in (or perhaps back) money resources. An increase in State government employment cannot be expected to substantially help the economic picture of Montana.

Industry is a sector recognized in most states as a means of boosting sagging economic conditions. However, competition to lure new industry is

keen, costly, and growing more sophisticated by the year. Much literature is devoted to the theory of industrial location. This theory establishes the framework that firms use to select their sites and industrial development groups use in an attempt to sell their areas.

Location theory can be divided for purposes of analysis into four major groups: demand, cost, government, and personal. The first three of these can be handled with a reasonable amount of objectivity; the fourth, personal, is subjective. Although cost factors have been stressed in most of the literature on location theory, the undercurrent is that demand and maximum profit will become the major determinants of location selection. Rarely, though, will the ideal location be found so some compromise with the ideal will be necessary. Personal factors usually give industrial development organizations the most problems when trying to attract industry as these are influenced by the whims of each potential locator.

The importance of different location factors varies between firms and locators. Those factors that are of major importance in the selection of a site are primary location determinants; those of lesser importance are secondary location factors. The primary factors will be used to select an area; the secondary factors tend to be used to select the exact site within the area. Statewide industrial development groups will need to stress the primary factors, whereas local development groups will emphasize secondary location factors.

Industry in Montana is not large nor diversified. It has averaged about 10 percent of the total employment and projections indicate that it will continue to do so unless conditions change that would give greater

growth to the industrial sector of Montana. That industrial development will bring economic benefits to Montana is well recognized. The question is, can Montana expand its industrial growth?

A look at Montana shows that it has many problems related to expanding its industry. Most of these are due simply to the geography of the State. The Rocky Mountains traverse the State from north to south serving as a barrier between east and west. The Montana climate is temperate but serves as a psychological deterrent to industry. Population is sparse in Montana as well as surrounding states, thus offering limited markets for consumer goods. Because industry is small and somewhat limited in the region, the market for industrial goods is also limited. The labor force in Montana is expanding but job opportunities are not expanding at a rate necessary to keep pace with population growth; therefore, outmigration of labor is occurring. This has left Montana with little surplus labor that could be used to attract some industrial firms. Precipitation varies throughout Montana but enough occurs so that the State has ample water as well as relatively cheap and abundant hydroelectric power, but few firms need large amounts of either one.

The biggest stimulant to expanding Montana industry would be in the processing of the State's natural and agricultural resources. Other stimulants could come possibly from recreation, power, and water. Normally, however, these last factors are only secondary determinants of location and would offer little incentive toward the establishment of new industry within the State that was not already interested in the State for other reasons.

Based on the results of a questionnaire sent to industrial firms in

Montana, approximately 50 percent are satisfied with their present location, another 25 percent would move to a different location but still within Montana, and the remaining 25 percent would abandon Montana as an industrial site. Resource oriented firms were generally more content with their locations as were those firms producing for local markets. The biggest discontent with a Montana location was found in those market oriented firms producing for markets located outside the State or that had markets both in and out of Montana. The reason most frequently given for the location discontent was lack of markets.

Among firms that investigated a Montana location, the major disadvantage of operating in Montana was the lack of markets. The major advantage to a Montana location given by these respondents was the presence of natural and agricultural resources found within the State.

The attitudes of Montanans questioned in this study indicated that they were overwhelmingly in favor of promoting industrial growth within the State. Most of the respondents were also in favor of giving some concessions to industry to encourage its development. A reservation expressed by over two-thirds of the respondents was that some pollution problems would occur with industrial expansion. With any expansion of Montana industry likely to come from resource oriented firms, pollution is likely to expand and thus confirm the fears of the respondents. With proper controls, pollution need not be a major problem, however. A fact often overlooked because of unfavorable publicity received by a few firms is that most industrial plants have no pollution problems of any kind.

Conclusion

Contrary to what some would have the citizens of Montana believe, the State is not on the threshold of industrial development. There is nothing in the Montana statistics nor on the horizon to indicate that industrial development in Montana is accelerating or will accelerate. Some growth will be inevitable but it should not be expected that this growth will be large.

