Menominee County Book

For Schools

THREE REQUESTS

[redacted]
Route 2
Stephenson, Michigan

First

Will schools please take reasonable care of this Menominee County Book for Schools so that it may be available for reference many years? There are no extra copies for replacement.

Second

A very few copies of the book are in the hands of private owners. If the time comes when a book is no longer wanted will the owner kindly turn it over to some library instead of throwing it away?

Third

Boys and girls like stories, especially true ones. A booklet of Menominee county stories would make a desirable addition to school libraries. Will anyone who has heard an outstanding Menominee county story get the teller of it to write it down or have it written down? Stories may be about old times or later times, about school, home, hunting, lumbering, farming -- anything at all. These are the only requisites. Stories must be about people or happenings in Menominee county and must be unusually interesting, also, they must be suitable for a school library and be well told. Before April, 1942, will you send materials to Mrs. Ethel Schuyler, Menominee? If enough material is received we shall see what can be done with it.

Menominee County Book for Schools

Edited by
Ethel Schuyler

Mimeographed by
Lucille Ratayczak Jaaska

Office of County School Commissioner
Menominee, Michigan
1941

FOREWORD AND ACKNOWLEDGEMENTS

Menominee county has had a rich past and today with its unusual scenery, interesting geologic features, and varied industries has a colorful present also. To know something about these things should be the privilege of every school child growing up here. Hitherto, although much had been written, materials were scattered and not accessible in school libraries. This book is intended to supply what has been lacking.

A Menominee County Book for Schools! Those words have been the Open Sesame to which everyone has responded generously with materials which had cost them sometimes days or weeks or months of work. The idea of the book came to light when Mr. Hurrell graciously assented to a request to use his article on county resources. As time went on the idea expanded until a sizable book is the result.

This book for schools is the contribution of many public-spirited people. Besides the writers whose names appear in connection with various articles, there are many other contributors from whom they drew. Named, or unnamed, we thank You and You and You on behalf of the children of our schools. A copy of this book will be available for each school library and for public libraries where it is needed.

The Menominee Herald-Leader, the Stephenson Journal, and the Powers-Spalding Tribune laid their columns open to help with the book. Time and space have limited old news pages to 1910. Perhaps some future chronicle will go on. Mrs. Christine Soults provided materials from the old Menominee Democrat.

Mr. Floyd Larson of the Menominee high school print shop printed the picture pages and Mr. John Edquist printed the covers as their contributions, the supply committee of the board of supervisors allowed us paper, stencils, and materials for the work. The Road Commission generously granted permission to bind in a copy of their booklet and map.

Miss Elizabeth PenGilly took some original pictures from which drawings were made and has offered invaluable advice and encouragement. The Conant and Rosemeyer studios permitted the use of pictures as the bases for drawings. Miss Clara Rasner, Miss Katherine Kass, Mrs. Ernest Laduron, Mr. J.P. Johnson, Miss Betty Peterson, Mrs. Flossie LaCount, Mr. John Hallfrisch, Miss Eileen Miller, Miss Marguerite Deacon, Miss Vivien Hayes, Miss Mary Curran, and Mr. Paul Krueger also loaned pictures, many of which furnished the bases for drawings or prints. Miss Bessie Martindale loaned her pantascope, and the Farm Security office a punch.

Mr. Clinton Dunathan made the drawings of Indian relics which illustrate his article. Mrs. Marguerite MacEachern made the drawings initialed MM for the Meyer township article and Mrs. Lillian Hubbard those marked LH for the Hammerberg pages. Mrs. Mildred West whose drawings are marked MW made many of the large drawings, others were made by Miss Lorraine Telot and initialed LT. Those not initialed were made by others.

All of the stencils were prepared by Mrs. Jaaska except those for Mr. Hurrell's article which were made by Miss Gladys Baker and those for Mr. Meter's article made by Miss Mary Wachowiak. On copying, printing and assembly and other office work she was assisted at various times by Bernice Larson, Marion Barker, Glenn Uecke, Lorraine Telot, Mary Nason, Peggy Padgett, Dorothy Mae Ratayczak, Margaret Miller, Naomi Simmons, Betty Doran, and Norma Nieding.

A few of the pictures have been tinted by Miss Dagny Holle, some of the C squad boys of the D.A.R. club and others

Materials in this book are the best we could obtain on the respective subjects. Our thanks go to all who have helped in any way, for every part is necessary. This book is intended for schools rather than for historians.

E.S.

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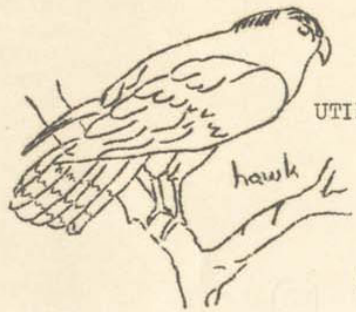
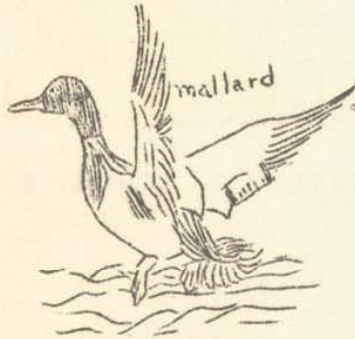


THE NATURAL RESOURCES OF MENOMINEE COUNTY AND THE UTILIZATION OF THOSE RESOURCES FOR AGRICULTURE AND IN OTHER WAYS

By

George D. Hurrell, M.S.

This section of the MENOMINEE COUNTY BOOK is included here through the courtesy of Mr. George D. Hurrell, who as assistant county agent and specialist in this kind of project, spent many months in the preparation of reliable and concise information for the county zoning committee. Besides doing extensive field work, consulting local committees, and working with Mr. B. D. Kuhn, county agricultural agent, Mr. Hurrell drew upon previous reliable records and surveys. The thirty pages following embody the gist of the information gained first-hand and from the best consultants and materials available.



MICHIGAN

(An Ojibway Indian legend says that Manitou to steady the world while he formed the land, placed his hand down gently and that the print left by his hand is now Michigan.)

When o'er the face of this revolving globe
The molten rocks cast off a mighty steam
And earth was writhing in the pains of birth,
In darkness wrapped, and chaos reigned supreme,
Great Manitou commanded, "Give us light,"
Then placed a gentle hand
Upon the tortured earth and spoke again,
"Let there be land."

So Michigan was formed, and as the hand
In benediction rose, it cast above
The eagle shape that's known as Cloverland,
The land of Hiawatha, health, and love.

—Dr. C. F. Whiteshield
Formerly of Powers, Michigan

SKETCH MAP SHOWING LOCATION OF MENOMINEE COUNTY, MICH.

General Description of Menominee County

Menominee County is in the southernmost part of the Upper Peninsula of Michigan (See Map I). It fronts Green Bay on the east, and is separated from Wisconsin on the south and west by the Menominee River. The land area of the county is 1056 square miles or 675,840 acres.

The county lies entirely within the glaciated region and presents a wide diversity of surface forms and features constructed during the late Wisconsin glacial period.

The following are the major physiographic divisions of the county.

(1) The poorly drained sandy plains fronting on Green Bay and extending back from 3 to 8 miles, being narrowest at the City of Menominee, and broadening northward. The plain consists largely of level poorly drained sand areas, or areas in which a shallow peaty covering overlies the sands, or in a few cases the peaty material overlies clay or marl. Scattered over the plain are winding ridges of wind blown sand, and some gravelly ridges.

(2) A central rolling upland which comprises about 75% of the county, the greater part of which is characterized by numerous clayey hills or drumlins. Most of the drumlins lie parallel to each other and range in length from 1/4 mile to over a mile. They vary in width from 40 to 120 rods. In some localities the drumlins lie close together, forming V shaped valleys between them, and in other places they are separated by peat deposits or other poorly drained soils.

(3) The first and second bottom lands along the Menominee River. The surface features consist of shallow poorly drained swales, usually with mucky accumulations, and low sandy ridges and elevations where drainage is fair.

Except for a narrow strip running north and south in the extreme western part, the county is underlain by limestone bedrock, and the drift is highly calcareous. The bedrock lies at various depths from the surface, outcropping in a few places especially in the vicinity of Hermansville and east of Powers.

The average elevation of the county is about 775 feet, ranging from 580 feet near the bay to over 1,000 feet in the northwestern part of the county.

The general surface slope and drainage of the county are from north to south, the eastern half of the county being drained by the Ford River, Big Cedar River, and numerous small streams all flowing into Green Bay, the western half being drained by the Menominee River and its tributaries. About 60 to 65 per cent of the county is well drained.

About 12 per cent of the land area of the county has been cleared for agriculture, the remainder is cut-over land in various stages and degrees of reforestation. Very little virgin timber remains.

The total population of Menominee County as reported by the U.S. Census in 1930 was 23,652, and of this number 9,432 was reported as farm population. The 1935 farm census reports a farm population of 10,053. The City of Menominee, according to the 1930 census has a population of 10,320. The population, both rural and urban, consists of a mixture of nationalities, which

includes, German, Polish, Scandinavians, Bohemians, French, Austrian, Hungarian, Belgian, English, Swiss, Italian, and Latvians.

The county is well supplied with roads in the parts of the county that are settled. Two U.S. interstate highways, two state trunk lines, and good county roads serve all farm communities and give them ready access to the towns and cities in the county. The roads are kept in excellent condition.

Climate

The climate of Menominee County is characterized by rather long and moderately cold winters, and comparatively short summers, without excessive heat. Except in winter there are relatively few cloudy days.

The length of growing season varies considerably being about 150 days at the southern tip, and from 100 to 120 days at the extreme northern border. The average date of the last killing frost in the spring varies from approximately May 10th to June 1st., while the average date of the first killing frost in the autumn varies from September 15th to October 15th. The growing season inland is 30 to 50 days shorter than along the lake because of the greater distance from the lake and the higher elevation. The factors affecting crop growth, mentioned above, are shown in Map II, page 4.

Temperature

The average temperature for the year is about 43 degrees. The highest average temperature, 46 degrees, is found in the extreme southern portion and the lowest average temperature, 41 degrees, is found near the northern border.

Average temperatures during the growing season vary from 66 degrees in the southern portion to as low as 60 degrees in the northern part of the county.

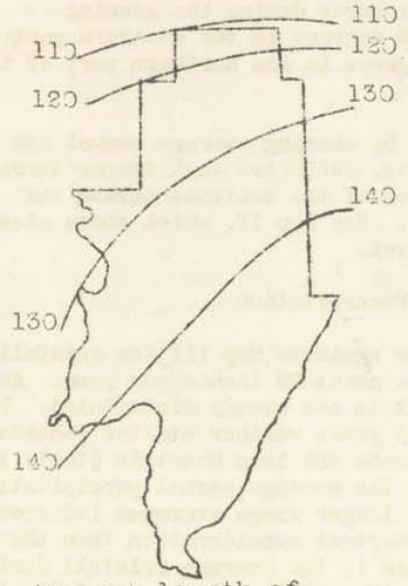
Map III, page 5, showing average annual and growing temperatures, indicates that temperatures are lowest over most of the sections having the highest elevations. See Map II, which shows elevations above sea level.

Precipitation

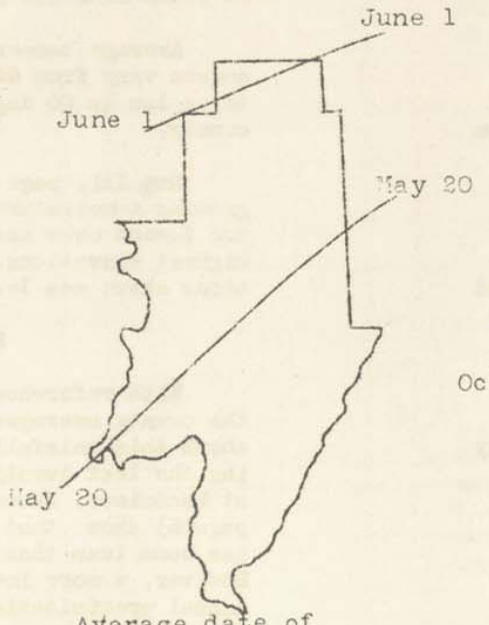
With reference again to Map III the rainfall in the county averages about 29 inches per year. As shown this rainfall is not evenly distributed. During the last twenty years weather station records at Menominee, Escanaba and Iron Mountain (Table I, page 6) show that the average annual precipitation has been less than longer range averages indicate. However, a more important consideration than the annual precipitation is the average rainfall during the growing season (Map III). As the map indicates the average rainfall is less along the bay shore than further inland. During the period (1920 - 1939) the rainfall for the county, during the growing season, has averaged 14 inches and is usually sufficient for farming operations.

Considerable local variations in the length of growing season, average annual and growing season temperature, distribution and amount of precipitation, amount of sunshine and degree of cloudiness and direction of prevailing winds is noticeable, and is caused by available air drainage.

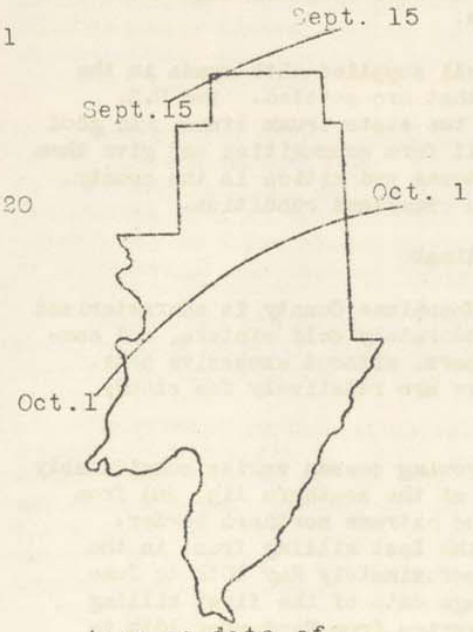
CLIMATIC DATA FOR MENOMINEE COUNTY, MICHIGAN



Average length of growing season in days.



Average date of last killing frost in spring.



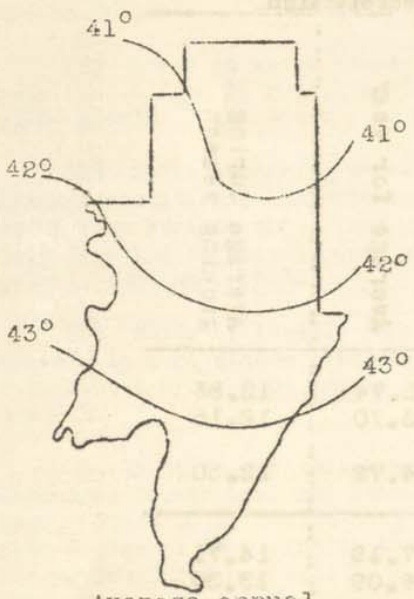
Average date of first killing frost in fall.

Elevation above sea level.

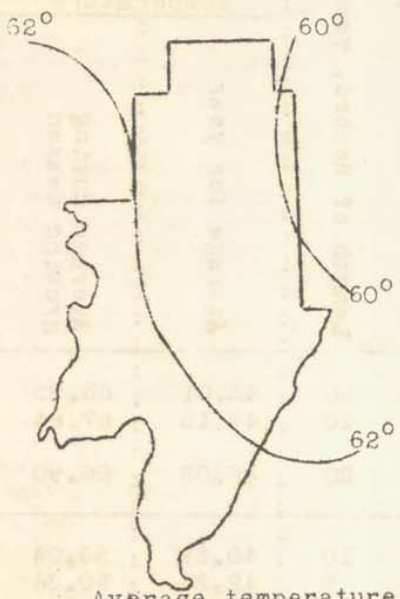
- 580-600 feet
- 600-800
- 800-1000
- 1000-1200

Source:- Special Bulletins No. 215 and 206.
Agricultural Experiment Station - 1931 and 1936
Michigan State College
East Lansing, Michigan

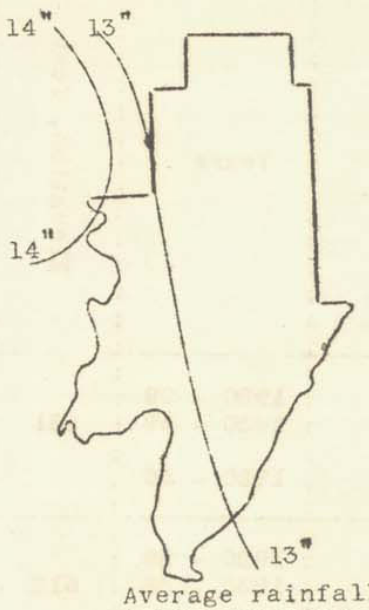
CLIMATIC DATA FOR MENOMINEE COUNTY, MICHIGAN



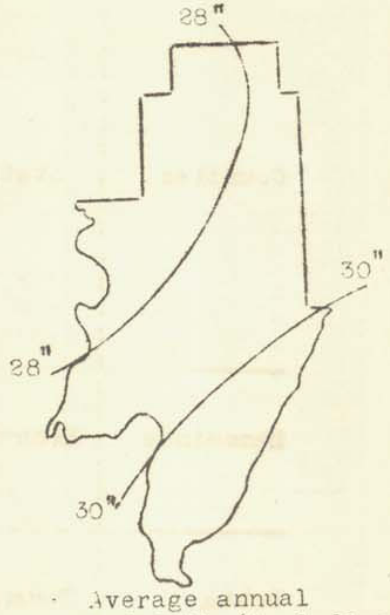
Average annual temperature.



Average temperature during growing season.



Average rainfall during growing season.



Average annual rainfall (including melted snow).

Source:- Special Bulletin No. 215. Agricultural Experiment Station
Michigan State College
East Lansing, Michigan

TABLE I. SHOWING THE ELEVATION, LENGTH OF RECORD, TEMPERATURE AND PRECIPITATION AT MENOMINEE, ESCANABA AND IRON MOUNTAIN, MICHIGAN.

Counties	Station	Years	Elevation, feet	Length of Record, years	Temperature		Precipitation	
					Average for year	Average during growing season	Average for year	Average during growing season
Menominee	Menominee	1920 - 29	581	10	45.01	65.95	25.74	12.86
		1930 - 39		10	47.15	67.84	23.70	12.15
		1920 - 39		20	46.08	66.90	24.72	12.50
Delta	Escanaba	1920 - 29	612	10	40.89	59.04	27.19	14.71
		1930 - 38		9	42.26	60.86	26.09	13.36
		1920 - 38		19	41.57	59.89	26.67	14.03
Dickinson	Iron Mountain	1920 - 29	1,111	10	42.21	61.39	28.20	17.39
		1930 - 38		9	41.91	62.54	26.62	14.98
		1920 - 38		19	42.41	61.96	27.45	16.25

Soils

The soils of Menominee County may be separated into several classes. These classes, which are closely correlated with agricultural value or productivity, are as follows:

(1) Soils in which clayey subsoils are sufficiently near the surface to retain ample moisture for maximum plant growth.

(2) Soils occurring under a wide range of topographic conditions, characterized by more or less stony sandy loam surface soils, and underlain to within three feet from the surface by open porous beds of calcareous gravel, sand and cobbles.

(3) Soils of loosely coherent sand or sand and gravel, in most places several feet thick, which occupy positions ranging from nearly level plains to rolling uplands.

Thirty different soil types were mapped in the Menominee County Land and Economic Survey conducted in 1925. These 30 different soil types have been grouped into 3 classes according to their present productiveness for agricultural purposes by J.O. Veatch, Associate Professor of Soils, Michigan State College, East Lansing, Michigan. These classes are "Better Quality Land", "Fair to Good Quality Land", and "Poorest Quality Land". On the basis of this classification, the following table gives the percentage of these three classes in Menominee County.

Better Quality Land	Fair To Good Quality Land	Poorest Quality Land
35.3%	25.4%	39.3%

The better quality lands are largely the Onaway soils, and small acreages of the Longrie, Mancelona loams, and some Bergland loam. The fair quality soils include the Menominee fine sand, Emmet fine sandy loam, Posen stony loam, Rodman gravelly loam, Mancelona sandy loams, and the Bergland loam and clay loam.

The poorest quality land is made up of the following two types:

(1) Ingalls fine sandy loam, Roselawn sand, Wallace fine sand, Rubicon sand, Grayling sand, Eastport sand, Ogenaw fine sandy loam.

(2) Granby sand, Saugatuck sand, Rifle peat, Houghton and Kerston muck, coastal beach and rock outcrop.

The land now in farms contains 47% of the better quality land, 19% of the fair to good quality land, and 34% of the poorest quality land. It is necessary to know that much of the poorest quality land represented in the above data is Rifle peat which is interspersed throughout the county between the drumlins which are for the most part the Onaway soils. A high percentage, probably at least 80%, of the cleared acreage consists of the Onaway soils.

GENERALIZED LAND CLASSIFICATION

Menominee County, Michigan

LAND USE AREAS*	Better Quality Land: Acres	%	Fair to Poor Quality Land: Acres	%	Poorest Quality Land: Acres	%	Total Area: Acres
Land in farms but not suited to farming.	2,359	7.9	15,436	51.7	12,062	40.4	29,857
Land not in farms and which should not be in farms.	36,595	14.4	98,350	38.7	119,188	46.9	254,133
Land not in farms but which are suitable for farming.	57,347	48.2	18,203	15.3	43,426	36.5	118,976
Land in farms which should remain in farming.	141,398	52.2	39,007	14.4	90,473	33.4	270,878
County Totals	237,699	35.3	170,996	25.4	265,149	39.3	673,844**

* Areas as outlined by Community Agricultural Land Use Planning Committees - 1939

**Does not include City of Menominee.

Land Classification by J.O. Veatch - Michigan State College

Compiled by George D. Hurrell, Assistant County Agent, Menominee County.

Total Area of County 1,056 square miles.

TABLE III LAND USE AREAS*

Menominee County, Michigan
1939

Townships	Class "A"	%	Class "B"	%	Class "D"	%	Class "E"	%	Total Acres
Cedarville	2,280	4.5	40,008	79.9	3,520	7.0	4,405	8.6	50,213
Menominee	13,530	28.1	6,455	13.3	---	--	28,300	58.6	48,285
Stephenson	---	--	4,608	17.5	---	--	22,016	82.5	26,624
Nadeau	---	--	2,040	3.9	10,040	19.4	39,760	76.7	51,840
Gourley	960	4.2	7,786	33.6	6,406	27.7	7,990	34.5	23,142
Lake	4,399	9.3	27,080	56.9	4,843	10.1	11,256	23.7	47,578
Daggett	2,048	8.8	3,080	13.3	680	2.9	17,344	75.0	23,152
Ingallston	5,104	10.7	26,698	56.3	---	--	15,616	33.0	47,418
Mellen	1,536	7.4	2,295	11.0	800	3.8	16,132	77.8	20,763
Holmes	---	--	22,228	48.6	7,880	17.2	15,680	34.2	45,788
Spalding	---	--	53,553	51.6	27,932	26.9	22,348	21.5	103,833
Meyer	---	--	19,910	34.5	20,978	36.4	16,770	29.1	57,658
Harris	---	--	25,998	28.3	25,882	28.2	39,932	43.5	91,812
Faithorn	---	--	12,394	34.6	10,015	28.1	13,329	37.3	35,738
County Totals	29,857	4.4	254,133	37.8	118,976	17.6	270,878	40.2	673,844**

*Acreage computed from recommendations made by Community Agricultural Land Use Planning Committees.
**Does not include City of Menominee.- Total area of county- 1,056 square miles.
Compiled by George D. Hurrell, Assistant County Agent, Menominee County.

Agriculture in Menominee County

The first agricultural settlements were made along the larger streams, largely because the timber was first removed from these lands, rather than from any consideration of soil productiveness, and also because agriculture at first was mostly established to contribute to the lumbering industry in the production of feed for horses used in lumbering. Thus, the farms were established close to those operations. These soils were pine soils, which are of light texture and droughty. At present most of the farming has shifted to the better quality agricultural lands. (Menominee hardwood uplands).

In 1880 there were reported 316 farms which has increased to 2,318 in 1938. The growth of agriculture in Menominee in recent years can best be shown by the following table taken from the U.S. Census and the 1938 figures from the Agricultural Conservation Program.