Barring hostile action, or increasing threats of such, against the United States that would lead to governmental decrees for industry to disperse and decentralize, the biggest hope for industrial development of Montana would be in the finding, developing, and processing of natural and agricultural resources found within Montana; however, some weight loss will have to take place in this processing or the manufacturing facility will find it more economical to process at the market and away from Montana. Concerning this area, two items are important and need to be mentioned. First, because many of the firms processing the State's resources would have the capability of using a large number of workers or would have a large capital investment, or both, this development could lead to the establishment of satellite firms and, logically, diversification of the industrial sector of Montana. However, the possibility of this happening is small at least in the foreseeable future. Second, a trend can be noted that as transportation systems improve, firms move away from the source of raw materials and toward their markets. In Montana's case, this is a trend that the State can ill-afford in its quest for industrial growth and diversification. Notwithstanding this, the processing of the State's resources is the area where diversification is likely to arise if it arises at all.

Market oriented firms have and are expected to continue to have problems in a Montana location. Some development can be expected in small firms that experience little or no economies of scale. These firms produce for a small and slowly expanding Montana market. They occupy a somewhat quasi-monopolistic position with their locations, but by the nature of this position they will continue to remain small. In some cases these local firms have no cost advantage over outside producers, but from the customer standpoint the availability of service more than compensates for the increased cost of their goods. It is to be expected that as outside service improves many of these high cost local firms will be (and in fact are being) eliminated. An improving transportation system will have its greatest impact toward eliminating many of the high cost cottage type industries found in Montana.

The future in Montana of market oriented firms that operate in industrial groups where economies of scale are present is even less secure. Temporary advantages may exist in a Montana location, but long run profit potential will drive these firms toward market centers and away from Montana unless the market center happens to be located in the State. Few products would be expected to have market centers in Montana with the likelihood that if one exists it would be in the agricultural and natural resource areas.

A third group of firms occasionally attracted to Montana is the so-called "footloose firms." These firms manufacture products that depend neither on a Montana resource nor a Montana market. They have located in Montana by choice. However it should be pointed out that many of the location factors deemed important to attract footloose firms, and these are

mostly cost factors, are not such that an advantage would exist in a Montana location. One of the basic attractions for many of these footloose firms is low cost labor, something that Montana does not have, at least to any great extent. However, at least one firm of this nature has located in Montana. In addition, a tendency observed among footloose firms is that as they expand they migrate from their point of origin toward their markets. If this occurs, then an expanding footloose firm in Montana would likely be only a temporary resident of the State as it is doubtful that Montana and near-by markets will expand at a rate to absorb much growth.

It can be expected that Montana will have some growth due to personal factors in selecting plant sites. These personal factors will outweigh other considerations in establishing plants in Montana. At least two such firms now operate within Montana. These two firms have largely ignored demand and cost factors and have located within the State because of personal considerations, namely recreation and sparseness of population. It must be expected that the mortality rate of firms that ignore the maximum profit location will be high and in the long run could cause more economic problems in Montana than they were intended to alleviate.

All factors considered, it is most unlikely that the stimulus to reverse the undesirable trend in per capita income that is occurring within Montana will come from industrial development. The State will have to look toward other sectors of the Montana economy if it is to regain lost prestige. However, it is doubtful that the other projected growth sectors will be able to do the job that industrial development would do if it could be stimulated. Hence, there is a real possibility that the future status of per capita

income in Montana has already been determined.

Recommendations

Stimulating an increase in the rate of industrial development in Montana is not going to be an easy task, as already noted. However when one is near the bottom, this does not mean that one gives up; rather, it means that one has to try a little harder. For Montana, it would be unwise to give up on the promotion of industrial development. The benefits derived from the occasional plant that will locate in the State due to the promotional efforts of development groups will undoubtedly far outweigh the money now being spent in this area. In addition, location factors and their importance in site selections are changing. An industry that is not possible today may through changing technology, expanding markets, or other reasons, be possible at some future date. Therefore, a continual re-examination and evaluation of location factors are necessary if Montana expects to offer any competition to other states for new industrial development.

With the limited resources now being used in Montana to promote industrial development, it is recommended that coordination be improved among the different industrial development groups throughout Montana. Even though money for funding the promotion of industrial development comes from different sources--private enterprise, state taxes, and local sources (usually the Chamber of Commerce)--and many times the groups have a different axe to grind, it will take the combined resources--time, money, and talent--of all to have any kind of effective promotion of industrial development.

In hunting big game, a shotgun would not be used as it would simply

pepper, not kill, the target. Rather a rifle would be used that would concentrate the shot within a narrow area. Individually, the state industrial development groups do nothing more than pepper the target, usually with little or no result. By coordination, these groups can use their resources to aim into a more direct target area with far better results.