Year	No. of Farms	Farm Acres	Cropland
1924	1978	236,072	-------
1929	1961	224,481	72,137
1934	2186	250,513	75,886
1938	2318	266,586	87,563

In 15 years the number of farms has increased by 340, and the acreage available for the production of crops has increased in the past 10 years by 15,426 acres.

At the present time the estimated total income of farmers in Menominee County is $1,500,000 of which the sale of dairy products accounts for 66 2/3%, followed by potatoes with about 12%, sale of cattle and other livestock 10%, eggs and poultry 6%, sugar beets 1%, and miscellaneous crops and other farm products 4 1/3%.

The bulk of the milk produced in the county is marketed largely through local cheese factories, twelve in number, and two condenseries, one at Stephenson and the other at Marinette, Wisconsin, just across the river from Menominee. The remainder, in the form of fluid milk, finds a ready market in the nearby towns and villages as well as the twin cities of Menominee and Marinette.

Potatoes produced in Menominee County go mostly to Chicago, or other points close by, the average freight rate being about 25¢ per cwt.

The productions of poultry and eggs are consumed locally or in nearby cities. The cattle and calves find their market at a packing plant in Menominee and Green Bay, and, of course, some are used by local butchers. The sugar beets go to the sugar plant in Menominee. The average distance from the center of the farming area to Chicago is about 275 miles, which brings the county closer to a large consuming center than is true of many agricultural areas. (See Map IV page 11.)

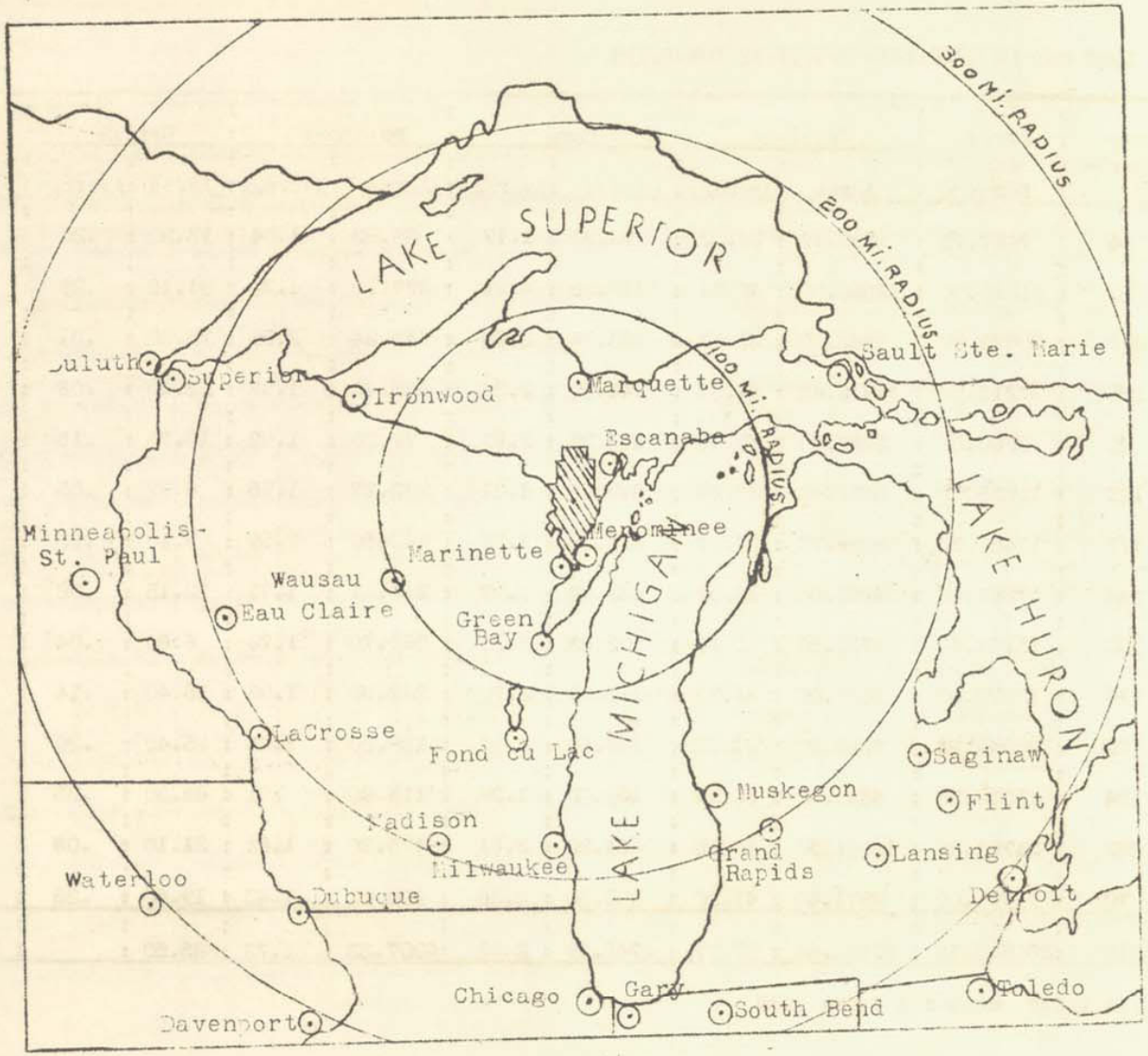

300 Mi. RADIUS
200 Mi. RADIUS
100 Mi. RADIUS
LAKE SUPERIOR
LAKE MICHIGAN
LAKE HURON
Duluth
Superior
Ironwood
Marquette
Sault Ste. Marie
Escanaba
Menominee
Marinette
Minneapolis-
St. Paul
Wausau
Eau Claire
Green
Bay
LaCrosse
Fond du Lac
Saginaw
Muskegon
Flint
Madison
Milwaukee
Grand
Rapids
Lansing
Waterloo
Dubuque
Detroit
Chicago
Gary
South Bend
Toledo
Davenport

TABLE IV. FARM LAND USE IN MENOMINEE COUNTY BY TOWNSHIPS

Townships	Farms Reporting.	Acres in Farms	Cropland		Corn		Potatoes		Garden		Grain	
			Acres	Average	Acres	Average	Acres	Average	Acres	Average	Acres	Average
Cedarville	64	7487.75	1890.10	29.53	73.20	1.17	66.53	1.04	13.20	.20	321.31	5.02
Menominee	313	31869.30	12555.00	40.11	1319.55	4.21	377.10	1.20	91.18	.29	2140.72	6.83
Stephenson	249	20872.50	8843.00	35.51	883.74	3.55	645.24	2.59	78.30	.31	1687.02	6.77
Nadeau	285	37215.00	11712.48	41.09	644.80	2.26	563.40	1.97	23.10	.08	1957.20	6.86
Gourley	75	3085.00	2482.00	33.09	213.25	2.83	77.38	1.02	13.70	.18	528.27	7.02
Lake	119	11955.00	3603.40	30.28	513.53	4.31	232.27	1.95	6.97	.05	496.20	4.17
Daggett	171	17480.50	6338.70	37.07	396.30	2.32	443.50	2.59	9.10	.05	1030.10	6.02
Ingallston	144	17283.00	4689.50	32.57	442.62	3.07	246.31	1.71	12.15	.08	919.79	6.38
Mellen	152	15161.40	4735.80	31 16	502.60	3.31	262.70	1.73	6.80	.04	793.10	5.22
Holmes	115	13072.00	3937.00	34.23	310.80	2.70	222.30	1.93	15.40	.14	624.50	5.43
Spalding	175	24049.20	7332.20	41.90	367.60	2.10	180.20	1.03	35.40	.20	1070.40	6.11
Meyer	124	15313.50	4481.60	36.14	159.30	1.28	115.20	.91	39.30	.33	647.00	5.21
Harris	262	34751.00	12091.50	46.15	684.20	2.61	475.20	1.81	21.10	.08	2206.70	8.42
Faithorn	70	11991.00	2871.40	41.20	235.50	3.36	100.00	1.43	19.80	.28	474.20	6.99
Total	2318	266586.15	87563.68	37.77	6746.99	2.91	4007.33	1.73	385.50		14895.50	6.42

Data compiled from A.C.P. measured farms 1938.

Alfalfa		Other Hays		Other Crops		Cows		
Acres	Average	Acres	Average	Acres	Average	Number	Average per Farm	Average Acres Cropland per Cow
454.40	7.10	944.96	14.68	16.50	.25	367	6	5.2
2412.82	7.70	5227.96	16.70	985.67	3.14	1886	6	8.6
2708.72	10.87	2711.62	10.90	128.34	.51	1234	5	7.2
4890.00	17.15	3435.20	12.05	205.20	.72	1821	6	6.4
676.77	9.02	965.45	12.90	7.12	.09	469	6	5.3
935.18	7.85	1225.06	10.29	194.80	1.63	588	5	6.1
2480.40	14.50	1804.00	10.55	72.80	.43	1116	7	5.7
904.01	6.27	1971.20	13.68	193.23	1.34	682	5	6.9
921.30	6.06	2104.70	13.84	134.60	.89	812	5	5.8
1519.50	13.21	1197.30	10.41	52.50	.45	615	5	6.3
1948.80	11.14	3593.90	20.54	136.70	.78	871	5	8.2
1344.70	10.84	2010.80	16.21	164.90	1.33	459	4	9.8
2832.00	10.81	5496.00	20.98	374.90	1.43	1817	7	6.5
1153.00	16.47	789.80	11.28	108.90	1.56	527	7	5.4
25181.60	10.86	33477.95	14.44	2775.16	1.19	13264	6	6.6

The Menominee County Agricultural Situation in 1940

Table IV, pp. 12-13, shows the present land in farms by townships, the amount of cropland, the acreage of various crops, the number of cows per farm, and the ratio of cropland acres to milk cows.

This table, of course, represents averages, and undoubtedly contains figures on so called farms, that really are not being operated very intensively, and in some cases only represent a rural residence, although there may be sufficient land in connection with the residence for it to be called a farm. In order to make the foregoing table absolutely accurate each farm would have to be visited to learn the intention of the people living there. Time and help available did not permit this being done.

The first comment that should be made regarding these figures is that the farms are small as measured by the cropland that is available for use at the present time. However, more land on most farms is available for clearing, as that is all that needs to be done to make more cropland available. The land clearing has proceeded at a slow pace due to the fact that until late years, it involved much hand work, and only so much could be done in any year, and due to the cost of dynamite, which was necessary to remove the stumps. Income has not been sufficient to make possible the purchase of quantities of dynamite. In the last two years a land clearing machine has been available, which removes stumps faster and cheaper than dynamite, but the lack of ready cash has held back its use to what it might be if incomes were larger.

Following is Table V, page 15, which shows the number of farms in each size class, based on cropland available per farm, for each township in the county.

These figures point out the large number of farms in the county with a small amount of cropland available per farm. There being 1490 farms with 40 acres or less of cropland available for crop rotation, 680 of these farms having 20 acres or less upon which to produce crops.

When it is realized that production of dairy products is the principal source of income, it can readily be seen that the lack of crop acres is the biggest single factor limiting the income of the farmers in Menominee County. This fact might raise the question whether or not there might be some other type of farming that would fit these small acreages and still produce a sufficient income. This would have to be vegetable farming or very intensive poultry production. It is doubtful if vegetable production could be increased to the extent that would be required and still remain profitable, also, while rainfall is generally sufficient for the production of hay and grains, it is not sufficient for the production of most vegetable crops. Also the higher summer temperatures limit the kind of vegetables that could be grown.