What targets should these Montana industrial development groups aim for? Although it is dangerous to mention specific targets owing to the variability of the importance of the many location factors, this research has disclosed characteristics likely to be found or not found in firms that will locate in Montana. To enhance the return from the resources now allocated toward promoting industrial development, the following are recommended as a list of guides (not rules) for narrowing down prospects intending to establish (or perhaps expand) industry in Montana. The lists have been labeled as minimum and maximum effort areas. The least likely prospects for Montana are those found under the minimum effort area and the most likely prospects under the maximum effort area. The items mentioned on each list need not be inclusive or exclusive of each other; but the greater the number of items found on each list that relate to the operation of a particular firm or industry group, the greater the indication would be that the firm or industry is or is not a likely prospect for Montana.

Minimum Effort Areas

The following characteristics are not likely to be found in firms seeking industrial locations in Montana. It is recommended that minimum effort be devoted by Montana industrial development groups toward firms or

industries having these characteristics. The greater the number of these characteristics present the less should be the effort toward stimulating their development in Montana.

1. Labor intensive operations requiring abundant and low cost or highly productive labor.
2. Firms requiring skilled or highly technical labor on anything but a small scale. (An exception would be those firms willing to bring in this labor from other than Montana sources.)
3. Firms having high transportation costs per dollar of sales and dependent upon other than local markets.
4. Firms assembling finished goods that ship in most of their raw materials and ship out most of their finished goods.
5. Automated industries having high fixed costs and needing large unit sales to break even.
6. Firms producing for national markets that do not have a raw material advantage in a Montana location.
7. Firms producing for industrial markets that do not have a raw material or natural market advantage in a Montana location.
8. Non-affiliated firms requiring large amounts of capital.
9. Firms whose operations would be adversely affected by the Montana climate.
10. Firms producing for regional or national markets in a competitive market situation.
11. Firms producing style or fad goods.

Maximum Effort Areas

The following list indicates characteristics likely to be found in firms selecting Montana locations. Most of the development effort in Montana should be aimed toward firms having these characteristics.

1. Firms that can process a Montana resource and where some loss of weight occurs during processing.
2. Market oriented firms that add weight during processing and are interested mainly in small markets.
3. Market or resource oriented firms that will operate in a monopolistic or oligopolistic market situation.
4. Industries having little or no economies of scale and interested in small markets.
5. Firms adding considerable value during production and where the cost of transportation on finished goods is a small percentage of the total selling price.
6. Firms requiring abundant and low cost water and power.
7. Firms that can process raw materials or semi-finished goods that are moving through Montana enroute to markets under transportation in-transit privileges.
8. Firms willing to sacrifice a maximum profit location in favor of the amenities found within Montana.

Concluding Recommendations

The items in the above two lists refer mainly to geographic factors. In addition to those items, changes can and should occur within the State

in areas such as developing a positive pro-industry attitude in State and local government and developing good industrial sites in the transportation centers of the State. An even more important recommendation has to do with the amount of money devoted in the State to basic research in areas concerned with the utilization and production of Montana's natural and agricultural resources. New technology and new uses for these resources could serve as a catalyst for industrial development. The State, however, cannot afford to continue to lag in this research. Because most of the industry in Montana is small, they are capable of supplying only small amounts for research. Initially, then, research money will have to come largely from State supplied funds. In the long run, it could be money well spent.

APPENDIX

APPENDIX I

QUESTIONNAIRE - FIRMS OPERATING IN MONTANA

GENERAL:

1. Date questionnaire completed: _____
2. Name and position of person completing questionnaire: _____

THE COMPANY:

3. Location of company: _____
4. Year the company was established in Montana: _____
5. Is your company: Independent _____
Branch of _____ company located at _____
Subsidiary of _____ company located at _____
6. Is your company planning on moving its present facilities in the near future? Yes _____ No _____

PRODUCT:

7. Briefly describe your finished product(s): _____

8. Who are the principal users of your product? Consumer ___; Industrial ___; Government ___; Other (please specify) _____
9. Where is the principal market(s) for your product located? _____

10. Approximately how many competitors serve this market area? _____
11. Are these competitors (larger ___; smaller ___; about the same size ___) as your present facilities?
12. Where are your competitors located? _____
13. Is personal contact with customers an important part of your selling effort? Yes ___ No ___

PRODUCTION:

14. Where are your principal raw material(s) suppliers located? _____

15. Is production a seasonal ___ or year-round ___ basis?
16. Does the raw material inputs lose ____, gain ____, or stay at the same ___ weight during processing?
17. If a weight change occurs, what is the approximate percentage of weight change from raw material to finished product? _____%
18. Does climate have any affect on your production process? _____
19. What is the approximate percentage of total cost for each of the following: Labor (including fringe benefits) _____%; raw material (excluding transportation) _____%; transportation in of raw materials _____%; transportation out of finished goods _____%; utilities _____%; taxes _____%.