Poultry production undoubtedly could be expanded, but here the people must be taken into account, as most of them are dairy farmers, with a back-

TABLE V NUMBER AND PER CENT OF FARMS WITHIN CROPLAND ACREAGE RANGES

1938
Menominee County, Mich.

Township	No. Farms Reporting	0—10 A.		11—20 A.		21—40 A.		41—60 A.		61—80 A.		81 A. & Over	
		No. Farms	Per Cent	No. Farms	Per Cent	No. Farms	Per Cent	No. Farms	Per Cent	No. Farms	Per Cent	No. Farms	Per Cent
Cedarville	64	17	27	13	20	20	31	8	13	4	6	2	3
Menominee	313	50	16	48	15	115	37	66	21	15	5	20	6
Stephenson	249	34	14	35	14	85	34	57	23	27	11	11	4
Nadeau	285	22	8	36	13	90	31	81	28	38	14	18	6
Gourley	75	16	21	14	19	20	27	11	15	13	17	1	1
Lake	119	25	21	23	19	40	34	21	17	6	5	4	3
Daggett	171	15	9	27	16	66	39	37	21	19	11	7	4
Ingallston	144	20	14	27	19	59	41	24	17	9	6	5	3
Mellen	152	18	12	35	23	62	41	24	16	7	4	6	4
Holmes	115	17	15	20	17	48	42	16	14	11	9	3	3
Spalding	175	25	14	27	16	55	32	42	24	13	7	13	7
Meyer	124	20	16	22	18	50	41	16	13	8	6	8	6
Harris	262	18	7	27	10	80	31	79	30	28	11	30	11
Faithorn	70	17	24	12	17	21	30	9	13	4	6	7	10
Totals	2,318	314	13	366	16	810	35	491	21	202	9	135	6

ground of dairy farming experience, that would make such a radical change very difficult of accomplishment. It would also require much in additional investment in buildings and equipment which farmers do not now have. To secure these facilities more credit would be needed than is now available.

Referring again to Table IV it is important to note the kind and amount of crops grown as it affects income, and the conservation of the soil.

At present 65% of the crops grown in Menominee County are the hay crops. 44% of which is alfalfa so it is evident that plenty of soil conserving crops are now grown to conserve the soil resources. The reason for this high percentage of the cropland in hay crops, is that farmers have found that by producing all the roughage possible they can keep a larger number of cows even though the purchase of grain is necessary, giving them a larger net income than would be possible if they were to produce all of their grain feed. Large quantities of grain are purchased in Menominee County each year.

Because of the small amount of intertilled crops weed control is a serious problem in Menominee County, this also being due to the necessity of keeping a large part of the cropland in hay crops. The average amount of intertilled crops in Menominee County is only 15% of the cropland. This small amount of intertilled crops, although presenting a problem in weed control, does eliminate any serious consideration of erosion. However, erosion is not serious anyway because most rains fall gently, the ground is frozen about 5 months of the year and is covered with snow an equal period of time.

Grain is produced only in the amount needed as a nurse crop for reseeding the hay lands, this making necessary the purchase of grain for feeding the dairy cow. While some pasture is afforded by cut-over land, it does not supply sufficient pasture throughout the summer to keep dairy cows in good production, but as cropland is limited, very little cultivated pasture is used at present.

There are at present an average of 6 milk cows per farm in Menominee County and an average of 6.6 acres of cropland for each milk cow. This does not seem to be an excessive number of cows in ratio to the cropland, in fact, there probably is room for more cows on the cropland that is now available. Table VII which follows on page 17, shows the distribution of cows according to the cropland available per farm for each township and for the county.

Using these totals and the information in Table IV, the following situation can be seen relative to the number of cows on the average for the different size farms.

TABLE VI

	Acres					
	0-10	11-20	21-40	41-60	61-80	81 & Over
No. Farms	314	366	810	491	202	135
No. Cows	345	957	4,058	3,958	2,045	1,901
Ave. No. Cows	1.1	2.6	5.0	7.8	10.0	14.0

TABLE VII NUMBER AND PER CENT OF COWS WITHIN CROPLAND ACREAGE RANGES

1938
Menominee County, Mich.

Township	No. Cows Reported	0--10 A. No. Cows	0--10 A. Per Cent	11--20 A. No. Cows	11--20 A. Per Cent	21--40 A. No. Cows	21--40 A. Per Cent	41--60 A. No. Cows	41--60 A. Per Cent	61--80 A. No. Cows	61--80 A. Per Cent	81 A. & Over No. Cows	81 A. & Over Per Cent
Cedarville	367	8	2	22	6	109	30	119	32	68	19	41	11
Menominee	1,886	37	2	132	7	628	33	579	31	97	5	413	22
Stephenson	1,234	15	1	61	5	381	31	413	33	230	19	134	11
Nadeau	1,821	20	1	97	5	528	29	562	31	345	19	269	15
Gourley	469	14	3	59	13	143	30	102	22	136	29	15	3
Lake	588	56	10	69	12	200	34	178	30	48	8	37	6
Daggett	1,116	14	1	63	6	321	29	383	34	225	20	110	10
Ingallston	682	22	3	51	7	270	40	182	27	112	16	45	7
Mellen	812	35	4	126	15	347	43	184	23	88	11	32	4
Holmes	615	36	6	64	10	247	40	133	22	111	18	24	4
Spalding	871	28	3	38	4	230	27	294	34	151	17	130	15
Meyer	459	14	3	26	6	175	38	121	26	72	16	51	11
Harris	1,817	16	9	106	6	338	19	601	33	304	17	432	24
Faithorn	527	30	6	43	8	141	27	87	16	58	11	168	32
Totals	13,264	345	2	957	7	4,058	31	3,958	30	2,045	16	1,901	15

On page 19, Table VIII shows a survey of the dairy income in Menominee County for the year 1938. This data was obtained by securing from the twelve cheese factories, and from the two condenseries their list of patrons and the amount of butterfat sold by each and the returns these patrons received. One thousand fifteen (1,015) cases were found that represented a complete year's production. Figures were received from farms having 9,166 cows out of a total for the county of 13,264 milk cows.

According to careful estimates two-thirds of the farm income in Menominee County is from the sale of dairy products, and using this figure the income for the various sized farms would be as follows:

1-20 A.	21-40 A.	41-60 A.	61-80 A. & Over
$485.52	$673.89	$873.27	$1,223.45

It appears that essentially in Menominee County there is a major problem of securing more cropland for farmers through clearing so that their income can be raised to a satisfactory level. It, of course, must be remembered that the aforementioned figures represent gross income, and that some of that income must be spent for purchased feed, in addition to the normal operating expenses of a farm. These figures are low because 1938 was a low price year for dairy products.

Table VIII which follows on page 19 shows how income increases as the number of cows per farm increases.

It would appear from the data in Table VIII that an increase in the number of cows per farm would increase farm income. This brings the question of how much can production be increased without destroying prices. Obviously, we in Menominee County cannot tell how other counties are going to approach this problem, so it is being treated in this report, on what is desirable from a land utilization, a labor utilization, and farm efficiency standpoint.

In 1928 there was produced in Menominee County 1,600,000 pounds of butterfat that returned the farmers $1,000,000. In 1938 farmers of the county produced 2,400,000 pounds of butterfat, that again brought in about $1,000,000. It might seem from this that increased production brought lower prices, but when we remember that prices fell first and farmers merely increased their production in the attempt to obtain the same income they had enjoyed before. That is true in part, but some of the increase can be attributed to the fact that Menominee County is young in agricultural development, so that during these ten years new farms were established and the older farms increased some in size.

Table IX, page 20 shows the efficiency of production of Menominee County cows. Figures are based on the same data as that for Tables VII and VIII.

It can be seen from these figures that cows are more efficient in production than for the country as a whole and also the State. The averages in the table are for butterfat sold, and if the total average

TABLE VIII DAIRY INCOME *

1938
Menominee County, Mich.

Table	Relation of Dairy Income to Cropland Acreage Per Farm				Table	Relation of Dairy Income to Number of Cows Per Farm				
Township	No. Cases	1--20 A.	21--40 A.	41--60 A.	61 A. & Over	Township	No. Cases	1--5 cows	6--10 cows	11--15 cows	16 cows plus
Menominee	120	$ 256.87	$ 470.09	$ 530.61	$ 1,125.24	Menominee	120	$ 329.05	$ 467.25	$ 850.74	$ 1,409.95
Mellen	65	252.75	390.51	490.95	866.95	Mellen	65	287.55	493.71	745.74	991.17
Ingallston	69	256.03	423.20	520.66	1,403.43	Ingallston	69	267.87	485.62	880.77	1,831.82
Lake	45	316.71	411.77	610.32	505.21	Lake	45	273.78	464.50	751.28	1,459.00
Stephenson	143	440.43	471.09	613.63	701.84	Stephenson	143	314.98	544.78	857.63	1,060.55
Holmes	65	371.19	526.90	525.63	651.09	Holmes	65	264.20	484.46	764.30	1,183.18
Daggett	109	416.18	481.21	800.77	863.24	Daggett	109	329.75	534.25	904.39	1,206.43
Cedarville	25	168.28	408.61	930.61	967.05	Cedarville	25	182.43	398.28	693.84	1,034.79
Gourley	43	318.98	365.46	599.78	633.85	Gourley	43	296.35	382.47	628.76	1,277.03
Nadeau	156	344.51	437.29	501.71	708.99	Nadeau	156	317.79	530.87	680.87	918.84
Faithorn	26	466.36	717.93	744.02	788.97	Faithorn	26	252.15	485.40	629.94	1,141.50
Meyer	15	434.85	405.76	529.55	851.94	Meyer	15	312.72	495.83	986.88	-----
Spalding	20	---	444.22	491.59	1,034.35	Spalding	20	265.62	471.34	947.89	938.35
Harris	114	304.09	344.28	518.87	865.43	Harris	114	237.81	427.58	706.58	1,058.42
County Average	1015	$ 323.68	$ 449.27	$ 582.19	$ 815.63	County Average	1015	$ 286.45	$ 482.48	$ 781.56	$ 1,137.47

*Compiled from the 1938 dairy income records of 1,015 farmers.

TABLE IX. POUNDS OF BUTTERFAT AND INCOME PER COW *
1938
Menominee County, Mich.

Township	No. of Cows	Pounds of Butterfat Per Cow	Income Per Cow
Menominee	1,113	173.79	$ 60.77
Mellen	477	198.30	61.89
Ingallston	505	216.00	71.81
Lake	361	176.74	58.82
Stephenson	1,180	216.39	69.78
Holmes	554	186.64	61.23
Daggett	1,054	206.08	68.30
Cedarville	295	165.08	52.94
Gourley	361	166.67	55.49
Nadeau	1,419	158.08	56.78
Faithorn	313	180.36	58.97
Meyer	112	189.64	67.00
Spalding	171	179.10	61.35
Harris	1,251	154.39	51.51
County Average	9,166	183.00	$ 61.10

*Compiled from 1938 dairy income records of 1,015 farmers.
National average 167 pounds of butterfat per cow.
State average 180 pounds of butterfat per cow.

TABLE X. COUNTY TOTALS ON BUTTERFAT PRODUCTION AND DAIRY INCOME*

1938
Menominee County, Mich.

Township	No. of Cows	Total Pounds Butterfat	Total Income In Dollars
Menominee	1,886	327,767.94	$ 114,612.22
Mellen	812	157,009.60	50,424.68
Ingallston	682	147,312.00	48,974.42
Lake	588	103,923.12	34,586.16
Stephenson	1,234	267,025.26	86,108.52
Holmes	615	114,783.60	37,650.30
Daggett	1,116	229,985.28	75,222.80
Cedarville	367	60,584.36	19,428.98
Gourley	469	78,168.23	25,024.81
Nadeau	1,821	287,863.68	102,396.38
Faithorn	527	95,049.72	31,077.19
Meyer	454	87,044.76	30,418.00
Spalding	871	155,996.10	53,435.85
Harris	1,817	280,476.63	93,593.67
County Total	13,264	2,392,990.28	$ 802,953.98

*Estimated totals based on Table I and number of milk cows as reported by the 1938 Agricultural Conservation Program at Stephenson.

production is desired it is necessary to add what is used in the home and fed to calves and other livestock. Taking this into account it is evident that the average butterfat production is well over 200 pounds for the county. It can be seen that production varies considerably in various townships in the county, reaching a low of 154 pounds of fat sold per cow in Harris township and a high of 216 pounds of fat sold per cow in Ingallston and Stephenson townships. In general this can be accounted for in the following way; the southern half of the county is older agriculturally and has had to depend upon dairy income for living for a longer period of time than has been true in the northern part of the county. The north half of the county has had more supplemental income from lumbering until recent years than is true of the south half.

Table X on page 21 shows the total production of butterfat and total income by townships and for the county. These figures are based upon the average production and income from Table IX and is projected to include all cows in the county. These figures are for the year of 1938, which was a relatively low price year for dairy products.

The Potential Farm Lands of Menominee County

Scattered through the middle and northern portions of the county areas of land are found on which new farms might develop or the already existing farms could expand their present acreage. Generally these lands have the same surface characteristics and climatic conditions found in the present farming area, and as a group total 118,976 acres. Of this total 62% is in Harris, Spalding and Meyer Townships. (Table III, page 9).

On the basis of soil types, this group totals the same number as on the present agricultural lands. Similarly classifying them on potential agricultural productiveness the following table gives the percentage of each class:

Better Quality Land	- 48.2%
Fair to Good Quality Land	- 15.3%
Poorest Quality Land	- 36.5%

It is readily seen that nearly one half of the total is better quality land. These lands are mostly fairly level or rolling well-drained loams or upland heavy sandy loams, and, originally supported heavy virgin stands of upland hardwoods. That is gone and now good second growth timber, maple, beech, yellow birch, ash, elm and poplar cover much of the area. The stands are scattered, the acreages are small, and the diameters average less than 6 inches for most species in the areas adjacent to farms and good roads. In the areas farther north, usually more inaccessible, isolated from farming communities, the stands are moderately good, acreages are in large blocks and diameters more than 9 inches. Some maple, elm and ash trees in this area have diameters averaging 12 to 15 inches. Poplar and white birch are plentiful but diameters average about 3 inches.

Interspersed between the drumlins and hardwood ridges are the fair to poor quality lands. The soils range from fine sandy loams and low wet sands to peat and muck. Much of these lands have little or no agricultural value, yet they would form an integral part of the farms that might be established. Red maple, elm, ash and poplar are found on the moist sandy soils with dense growths of cedar, tamarack, balsam fir, and spruce growing on the swamp soils. Acreages of the lowland type of forests are large and the stands increase in size from south to north, not necessarily because of less populous settlement but largely due to the increasing proportion of swamp land to upland. Nearly 75% of the swamp conifers average 3 inches in diameter and the other 25% average from 3 to 6 inches.

Throughout these potential farm lands is some rock outcrop and field stone but not enough to hinder development. Roads, schools, public services and markets are available or nearby with the exception of the more isolated areas.

Lands not in farms but which are suitable for farming.

In the northern part of Harris township, town 40 north, range 25 west, is an area of potential farm land. The uplands are in large blocks of good soil, rather stony and rolling topography. The drumlin formation, characteristic to most parts of the county is not so pronounced and the proportion of swamp to highland is less. The poplar - white birch type predominates in the area but the stands are of medium stocking and are less than 6 inches in diameter. Occasionally some are found with larger diameters.

The acreage of maple, beech and yellow birch type is less than 2,000 acres with poor stands averaging less than 9 inches in diameter. The acreage of basswood, elm and white ash is very small and the scattered stands average 6 to 9 inches. The cedar and spruce type comprises about 5,000 acres. Stands are densely stocked and range from 1 to 6 inches in diameter.

At present there are no public services in the area. The uplands are perhaps cut-over more than in some other potential farm lands but stoniness, lack of roads and more accessible lands nearer settlements has prevented their use so far.

Along the eastern border of Nadeau Township and extending into Gourley is an area of potential farm lands nearly encircled by farm settlement. The drumlins of this area, almost entirely of Onaway loams lie parallel to each other and constitute 75% of the land. The other 25% is lowland of Rifle peat. The area has all been cut-over yet there are some good stands of second growth hardwoods, maple and beech on the ridges in addition to the fairly dense stands of cedar, balsam and spruce on the lowlands. Much pulpwood, posts and coniferous trees are continually being removed and the diameters of the trees remain small. Roads do not traverse the area but short extension of the present ones that extend up to it would easily open up the entire acreage to settlement and undoubtedly this will come soon. Good soil, easily obtainable public services and nearness to local markets are all factors favoring this area for settlement in the near future.

Lying north of Hermansville in northern Meyer and northwestern Spalding Townships is an area of rolling uplands and swamp, which has a higher elevation than any other part of the county. The percentage of swamp and highland are about equal. Forests cover the entire area and some stands of virgin timber are found on the highlands. Even though most of it has been previously logged, good stands of maple, beech, basswood, elm and ash are present with diameters ranging from 6 to 15 inches. Hemlock and pine are very scarce, but poplar and white birch 0 - 6 inches in diameter are found in abundance. Their acreage will equal or surpass that of maple, beech, elm and ash. Occupying the lowlands are large acreages and good stands of cedar, tamarack and balsam fir. Diameters of these trees are mostly 3 to 9 inches and average larger than those found in the central portions of the county. A large lumber company owns most of the land and their policy of logging combined with good fire protection may account somewhat for this. Although all the merchantable timber may not be logged off for years to come the soils of the uplands are equal to those in the farming area and they may well serve as an agricultural reserve to be used when new farms are needed. Logging and fire trails exist but no roads.

The other potential farming areas are smaller and scattered throughout the county. Their proximity to the agricultural area make the problem of these lands similar in nature to the uncleared portion of present farms.

From the aforementioned discussion of the agricultural situation it has been noticed that cropland acreages per farm are too small. The better quality lands of the potential farm lands are sufficient to increase this amount to the level needed to insure a good living and maintain soil productivity. The fair to poor quality lands will furnish some pasture and certainly the timber will furnish cash income through the sale of posts, pulpwood, excelsior wood, Christmas trees, etc.

Forest Lands in Menominee County

According to the U. S. Forest Service, 15% of Menominee County was occupied by pine forests, 40% was covered by swamp conifers and the remaining 45% was hardwood forests in pure stands and mixed with conifers.

Cutting, fires and farm development have greatly altered both the character and extent of the natural growth in the county. Poplar (aspen) is now the principal growth on more than 150,000 acres. The virgin pine stands are gone. Culled or second growth is now the major growth on less than 2,000 acres and two-thirds of this is jack pine, poplar, open stands of mostly scrub oak and various types of open wild land occupy a large part of the second growth, now occupies less than half of the settlements and poplar stands mixed with white birch that occupy the most severly burned-over portions of the cut-over hardwood lands. Coniferous swamp forest growth and deciduous trees on the lower slopes of the uplands still persist on 75% of their former area. The general absence of fire and the unsuitability of these lands for farming account for this.

A study conducted by the Land Economic Survey in Menominee County in 1925 revealed that the upland forests types occupied slightly more than 40% of the county and the lowland forest types nearly 36%. Open wild land and marsh combined, represented slightly more than 4%.

Approximately 20,000 acres have been cleared in the past 15 years, mostly on the uplands, and, assuming this to be true, the upland forest types still occupy 37% of the county with little or no change in area of the lowland forest type. The potential farm lands, most of them covered with some forest growth are included in the acreage figures that follow. In addition there are many acres of forest growth in the farming area and this has been included in the discussion, also.

Upland Forest Types

The upland forest growth consists of three types of pine, two types of mixed hardwoods, the hemlock, the oak and the poplar-birch types.

The limited stands of white and Norway pine are young and semi-mature growths, or culled and scattered remnants of the virgin stands and total about 500 acres. The largest single stand of white pine is in the extreme northeastern part of Harris Township and ranges from 3 to 9 inches in diameter. Smaller and scattered stands exist in Spalding, Mellen, Faithorn and Cedarville Townships. In Lake Township near Koss is a small stand of white pine, with diameters ranging from 9 to 12 inches. Where Norway pine is in the majority it occupies only 200 acres and a mere fraction of this is of merchantable size with the exception of a small tract along the Menominee River adjacent to the City of Menominee. The principal areas of jack pine are located on the sandy soils near the junction of the Shakey River with the Menominee in Lake Township. The stand is poor and averages less than 6 inches in diameter.

Maple, beech, yellow birch and hemlock make up the common hardwood forest growth found on the rolling well drained loams and the heavy and sandy loam uplands.

The type is easily distinguished by the fact that hard maple is the most prominent species in the association followed by beech and yellow birch. The percentage of hemlock is most variable and is virtually absent from many of the second growth stands.

It is estimated that 33,000 acres are covered with this type of forest growth of which 90% is second growth and that less than 10% is poorly stocked. The best stands and largest acreages occupy the north portions of Harris and Spalding, the west part of Gourley, the eastern part of Nadeau and the southern part of Meyer Townships. Diameters in these areas are from 1 to 6 inches and of good stocking. Found in these areas, but of less acreages, are good stands ranging from 6 to 9 inches. Small acreages and good stands, 12 to 15 inches, are scattered through the northern part of Harris and Spalding. In every township this type is found and all is of good stocking.

Occupying the moist sandy loam and loam soils is the basswood, elm and white ash type. It is more variable in composition from place to place and may include the maple-beech type where drainage is fair, or in the more moist situations balsam and spruce may enter the stands.

Approximately 25,000 acres have this type where the basswood and elm predominate. The large acreages of good stands are found in the northern part of the county and range from 6 to 12 inches. In the south part of Lake, Town 34 N, Range 38W, is a small acreage consisting of this type associated with maple but diameters are mostly less than 6 inches. Small acreages of smaller diameter trees are found on nearly all the moist loams of the county.

Oak is the major growth on 8,000 acres in Menominee County. The principal areas are located in Lake Township where the oak now occupies those areas on which the virgin forest was chiefly Norway pine with some white pine. Doubtless oak was present in the virgin stand but as a minor species. The cutting of the pine and recurring fires have reduced the pine to a few scattered stands, which are not apparently restocking the area. Open ragged stands of scrubby oak and clumps of oak sprouts now occupy these former pine lands. Less extensive areas extending from Koss southward to Menominee, along the Menominee River. These stands are better stocked and more thrifty than those in Lake Township. Over 95% of the total acreage consists of open, poorly stocked stands that average less than 6 inches in diameter. The remainder is in stands that averages 6 to 9 and 9 to 12 inches in diameter.

In the standpoint of acreage the poplar-white birch type is the most important for it is the major growth on 175,000 acres and is generally distributed throughout the county. As mentioned previously, it is the principal growth on 150,000 acres and is associated with smaller amounts of other types of forest growth on the remaining acreage. However, the bulk of this type is on the former hardwood and white pine lands. Nearly 75% of the poplar-white birch is of small growth averaging less than 3 inches in diameter. In northern Harris and Spalding Township nearly 2,000 acres have stands that average over 6 inches in diameter.

Poplar is commercially used for excelsior and pulpwood while white birch is considerably used in novelty mills and for fire place fuel.

Lowland Forest Types

The swamp hardwoods, the poplar swamp hardwood and the swamp conifer types are the common growth on the forested swamp lands. Varying composition of the soils, some entirely organic, others partly organic and mineral, plus drainage conditions make it difficult to find distinct types in many areas.

Swamp hardwoods, mostly elm, balm of Gilead, black ash and red maple occur on the shallow, better drained swamp soils. They occupy over 60,000 acres with very few trees averaging over nine inches in diameter. Most stands average less than six inches although well stocked. Cedarville and Ingallston townships have the largest acreages of this type of forest.

This type in combination with poplar, white cedar, spruce and tamarack is the common forest growth on shallow swamp soils that have free natural drainage. It occupies 24,000 acres. Logging, fires and windfalls may have contributed to this peculiar mixture of species. Practically the entire area is well stocked and the stands, usually small acreages, have average diameters of less than six inches. With the exception of the forest areas along the Menominee River this growth occurs in all the forests of the county.

On the better grade of deep swamp soils are found the white cedar, tamarack, spruce and balsam fir. These occupy a total of 145,000 acres and due to continual cutting few areas have tree diameters averaging over six inches. These exceptions are in

northern Harris, Spalding and Meyer townships, as well as in the central portion of Ingallston township. Here diameters are from six to nine inches. Sawmills, however, are rapidly diminishing this merchantable timber, although, there is evidence that the type reproduces well after cutting.

Another type that might be mentioned is the stunted dwarfed type of spruce, tamarack and balsam fir which grows on the poorer grade swamp soils having no free natural drainage. The watertable is normally high and the site is cold and wet. Christmas trees and a small amount of pulpwood can be taken out. The densely stocked stands afford good winter protection, however, for large game animals.

Recreation and Wild Life

Menominee has often been called the "Gateway to the Upper Peninsula". Stretching northward from Menominee is an excellent highway winding along the bay shore and passes through dense growths of forests. Numerous parks, summer camps, summer homes and rural residences are found here. Following the Menominee river west and northward from Menominee several excellent summer resorts and sportsman's clubs are conveniently located. Although few lakes exist in the county the streams, forests, parks and beaches are real attractions for local people and tourists.