LABOR:

20. What was the average number employed during the first year of production in your Montana operations? _____
21. What was the average number employed during the past year? _____
22. What percentage of your production employees would you classify into each of the following groups? Highly skilled _____%; semi-skilled _____%; unskilled _____%.
23. What specific kinds of skills are required in your production process?

24. Is there an adequate pool of trained labor in the area in which you operate? Yes _____ No _____
25. What kind of facilities would you like to see established in the State for training employees? _____
26. How would you rate the productivity of your employees? Above average _____; Average _____; Below average _____.
27. What is the average hourly rate of pay for production workers? \$ _____
28. Do you consider this average rate of pay higher ____, lower ____, or the same as ___ other average rates of pay in or near the community in which you operate?

29. Do your production employees belong to a labor union? Yes No
30. Have you had any labor problems in the last five years , three years , one year that have led to labor stoppages? Yes No If yes, what was the length of the labor stoppage? _____
- 31.. What is your approximate labor turnover rate? _____

TRANSPORTATION:

32. Which of the following kinds of transportation facilities do you use on incoming and outgoing freight? Public motor carriers ; Private motor carriers ; Railroads ; Airlines ; Other(Please specify) _____
33. Are special transportation facilities required on:
Incoming freight? Yes No
Outgoing freight? Yes No
- 34.. What is the approximate distance and the c.w.t. cost of transportation for your principal raw materials?
Distance _____ c.w.t. cost _____

35. What is the c.w.t. cost of transportation for your finished products? (If some other weight is more convenient than c.w.t., please use it and specify what other measurement was used.) _____

FACILITIES:

36. Do you own , rent , lease , or have a lease purchase on your present facilities?
37. Have you changed plant locations in recent years? Yes No
38. If question 37 was yes, what was the reason for the change? _____

CAPITAL:

39. What was the approximate cost less depreciation of your plant and equipment in the year your company was established in Montana? \$ _____
40. What is the cost less depreciation of your plant and equipment at the present time? \$ _____

41. What percentage of the original plant investment came from each of the following sources: Sources outside Montana _____%; governmental sources _____%; sources located within or close to the community in which you operate _____%; sources other than local but within the State of Montana _____%.

MISCELLANEOUS:

42. Does your plant have any air _____ or water _____ pollution problems?
Yes _____ No _____

43. If your answer to question 42 was yes, would a change of plant locations alleviate _____ or eliminate _____ the pollution problem? Yes _____
No _____

44. Does a trend exist in your industry toward consolidation (between or among companies) or automation that will affect your company? (e.g., automation might require fewer production facilities that would reduce or eliminate some companies) Yes _____ No _____ If yes, how will it affect your company? _____

SUMMARY:

45. List as many factors as you can in each of the following groups that influenced your present plant location:

Highly Important
Factors

Important
Factors

Considered in Overall Decision
But Not Too Important

46. What factors do you feel are unfavorable in your present location? _____

47. If you were selecting a new plant site in 1967, would you select:
(select one)

- (a) The same location as your present plant? _____ Why? _____
- (b) A location in another part of the same general area of the present plant? _____ Why? _____
- (c) A location in another area but still within Montana? _____
Why? _____
- (d) A location other than in Montana? _____ Why? _____

APPENDIX II

QUESTIONNAIRE - INVESTIGATORS OF MONTANA LOCATIONS

1. How did you make your first contact in Montana? Telephone ____; Mail ____; Personal visit ____; Other (please specify) _____
2. How do you feel that you were treated on these contacts in Montana?

3. Were you supplied with adequate information concerning site locations in Montana?

4. Which of the following indicates the interest you have (or had) in a Montana location: (1) A Montana natural resource ____; (2) A Montana market ____; (3) Other (please specify) _____
5. Do you have plans that would include Montana as an industrial location in the next one year ____, three years ____, or five years ____? Yes ____
No ____
6. How would you rank Montana as compared to other states as an industrial site? High ____; Low ____; Average ____ . Why? _____
7. What factor(s) led you initially to consider Montana as a possible plant location?

8. What disadvantages did you find in Montana locations as compared with other locations considered (or selected) for your facility?

9. What factors would you consider to be advantages in a Montana location?

10. Do you have any recommendations that might help to stimulate industrial growth in Montana?

Name of person filling out this questionnaire: (Optional) _____

Position: _____

Date questionnaire completed: _____

APPENDIX III

QUESTIONNAIRE -- FIRMS NO LONGER OPERATING IN MONTANA

1. What year did your Montana operations commence? _____
2. What year did your Montana operations cease? _____
3. Briefly describe the type of product produced in Montana. _____

4. Where were the principal market(s) for this product located? _____

5. Where were the principal raw material suppliers located? _____

6. What was the approximate number of employees hired during a peak operating period? _____
7. What specific types of skills did your employees have? _____

8. What factors were considered as being favorable in your Montana operations? _____

9. Would you list and briefly discuss those factors which were unfavorable and led to cessation of your Montana operations? _____

10. Would you please give any recommendations you have that might help to stimulate industrial growth in Montana? _____

Date questionnaire completed: _____

APPENDIX IV

ATTITUDE TOWARD INDUSTRY QUESTIONNAIRE

INDUSTRY REFERS TO THE MANUFACTURE OF RAW MATERIALS INTO INTERMEDIATE OR FINISHED PRODUCTS BY PRIMARILY MECHANICAL MEANS.

1. Are you in favor of trying to stimulate industrial growth in Montana?
Yes _____ No _____ Why? _____

2. Are you familiar with the operation of the State Planning Board?
Yes _____ No _____

If yes, do you think that it is doing the job that they should be doing? Yes _____ No _____

If your answer to the above is no, how would you improve its operation?

3. Does the community in which you live have a research and development council or some other similar group that is trying to stimulate industrial growth? Yes _____ No _____ Don't Know _____

If yes, in your opinion has it been effective in promoting industrial growth in your area? Yes _____ No _____

If yes, in what ways has it been effective? _____

4. Are you in favor of concessions or inducements to attract new industry to locate in Montana? Yes _____ No _____ Why? _____

If yes, what kind of concessions or inducements would you give? (Please check below)

_____ Reducing income taxes

_____ Reducing property taxes

_____ Reducing inventory taxes

_____ Enacting "Freeport" laws

_____ Building new facilities for industry, financing them through the sale of community or state bonds, and then lease the facilities to the new industries

_____ Free training of employees in those skills needed by the new industries

_____ Other (Please name them)

5. In your opinion, does industrial growth pose any major problems in such areas as: (Yes or No)
- (a) Air pollution _____
 - (b) Congestion _____
 - (c) Social adjustments (Delinquency, crime, mental health, etc.) _____
 - (d) Recreation _____
 - (e) Types of people employed by industry _____

6. In your opinion, are there some types of industry more desirable than other types? Yes _____ No _____

If Yes, what types are:

Most desirable -

Least desirable -

7. Does Montana have anything special to offer Industry? Yes _____ No _____
If yes, what?

8. Does Montana have any disadvantages which would prevent industry from locating in the state? Yes _____ No _____
If Yes, what?

9. What would you do to promote industrial growth in Montana assuming that you were or could be convinced that such growth is an absolute necessity for the future prosperity of Montana? _____

NAME: _____
ADDRESS: STREET _____
CITY _____
COUNTY _____
OCCUPATION: _____
SEX: MALE _____ FEMALE _____
AGE: UNDER 30 _____ OVER 60 _____ BETWEEN 30 AND 60 _____
HOW LONG HAVE YOU LIVED IN MONTANA? _____
IF YOU HAVE NOT LIVED IN MONTANA ALL OF YOUR LIFE, PLEASE GIVE THE CITY AND STATE OF YOUR FORMER RESIDENCE. .