With a large per cent of the county covered with forest growth it is to be expected that wild life is found here. Deer are sufficiently numerous so that sight of them is not uncommon in the sparsely settled parts of the county. Bears are sighted occasionally in the northern parts of the county. Coyotes, are quite generally distributed over the county and are a menace to

game animals. Red foxes are seen and are increasing. Raccoons, minks, and muskrats are seen on a few of the streams in the central and southern parts of the county, while beavers are found on most of the streams in the county. Some otters have been seen on the Big Cedar.

Ducks are less plentiful in Menominee County than farther south in the Wisconsin marshes and weedy lakes. However, the aquatic vegetation of Hayward and Mud Lake, situated in the south central part of the county, attracts many during the regular migrations.

Land not in farms and which should not be in farms.

This land, mostly unfit for farming purposes, totals 254,133 acres and percentages of first, second and third quality are shown in the following table:

Better Quality Land	- 14.4%
Fair to Poor Quality Land	- 38.7%
Poorest Quality Land	- 46.9%

As noted in the table, fully 85% is inferior quality land and the "lower uses" such as forestry, recreation and wild-life predominate or should be encouraged. The area, as a whole, is scattered over the entire county and the larger blocks will be treated separately as sub-areas while the smaller blocks are omitted as they are similar to the adjacent sub-areas.

Bay Shore - Menominee River Area

This area is a narrow strip of land fronting on Green Bay and along the shore of the Menominee River. Located along M-35, and passing through the area along the bay, are numerous parks, the North Shore Country club, summer homes, cottages and rural residential districts. A CCC camp is located at Cedar River, and fishermen have their homes at several points along the bay.

From a recreational viewpoint a narrow strip of land along the banks of the Menominee River, in entire length, is also included in this area. Here several real estate companies are developing summer resorts and sportmen's clubs. The wooded banks and sandy soil make this area an ideal place for such development.

The use which the area now has should continue and has room for expansion as the roads, schools, supply centers and other public services are conveniently located.

Two villages, Ingallston and Cedar River, are located in this area and are service centers.

Lake Plain Area

Away from the shore and extending from three to six inland miles is an area of poorly drained sandy plains. This low-lying area, covered with a mixture of red maple, elm, ash, poplar, cedar, balsam, fir, spruce and tamarack is narrowest near the city of Menominee and broadening northward. A slender finger of the area

extends southward from the vicinity of Hayward Lake into Menominee township. The Cedar River State Game Area occupying a large portion of Cedarville Township extends into parts of Ingallston, Stephenson, Daggett and Gourley townships. A few farms are scattered through the area but soils are poor. Forestry and wildlife support should remain the principal land uses.

Koss - Talbot Area

North and east of Koss and in the vicinity of Talbot are small areas of gravelly sandy plain characterized by numerous knobby knolls. The abruptness of slope, steniness, and droughty soils make the area unsuitable for farming. It should be left in forest growth which is mostly poor second growth hardwoods.

Shakey Lakes - Kells Area

In the western half of Lake township and extending into the southwest part of Holmes township is an area of dry sand plains of considerable extent. The vegetation consists of a very sparse stand of scattered jack pine and Norway pine, with scrubby hardwood, principally clumps of oak sprouts. The soils are porous and droughty. Resort development is being encouraged at Shakey Lakes and along the Menominee River nearby. Reforestation and upland game propagation are recommended for this area.

Chalk Hills - Pemene Falls Area

Along the Menominee River in the vicinity of Merryman Island to the northwest of Faithorn Township, is an area of rough, stony, sandy soils, some fine sandy loams and a negligible amount of swamp. The southern part varies from three to four miles in width and narrows rapidly through Faithorn. The elevation increases from

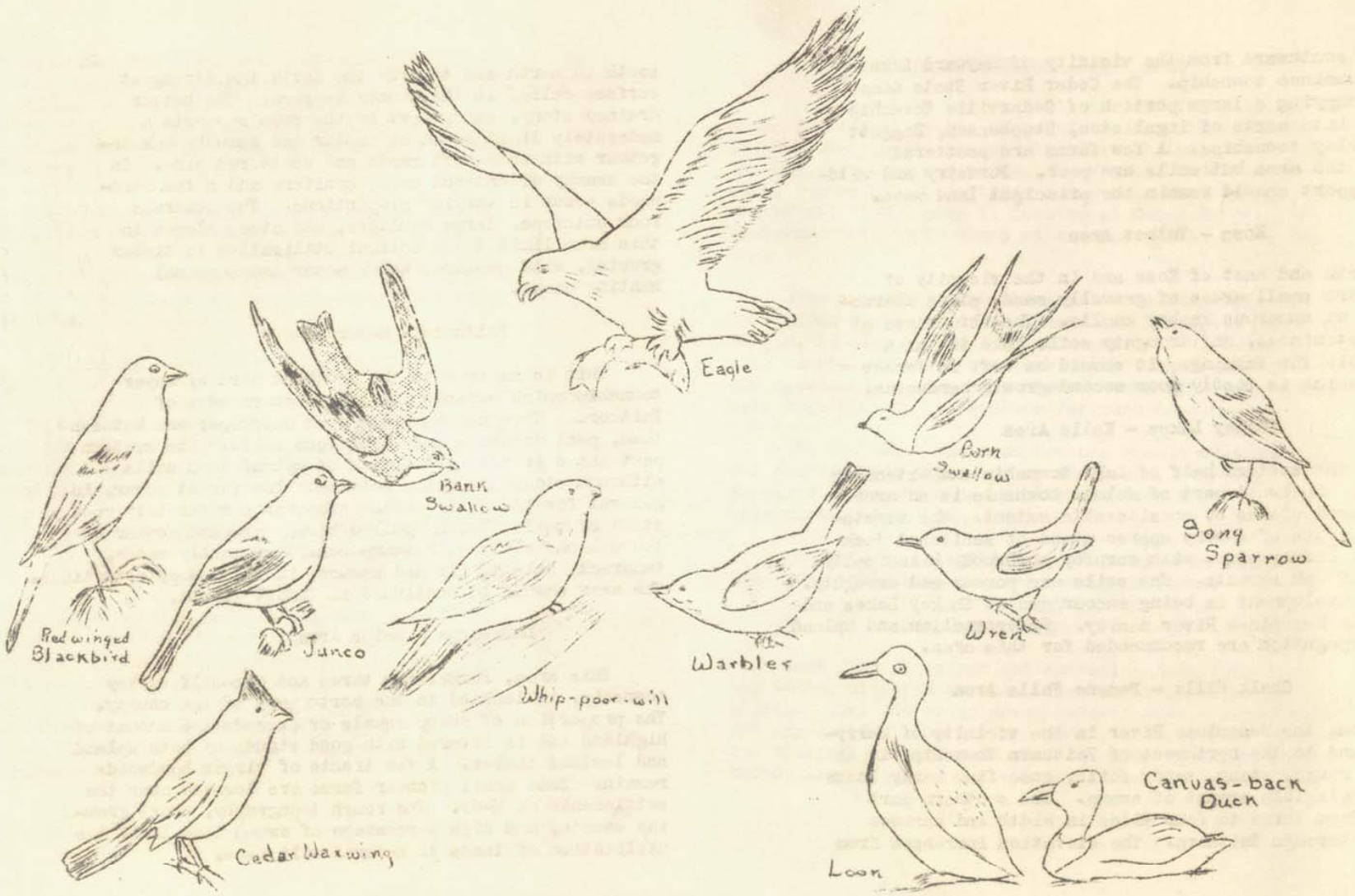
south to north and towards the north the strongest surface relief in the county is seen. The better drained stony, sandy part of the area supports a moderately light stand of poplar and scrubby oak together with some soft maple and scattered pine. In the swampy situations swamp conifers and a few hardwoods occur in varying proportions. The numerous rock outcrops, large boulders, and steep slopes in this area limit the practical utilization to timber growing, wild pasture, water power and seasonal hunting camps.

Faithorn - Meyer Area

This is an area in the southern part of Meyer township which extends into the eastern edge of Faithorn. Here are numerous rock outcrops; and between them, peat deposits and light loam soils. The western part has a greater proportion of upland loam soils although stony and quite rolling. The forest cover, in general for the entire area, supports a moderately good stand of maple, beech, yellow birch, ash and poplar on the uplands soils with swamp conifers, mostly cedar, tamarack, balsam, fir and spruce, in the swampy situations. The area should be continued in forest growth.

LaBranche - Helps Area

This area, comprising three and one-half survey township, is located in the north part of the county. The proportion of swamp equals or exceeds the amount of highland and is covered with good stands of both upland and lowland timber. A few tracts of virgin hardwoods remain. Some small pioneer farms are located near the settlements on M-69. The rough topography, short growing season, and high percentage of swamp land limit the utilization of lands to natural wild uses.


Eagle
Bank Swallow
Barn Swallow
Song Sparrow
Red-winged Blackbird
Junco
Whip-poor-will
Warbler
Wren
Cedar Waxwing
Loon
Canvas-back Duck

TRANSPORTATION SURVEY OF THE COMMUNITY OF MENOMINEE, MICHIGAN AND MARINETTE, WISCONSIN

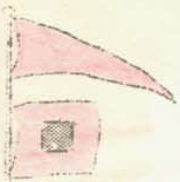
By

Michael J. Anuta
Twin City Traffic Bureau

Harbor Scene Menominee, Michigan

HARBOR
WEATHER SIGNALS

Small
Craft Warning



Storm from
Northeast

Storm from
Southeast

Flags 8' x 8', pennants 15'

PREFATORY STATEMENT

The information summarized in the following survey was taken from official records or from reliable sources. The survey represents the present development of transportation and its possibilities in and through the twin cities of Menominee, Michigan and Marinette, Wisconsin.

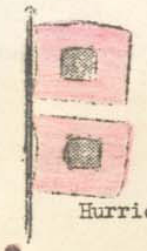
Any study of transport necessitates inclusion of intimately related subjects which in any wise contribute to the transportation of commodities or are factors in producing commodities for transportation. A community's capacity to produce commodities for transportation may be indicated by such data as population, wholesale and retail distribution, industrial establishments, information concerning natural resources, number of farms, recreation facilities, conservation, public works and numerous other matters. Such information has been obtained either from official or from sources which have been considered reliable.

May 1, 1940

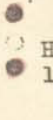
MICHAEL J. ANUTA

Storm from
Northwest

Storm from
Southwest



Hurricane



Hurricane
lanterns at
night

TRANSPORTATION SURVEY OF THE COMMUNITY OF MENOMINEE, MICHIGAN AND MARINETTE, WISCONSIN

The community of Menominee, Michigan and Marinette, Wisconsin is located at the mouth of the Menominee River on Green Bay, an arm of Lake Michigan. Menominee is the southern tip of the upper peninsula of Michigan, and Marinette might be called the northeast corner of Wisconsin.

The community is 50 miles north of the city of Green Bay, Wisconsin, 55 miles south of Escanaba, Michigan, 250 miles north of Chicago, Illinois, and 300 miles east of Minneapolis-St. Paul, Minnesota.

The first major industrial development in this section was lumbering, but since 1900 this has fallen off. With the exception of the manufacture of lumber products, sugar, and paper, industries have been established since 1901.

POPULATION

The labor supply of the twin community of Marinette and Menominee is made up largely of northern European stock. A survey of school children indicates parental stocks as American, Scandinavian, German, Irish, Slavic, French with a liberal sprinkling of others. The number belonging to races other than white is almost negligible.

The following summary made from census reports shows population trends in the last four decades. According to the 1940 census Marinette County with a land area of 1,415 square miles has a population of about 23.9 per square mile; Menominee County with an area of 1,056 square miles has about 23.5 per square mile.

Census	Men. Co. (inc. city)	Menominee city only	Mar. Co. (inc. city)	Marinette city only
1910	25,648	10,507	33,812	14,610
1920	23,778	8,907	34,361	13,610
1930	23,652	10,320	33,530	13,734
1940	24,883	10,230	36,225	14,183

CLIMATE

A study of weather reports indicates that temperatures of points in the Fox River Valley fluctuate more than in Menominee and Marinette, which appear to have fewer blizzards in winter and cooler temperatures in summer. This indicates the mitigating influence of Green Bay.