LITERATURE CONSULTED

- Athearn, James L. "The Long-Run Economic Outlook for Montana," Montana Business Quarterly, IV (Winter, 1966), 11-28.
- "Bait for New Industries: Industrial Foundations," Business Week, (April 9, 1949), 30.
- "Baiting the Hook for Industry; Industry Hungry States," Business Week, (November 16, 1957), 86.
- Barboor, Marvin J. "The Interrelationship of the Changing Structure of American Transportation and Change in Industrial Location," Land Economics, (May, 1965) 169-179.
- "Big Plant Site Scramble," Dun's Review and Modern Industry, 83 (March, 1964) 104-105.
- Blomgren, Paul B. "The Montana Economy in Perspective," Montana Business Quarterly, I (Fall, 1962) 19-28.
- Borchert, John R. and Adams, Russell B. Projected Urban Growth in the Upper Midwest: 1960-1965. Upper Midwest Economic Study, Urban Report Number 8, September, 1964.
- Chambers, Edward J. and Gold, Raymond L. A Pilot Study of Successful and Unsuccessful Small Business Enterprises Within Montana. Bureau of Business and Economic Research, Missoula, Montana: University of Montana, 1963.
- "Changing Location of Manufacturing Employment," Studies in Business Economics, Number 83, National Industrial Conference Board, Inc., 1963.
- Cohn, Edwin J. Jr. Industry in the Pacific Northwest and the Location Theory. New York: King's Crown Press, Columbia University, 1954.
- "Community Relations for the New Plant," Management Review, (August, 1962) 22-24.
- "Contrasts in Site Selection," Land Economics, (May, 1956) 152-166.
- Dixon, L. A. Jr. "How Communities Can Attract and Hold Industry," Public Works, (June, 1956) 126.
- Draheim, Kirk P. Technological Industry in the Upper Midwest, Technical Paper Number 11, Upper Midwest Economic Study, June, 1964.

Encyclopedia Americana Annual, 1966. Chicago: Grolier, Inc., 1966.

Estall, R. C. and Ogilvie, R. Industrial Activity and Economic Geography. London: Buchanan, Hutchinson, and Co., Ltd., 1961.

"Finding Safe, Economical Plant Sites," Business Week, 16 (November 13, 1948) 48.

Form, William H. and Miller, Delbert C. Industry, Labor, and Community. New York: Harper, 1960.

"Freight Rates and Plant Location," Business Week, (June 16, 1945) 120.

Fulton, M. "Plant Location, 1965," Harvard Business Review, 33 (March, 1955) 40-50.

Fulton, Maurice and Hoch, L. Clinton. "Transportation Factors Affecting Locational Decisions," Economic Geography, 35 (January, 1959) 51.

Greenhut, Melvin L. Plant Location in Theory and in Practice. Chapel Hill: University of North Carolina Press, 1956.

Greenhut, Melvin L. "When is the Demand Factor of Location Important?," Land Economics, (May, 1964) 175-184.

Henderson, James M. and Krueger, Anne O. National Growth and Economic Change in the Upper Midwest. Minneapolis: University of Minnesota Press, 1965.

Hodges, Luther H. "Does Your Town Want Industry?," Rotarian, 94 (April, 1959) 30-32.

Hoff, R. G. "Industrial Development Goes Where It's Invited," Bankers' Monthly, (December, 1955) 23-28.

Hoflich, Harold J. and Johnson, Maxine. The Economy of Montana. Bureau of Business and Economic Research. Missoula: University of Montana, December, 1951.

Hoover, Calvin and Ratchford, B.U. Economy of the South. Washington: United States Government Printing Office, 1947.

Hoover, Edgar M. The Location of Economic Activity. New York: McGraw-Hill Book Co., 1948.

Hotelling, Harold. "Stability in Competition," Economic Journal, (1929) 41-57.

- "How Much Do Taxes Count in Locating Plants?," U.S. News and World Report, 42 (May 17, 1957) 151-154.
- "How New Plants Help," Nation's Business, 50 (December, 1962) 88-89.
- "How States Attract New Industry," Banking, 53 (May, 1961) 48-49.
- "Industrial Growth Is Not Always Beneficial," National Civic Review, 53 (October, 1964) 509-510.
- "Industry Goes Anywhere," Engineering, 183 (April 26, 1957) 514-516.
- Isard, Walter. Location and Space Economy, New York: M I T Press and John Wiley and Sons, Inc., 1956.
- Isard, Walter. Methods of Regional Analysis: An Introduction to Regional Science, New York: M I T Press and John Wiley and Sons, Inc., 1960.
- Johnson, Maxine C. "The Effects of the Anaconda Aluminum Company Plant on Flathead County, Montana," Regional Study Number 12, Bureau of Business and Economic Research. Missoula: University of Montana, January, 1960.
- Johnson, Maxine C. "The Outlook for 1966," Montana Business Quarterly, IV (Winter, 1966) 29-34.
- Johnson, Maxine C. "Problems of Economic Growth in Montana," Montana Business Quarterly, I (Winter, 1963) 35-54.
- Kahn, S.A. "Stop Giving Away America! Subsidizing Industry," The American City, 66 (May, 1951) 106-107.
- Kuhne, N. "Towns Are Sold From the Ground Up," Nation's Business, 37 (August, 1949) 42-44.
- Lautzenheiser, R.E. "Reply to R. Wood," Fortune, 54 (September, 1956) 26.
- Lichtenstein, E. "Higher and Higher Go the Bids for Industry," Fortune, 69 (April, 1964) 118-121.
- "Location Analysis," Dun's Review and Modern Industry, 67 (April, 1956) 59.
- "Location of New Industries," Recreation, 46A (December, 1953) 407.
- Losh, August. The Economics of Location, New Haven: Yale University Press, 1954.