Based on the average maximum and minimum temperatures in each month, over a period of 22 years, temperatures are shown in degrees Fahrenheit, as follows:

	Maximum	Minimum		Maximum	Minimum
January	25.1	8.8	July	78.5	58.8
February	25.2	7.7	August	75.8	57.5
March	37.2	19.8	September	68.6	50.7
April	48.4	31.2	October	58.0	41.0
May	60.4	42.1	November	43.3	28.8
June	72.5	53.2	December	30.3	16.3

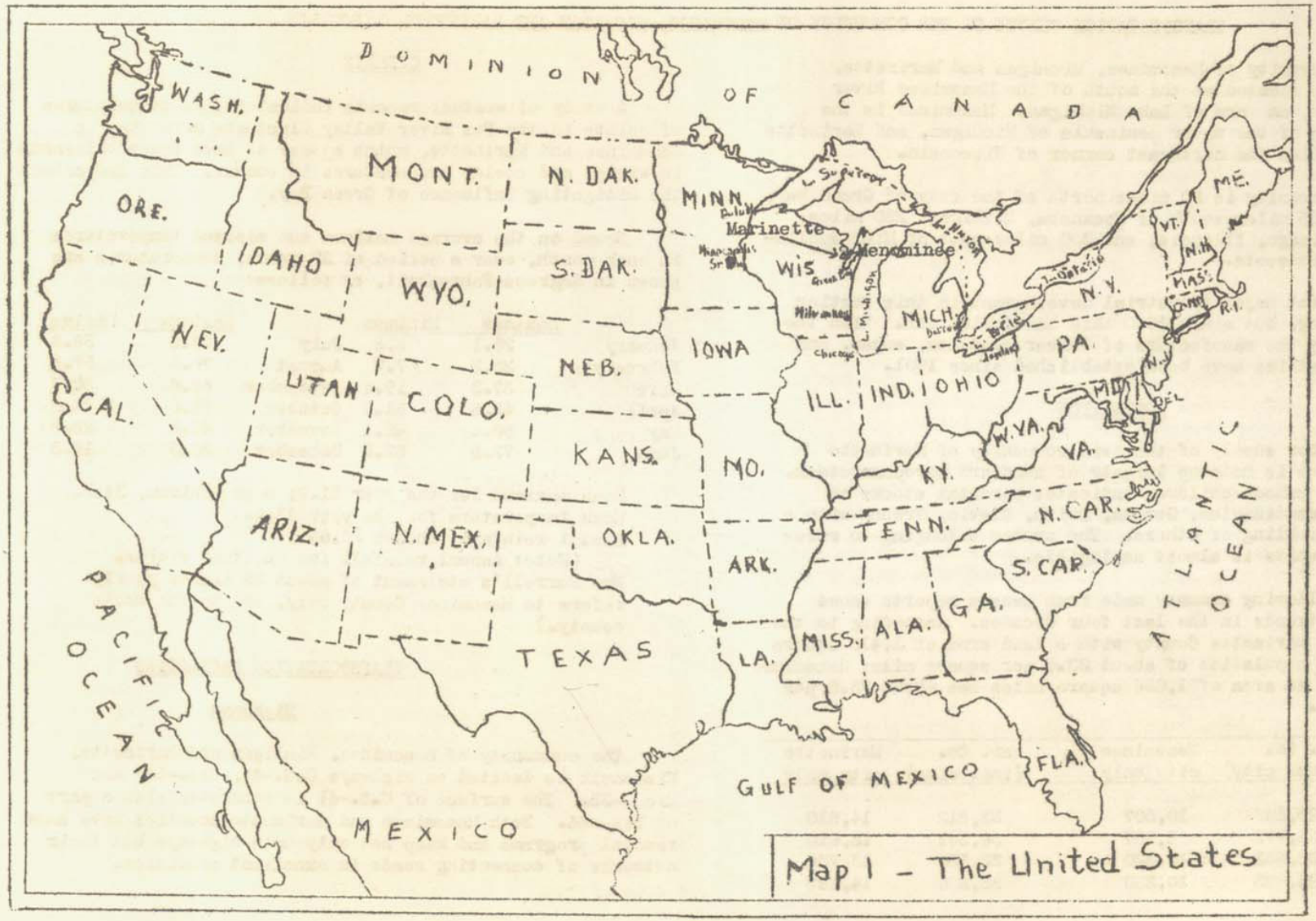
Mean maximum for the year 51.9; mean minimum, 34.7.
Mean temperature for the year 43.3.
Annual rainfall, inches 26.86.

(Note: Annual rainfall for the twin cities. Mr. Hurrell's statement of about 29 inches yearly refers to Menominee County only, and to the whole county.)

TRANSPORTATION FACILITIES

Highways

The community of Menominee, Michigan and Marinette, Wisconsin is located on highways U.S.-41, Wis.-64, and Mich.-35. The surface of U.S.-41 is concrete, also a part of Wis.-64. Both Menominee and Marinette counties have snow removal programs and keep not only main highways but their networks of connecting roads in excellent condition.



Map 1 - The United States

Railroads

Ann Arbor Railroad Company. Menominee is the western terminal of the Ann Arbor Railroad Company carferry, established about 1892 and operating between Menominee and Frankfort, Michigan. Daily service eastward from Menominee and westward to Menominee is maintained summer and winter. Terminal facilities are adequate for existing, or increased, business. Storage tracks, 2 miles. Linear feet of team tracks, 1,500.

Chicago and Northwestern Railway Company. The main line of the Peninsula Division of the Northwestern Line serves Menominee and Marinette with fast freight and passenger service north, south, and west. This line was built to Menominee from Green Bay in 1871 and extended to Escanaba the following year. Present facilities are adequate for existing, or increased, business. Storage and yard tracks, approximately, 3 miles. Linear feet of team tracks, 1,000. Switching service performed by yard engines daily.

Chicago, Milwaukee, St. Paul and Pacific Railroad Company. The Menominee-Marinette branch of the Superior Division of this road connects with the main line at Crivitz, Wisconsin, 22.4 miles west of this community. This line extends to Pacific Coast ports. Present facilities are adequate for existing, or increased, business. Storage tracks, 3 miles. Linear feet of team tracks, 3,789. Switching service performed by yard engine crew daily.

(NOTE. Mr. Anuta's article deals with the shipping facilities at Menominee and Marinette. In the north part of Menominee County are other railroad facilities.

At Powers a branch of the Chicago and Northwestern Railroad connects with Iron Mountain as well as with Escanaba. In lumbering days a branch of the Northwestern was also built across the tier of townships numbered 39 North. It crosses Harris, Spalding, and Meyer townships.

The Minneapolis, St. Paul and Sault Ste Marie Railroad enters Menominee County near Faithorn, passes through Hermansville, and crosses the north part of the county in an easterly direction. It was built in 1887. It is commonly called the Soo Line.

The Wisconsin & Michigan Railroad formerly an important north and south line, dwindled in importance when lumbering days passed. Its tracks were torn up in 1938.)

Water Shipping

The harbor is at the mouth of the Menominee River on the west shore of Green Bay, about 155 miles from Milwaukee via the Sturgeon Bay Canal. The harbor consists of a dredged channel extending upstream two miles, the portion in Green Bay being protected by parallel piers.

In its original condition the depth of the river at its mouth was five feet. At first commerce was transacted over "bridge piers" extending from the shore into Green Bay. The river was navigable for small boats for about two miles from its mouth, above this point it was available for rafting and logging for 100 miles.

Now the channel has a project depth of 18 feet of low water datum for Lake Michigan. North Pier is about 1,870 feet and South Pier 2,681 feet and is 400 feet south of the North Pier.

Improvements will provide for channel depth of 21 feet and turning basin depth of 21 feet. The project depth referred to low water datum for Lake Michigan, which is taken at 579.6 above meantide level at New York. Seasonal fluctuations are about one-half foot above or below the annual mean stage. Extreme fluctuations of a temporary nature due to wind and barometric pressures are about 1½ feet above or below the mean level prevailing at the time.

Terminal Facilities:
1 car ferry slip
8 lumber wharves with 4½ miles frontage
4 coal wharves with 4,260 feet frontage

4 fishing wharves with 600 feet frontage
2 package warehouses with 920 feet frontage
Also 1,000 feet municipal dock and 2,500 feet other frontage in the city of Marinette.

The communities of Menominee and Marinette have over $1,500,000 invested in the river and harbor and dock facilities. Over half of this was spent by the federal government. The remainder has been invested by the municipal governments and by private owners.

Small Craft Harbors

Marinette has an ideal small craft harbor almost in the center of its downtown district. Menominee has a small craft harbor on which the city and federal government in the form of relief labor and material expenditures has spent over $150,000. It is located on Green Bay opposite Menominee's downtown shopping district.

Steamship Service

Carferry Service. The Ann Arbor Railroad carferries operate daily between Menominee and Frankfort, carrying railroad cars, autos, and passengers. There is no other regular steamship service.

Irregular Service. The Great Lakes fleet of bulk freighters serve the port, bringing in coal, stone, wood pulp, sulphur, cement, fish, and other commodities. (See Table VI)

Bus Lines

Twin City Transportation Company, operating within and between Marinette and Menominee. Greyhound Bus Line.

Truck Lines --Common Carriers

Northwest Truckways, Inc., Lock City Transportation Co., Terminal Truck Lines, W. D. Cochran, Wesley Freight Co., Lency Clairmont Co., and William Harper & Son.

TABLE I. ALL BITUMINOUS COAL (TONS) RECEIVED AT WEST BANK LAKE MICHIGAN PORTS

YEAR	MILWAUKEE	SHEBOYGAN	MANITOWOC	GREEN BAY	MENOMINEE-MARINETTE
1913	4,107,030	423,392	425,440	469,859	138,904
1914	3,888,874	314,163	277,450	532,250	170,716
1915	3,776,771	322,019	330,818	526,593	153,904
1916	3,737,167	326,784	351,848	543,881	129,074
1917	3,025,558	342,386	331,694	602,376	81,009
1918	3,446,061	423,941	333,439	788,544	101,729
1919	3,171,788	314,328	371,797	547,781	77,715
1920	2,385,904	300,759	188,791	679,272	109,780
1921	2,575,074	249,321	254,997	678,140	103,201
1922	2,329,907	414,149	226,519	581,997	94,250
1923	3,404,228	291,812	255,857	931,529	183,689
1924	2,619,816	273,475	259,841	767,194	169,000
1925	3,211,656	311,544	321,416	1,016,423	129,023
1926	3,318,273	307,863	326,390	1,105,006	206,116
1927	3,795,657	398,510	304,930	1,249,100	226,778
1928	3,315,435	366,792	304,693	1,117,449	257,678
1929	3,949,683	369,684	328,541	1,158,329	246,278
1930	3,665,483	355,576	340,666	1,285,418	218,927
1931	3,069,728	318,174	315,473	1,132,440	185,611
1932	2,656,161	433,266	235,964	996,997	184,157
1933	3,476,456	406,993	280,464	1,240,429	273,830
1934	3,373,575	386,260	304,294	1,261,897	329,069
1935	3,005,594	337,254	274,635	1,195,415	306,871
1936	3,702,885	431,300	325,671	1,415,965*	372,541
1937	3,515,061	433,162	307,947	1,555,347*	416,441
1938	2,844,812	323,176	255,760	1,255,844*	265,491
1939	3,101,176	399,662	253,860	1,350,151*	377,228

*Including DePere, Wisconsin

Authority - U. S. War Department
Reports of District Engineer, Milwaukee, Wisconsin