- Lukens, C.R. "How to Attract Industry," The American City, (August, 1965) 104-105.
- Martin, N.M. "So You Want New Industry," The American City, 78 (December, 1963) 136-138.
- Masse, B.L. "Factory Sites in Rural Areas," America, 113 (October 16, 1965) 440.
- McMillan, T.E. Jr. "Why Manufacturers Choose Plant Locations vs. Determinants of Plant Location," Land Economics, (August, 1965) 239-246.
- Meadows, Paul. Regional Characteristics of Montana, a Report to the Montana Study, Missoula: University of Montana, 1946.
- "Merits and Dangers of Tax Concessions to Industry," The American City, 69 (December, 1954) 133.
- Miller, E. Willard. A Geography of Manufacturing, Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1962.
- Mills, Clarence A. Climate Makes the Man, New York and London: Harper and Brothers, 1942.
- Montana Agriculture Basic Facts, Bulletin 293. Cooperative Extension Service and Agricultural Experimental Station. Bozeman: Montana State University, June, 1962.
- "Montana Offers Industry New Opportunity," Commerce and Industry, Simi, California: Franklin O. Schroeder, Second Quarter, 1964.
- Montana State Unemployment Service. Montana Labor Market, Unemployment Compensation Commission, Helena: State Printing Office.
- Moore, Wilbert E. The Impact of Industry, Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1965.
- Moses, Leon N. "Location Theory, Input-Output, and Economic Development: An Appraisal," The Review of Economics and Statistics, 37 (August, 1955) 308-312.
- Nelson, Clarence W. The Timber Economy of the Ninth District West, Minneapolis: Federal Reserve Bank of Minneapolis, November, 1963.
- "New Industry, Is Your Town Getting Its Share?," Changing Times, 7 (May, 1953) 35.

- "New Theory on How to Make Geography Work for You," Business Week, (April 3, 1954) 60-62.
- 1961 Plant Location. New York: Simmons-Boardman Publishing Corp., 1961.
- Papier, William, "Recreation Facilities Attract New Industry," The American City, 72 (July, 1957) 131-132.
- Peladeau, Marius B. "What Makes Industry Change Its Address in 1964," Public Utilities Fortnightly, 74 (July 16, 1964) 22-27.
- Peltier, L.C. "To Promote Industrial Growth," The American City, 77 (May, 1962) 39.
- Perhoff, Harvey S. "How a Region Grows," Committee for Economic Development Supplementary Paper Number 17, March, 1963.
- "Plant Location: Where the People Are," Dun's Review and Modern Industry, 83 (March, 1964) 106-107.
- "Plant Site Location Guide," Factory Management, 115 (May, 1957) 180.
- Plant Site Survey, A Study Among Business Week Subscribers. New York: McGraw-Hill, January, 1964.
- "Population and Industry," Business Week, (April 15, 1961) 162.
- Pred, Allen. "The Concentration of High-Value-Added Manufacturing," Economic Geography, 41 (April, 1965) 108-132.
- Rixe, Lloyd and Ewasiuk, W.J. "Montana's Population," Now, (Winter, 1965) 3-5.
- Roth, Dale E. and Others, Factors Influencing the Economic Growth Rate of the Midwestern States. Minneapolis: North Star Research and Development Institute, June, 1964.
- "Rough and Tumble of Site Selection," Dun's Review and Modern Industry, 81 (March, 1963) 100.
- Schneider, Eugene V. Industrial Sociology, New York: McGraw-Hill, 1957.
- Schon, Donald A. "New Regionalism; States and Regions Seeking Economic Growth," Harvard Business Review, 44 (January, 1966) 30-32.
- "Site Selections: A Tough Job Gets Tougher," Dun's Review and Modern Industry, 85 (March, 1965) 118-121.

"Should Tax-Free Industrial Revenue Bonds be Eliminated?," Banking,
(September, 1966) 62-64.

Smith, Fred. "Recreation as an Economic and Social Asset," Recreation,
54 (May, 1961) 228-229.

Spiegelman, Robert G. "Location Characteristics of Footloose Industries,"
Land Economics, (February, 1964) 79-86.

State Board of Equalization. Montana Tax Study, 1965-66. Helena: State
Printing Office, 1966.

State Tax Guide. Englewood Cliffs, New Jersey: Prentice Hall, Inc.

Tapf, S.B. "Common Sense in Community Industrial Development," The
American City, 65 (October, 1950) 121-122.

Taylor, Maurice C. "Income Trends in Montana," Montana Agricultural
Experimental Station, Bulletin 590, Bozeman, Montana: Montana State
University. October, 1964.

The Wall Street Journal, Midwest Edition, Dow Jones and Company: Chicago,
Illinois.

Unemployment Compensation Commission Of Montana. Montana Counties Man-
power Guide Book, Helena: State Printing Office, 1962.

United States Bureau of the Census. Census of Manufacturers: 1958,
Washington: Government Printing Office, 1959.

United States Bureau of the Census. Census of Manufacturers: 1963,
Washington: Government Printing Office, 1964.

United States Bureau of the Census. Seventeenth Census of the United States:
1950, Population, Washington: Government Printing Office, 1952.

United States Bureau of the Census. Eighteenth Census of the United States:
1960, Population, Washington: Government Printing Office, 1962.

United States Department of Commerce, Area Redevelopment Administration.
Attracting New Industries, Washington: Government Printing Office.

United States Department of Commerce, Area Redevelopment Administration.
Growth and Labor Characteristics of Manufacturing Industries,
Washington: Government Printing Office.

United States Department of Commerce. Survey of Current Business, Washington: Government Printing Office, July, 1965 and August, 1966.

United States Department of the Interior. Natural Resources of Montana, Washington: Government Printing Office, 1964.

"Want New Industry," The American City, 74 (April, 1959) 5.

"Way Business Rates the States," U.S. News and World Report, 41 (October 26, 1956) 108-109.

"Welcome for Industry Varies Within the Town," Business Week, (March 30, 1957) 134-136.

Werthamer, S.K. and Lands, N.B. "How Unwelcome Small Industries Can Turn into Community Assets," The American City, (April, 1952) 94-95.

Will, R.A. "Good Schools Attract Industry," N.E.A. Journal, 54 (March, 1965) 28.

"What Industry Expects of a Community," The American City, (September, 1948) 133.

"What New Industrial Jobs Mean to a Community," Washington: Chamber of Commerce of the United States, 1963.

"When Low Taxes Repelled an Industry," The American City, 65 (August, 1950) 5.

"When States and Cities Go All Out After Industry," U.S. News and World Report, 50 (June 26, 1961) 103-104.

"Where to Build Today," Dun's Review and Modern Industry, 79 (March, 1962) 60-62.

"Why Big Industry is Going to Smaller Towns," U.S. News and World Report, 47 (December 21, 1959) 87.

"Why Factories are Taking to the Country," U.S. News and World Report, 54 (June 17, 1963) 72-74.

Williams, S.B. "Town in Which We Want to Build a Plant," The American City, (June, 1950) 131.

Wonnacott, Ronald J. Manufacturing Costs and the Comparative Advantage of the United States Regions, Upper Midwest Economic Study Paper Number 9. April, 1963.

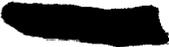
Wood, R. "Where to Put Your Plant," Fortune, 54 (July, 1956) 100-104.

Yaseen, Leonard C. Plant Location, New York: American Research Council, Inc., 1960.

Yaseen, Leonard C. "Ten Biggest Pitfalls in Plant Location," Dun's Review and Modern Industry, 69 (March, 1959) 49-50.

"You Gotta Have a Golf Course to Attract Industry," Business Week, (June 25, 1955) 86-87.

Zelinsky, Wilbur, "Has American Industry Been Decentralizing? The Evidence for the 1939-1954 Period," Economic Geography, 38 (July, 1962) 251-269.



MONTANA STATE UNIVERSITY LIBRARIES



3 1762 10005421 0



D378
C145
cop.2

~~XIII~~