TABLE II. GENERAL VESSEL TRAFFIC COMMERCE FOR THE PORT OF MENOMINEE, MICHIGAN-MARINETTE, WISCONSIN YEARS 1910-1939

	General Vessel Traffic		Carferry Traffic		Total Traffic		
Year	Short Tons	Value	Short Tons	*Value	Short Tons	Value	Passengers
1910	227,449	5,767,334	147,172	3,179,721	374,621	8,947,055	7,277
1911	170,640	1,807,090	135,862	3,446,850	306,503	5,253,940	5,000
1912	374,086	3,364,833	136,228	4,899,869	510,314	8,264,702	5,850
1913	347,141	3,694,401	123,059	5,700,673	470,200	9,395,074	7,250
1914	298,517	2,937,070	149,211	5,605,650	447,728	8,542,720	7,950
1915	278,632	2,235,120	178,585	6,150,653	457,217	8,385,773	2,871
1916	233,025	2,323,726	248,954	8,418,215	481,979	10,741,941	2,711
1917	187,939	3,235,355	382,374	12,537,477	570,313	15,772,832	2,375
1918	170,988	2,996,617	268,309	17,019,379	439,297	20,015,996	1,879
1919	156,438	1,508,950	278,203	11,488,200	434,641	12,997,150	1,000
1920	215,005	2,283,160	200,729	16,235,000	415,734	18,518,160	2,740
1921	190,300	1,384,200	282,470	20,035,000	472,770	21,419,200	3,329
1922	234,089	1,925,600	359,852	24,036,500	593,941	25,962,100	3,745
1923	351,243	2,239,030	410,879	37,594,700	762,122	39,833,730	8,563
1924	289,200	1,410,500	427,845	69,798,650	717,045	71,209,150	6,069
1925	247,872	1,146,800	500,583	99,653,600	748,455	100,800,400	2,248
1926	340,557	1,807,200	481,911	60,323,450	822,468	62,130,650	3,532
1927	336,838	2,208,200	419,523	45,293,100	756,361	47,501,300	4,134
1928	369,007	2,028,400	420,712	51,720,000	789,719	53,748,400	5,715
1929	374,006	2,375,500	448,687	56,364,600	822,693	58,740,100	9,433
1930	331,166	1,658,300	350,068	42,410,400	681,234	44,068,700	4,842
1931	303,585	1,210,200	279,644	28,937,700	583,229	30,147,900	2,524
1932	263,006	903,300	184,522	12,673,600	447,528	12,576,900	1,710
1933	426,420	1,902,500	193,500	16,474,400	619,920	18,376,900	5,663
1934	457,169	2,572,400	207,294	22,911,200	664,463	25,483,600	5,256
1935	451,230	2,319,250	224,560	26,728,000	675,790	29,047,250	5,654
1936	538,905	3,133,550	240,708	28,069,600	780,083	31,209,400	5,056
1937	581,384	----------	245,207	----------	826,591	----------	6,492
1938	350,217	1,741,687	150,939	16,405,568	501,156	18,147,255	2,715

* - Exclusive of dead weight of cars.
Authority - U. S. War Department.

TABLE III - VESSEL TRAFFIC - YEAR 1939

Commodities	Short Tons	Commodities	Short Tons
		GENERAL VESSEL TRAFFIC	
Foreign Imports		Domestic Shipments	
Wood Pulp	11,487	Boxes, wood	21
		Cement	551
Domestic Receipts			
Cement	2,256	Coal, bit.	8,380
Coal, bituminous	377,228	Lumber	30
Coke	1,406	Ties, RR	31
Fish, fresh	773	Total	9,013
Fish, salt	19		
Stone	76,044	Total gen.	
Sugar, refined	302	vessel	480,483
Wood pulp	1,955		
Total	459,983		
Total Rec.	471,470		
		CARFERRY TRAFFIC (1)	
Domestic Receipts		Domestic Shipments	
Automobiles	178	Canned goods	1,765
Beverages	1,089	Dairy prdts.	1,136
Canned goods	845	Flour & Feed	202
Coal, all kinds	51,435	Fruit & Veg.	686
Flour & Feed	75	Iron & Stl.	
Fruit & Vegetables	532	mfd.	45
Fuel oil	2,943	Iron ore	48
Iron & Stl. mfd.	4,326	Lime & cem.	3,600
Kerosene	383	Lbr. & For.	
Lime & cement	2,058	prdts.	39,916
Lbr. & For. prdts.	330	Machinery	
Machinery & Impls.	41	& impl.	84
Paper	193	Sand, stone	
Salt	2,439	& gravel	196
Unclassified	11,064	Soda ash &	
Total	77,931	chemicals	775
Total Carferry	158,564	Unclass.	14,449
		Grand Total all traffic	639,047

(1) Exclusive of dead weight cars

Draft (feet)	Trips-Inbound Steamer	Motor	Barge	Total	Trips-Outbound Steamer	Motor	Barge	Total
18-20	56			56	1			1
16-18	42			42	38			38
14-16	237			237	270			270
12-14	74	1		75	99			99
10-12	14	1		15	14	1		15
8-10		1		1		1		1
6- 8		2	2	4	1	27	2	30
4- 6		662	4	666		638	4	642
2- 4		2167	2	2169		2167	2	2169
Total	423	2834	8	3265	423	2834	8	3265
Total net registered tonnage								
	827427	25262	4719	857408	827427	25262	4719	857408
Passengers:								
Excursion:	324			324	324			324
Regular:	1286			1286	1286			1286

The above includes 19 steamers, foreign registered, total net registered tonnage, 19,862; and Government vessels as follows: 16 steamers and 7 barges.

Also included are 2,749 trips of 26 commercial fishing vessels (motors) operation at this harbor, carrying an estimated 75 percent of the total fish received; the remainder are received over the ice and otherwise.

TABLE IV - ANN ARBOR RAILROAD CARFERRY MOVEMENT

EAST-BOUND- LOADS

(Last column of totals is number of cars including empties.)

YEAR	MANITOWOC	KEWAUNEE	MENOMINEE	MANISTIQUE	TOTAL	TOTAL
1910	6006	1069	1651	4089	12851	17079
1911	6936	1200	1700	4185	14021	18071
1912	7591	2082	1540	5342	16558	20538
1913	8964	1630	2225	7085	19905	22984
1914	8982	1484	1641	7485	19592	23339
1915	8675	3223	1872	6864	20634	24762
1916	9153	4344	2979	7026	23502	25725
1917	9409	2071	4795	8620	24895	27317
1918	7483	3373	4201	10072	25129	26355
1919	8781	5722	5904	10320	30727	32021
1920	11631	5427	3155	7363	27576	30026
1921	7033	3571	5156	6135	21895	27189
1922	10439	4524	7318	8621	30902	34292
1923	9405	5544	7514	7571	30034	34563
1924	8299	6173	9110	7183	30765	37523
1925	11000	5658	11085	7073	34816	43664
1926	13573	6573	12569	6994	39709	49905
1927	14327	6846	10629	6785	38587	50764
1928	14857	8361	11046	6024	40288	55292
1929	14297	8871	11458	5751	40377	57759
1930	12252	8346	8652	5256	34506	50556
1931	11780	7787	7357	3470	30374	42182
1932	9040	6254	5039	2555	22888	32180
1933	9156	6313	5100	3413	23982	31561
1934	10454	6564	5593	4429	27040	34461
1935	11087	7065	6318	4861	29331	38446
1936	11438	8435	6032	4450	30355	39792
1937	11960	9156	6065	5428	32609	42248
1938	10827	8401	3381	3455	26064	35152
1939	11852	9811	4262	4910	30835	40695

WEST-BOUND- LOADS

1910	6091	977	2315	1867	11250	15216
1911	5557	1355	2244	2295	11451	15188
1912	6202	1460	2363	1507	11532	16556
1913	6196	1515	1848	1311	10870	18537
1914	6118	1523	1414	1363	10418	19845
1915	5927	1692	1093	1322	10034	21326
1916	5876	2201	1349	2867	12293	20134
1917	6281	2042	1675	4690	14688	21347
1918	4172	912	1014	2957	9055	16612
1919	5713	1636	2290	1531	11170	18962
1920	7656	2470	3082	1988	15196	20105
1921	6199	2765	4795	1757	15516	20758
1922	5168	3029	5825	1467	15489	23983
1923	6822	3978	6593	2049	19442	27498
1924	6164	4572	6271	2618	19625	31515
1925	7023	6590	7296	2384	23293	36608
1926	9323	6619	6411	2296	24649	38875
1927	9345	4729	5817	2383	22274	37556
1928	10901	7409	5778	2176	26264	44180
1929	11024	9347	6270	2831	29472	47247
1930	9081	6422	5187	2572	23262	42492
1931	8155	4802	4213	1554	18724	36503
1932	6747	3728	2852	941	14268	28349
1933	5937	2759	2994	1018	12618	27372
1934	5888	2955	2962	1356	12161	29625
1935	7128	5405	3239	1411	17183	32549
1936	7096	6266	3930	2004	19296	32917
1937	6729	6563	3836	1769	18897	34169
1938	5945	5389	2591	1315	15240	30626
1939	6892	6552	2531	1286	17261	34257

TABLE V - BOTH DIRECTIONS - CARFERRY LOADS

(Last column of totals is number of cars including empties.)

YEAR	MANITOWOC	KEWAUNEE	MENOMINEE	MANISTIQUE	TOTAL	TOTAL
1910	12079	2046	3966	5966	24065	32297
1911	12493	2555	3944	6480	25472	33259
1912	13793	3542	3903	6849	28087	37094
1913	15160	3145	4073	8379	30775	41521
1914	15100	3007	3055	8848	30010	43184
1915	14602	4915	2965	8186	30668	46088
1916	15029	6545	4328	9893	35795	35859
1917	15690	4113	6470	13310	39588	48664
1918	11655	4285	5215	13029	34184	42967
1919	14494	7358	8194	11851	41897	50983
1920	19287	7897	6237	9651	42772	50131
1921	13232	6336	9951	7892	37411	47947
1922	15007	7553	15143	10088	46391	58275
1923	16227	9522	14107	9620	49476	62061
1924	14463	10745	15381	9801	50390	69038
1925	18023	12248	18381	9457	58109	80272
1926	22896	13192	18980	9290	64358	88780
1927	23672	11575	16446	9168	60861	88320
1928	25758	15770	16824	8200	66552	99472
1929	25321	18218	17728	8582	69849	105006
1930	21333	14768	13839	7828	57768	93048
1931	19935	12569	11570	5024	49098	78685
1932	15737	9982	7891	3496	37156	60529
1933	15093	9072	8004	4431	36600	58833
1934	16342	9519	8555	5785	40201	64086
1935	18215	12470	9557	6272	46514	70995
1936	18534	14701	9962	6454	49649	72709
1937	6729	6563	3836	1769	18897	34169
1938	5945	5389	2591	1315	15240	30626
1939	6892	6552	2531	1286	17261	34257

FACTORS INDICATING POTENTIAL PRODUCTION OF COMMODITIES FOR TRANSPORTATION

The present industries of Marinette and Menominee are all of a permanent type. The transitory forest products industry has been replaced by a diversified manufacturing group of industries. The wood working industries which remain are those which supply a continued demand for staple wooden articles such as may be found in the larger cities. These include box factories, flooring mills, building material, Venetian blinds, rulers, yardsticks, and furniture.

Furniture

The largest single industry in the twin-community of Marinette-Menominee is the Lloyd Manufacturing Company, branch of the Heywood-Wakefield Company. In the early part of June, 1937, this plant employed about 950 employees with an annual payroll of $1,125,000.

The principal products of this factory for about twenty-five years were fibre furniture and baby carriages. In the latter item, it was known internationally as the largest plant in the world. The famous Lloyd Loom was invented here and is now used in many other countries in the making of furniture and other articles of a similar nature.

In the last few years, this plant has developed and pioneered a number of new furniture items which have been followed by the nation's furniture industry. These items include the spring-base type of chair or rocker, chrome furniture, steel lawn furniture, opera chairs, and bus and railroad car seats. All these latter items express the current mode of modernistic art.

TABLE VI - CARFERRY TRAFFIC AT MENOMINEE, MICHIGAN
CHARACTER OF LOADS HANDLED DURING YEAR 1939

COMMODITY	LOCAL FORWARDED	LOCAL RECEIVED	CONNECTING FORWARDED	CONNECTING RECEIVED
Acid	0	4	7	0
Auto Parts	0	0	80	10
Autos & Trucks	0	29	1	1
Alcohol	0	0	0	18
Bark & Pitch	0	0	0	0
Beet Seed	0	26	4	0
Beet Pulp	226	0	0	0
Brick	0	12	0	8
Canned Goods	0	23	79	7
Cement & Plaster	0	35	0	5
Cereals	0	0	0	1
Charcoal	0	0	71	0
Cheese	86	0	5	0
Chloride & Bleach	0	6	0	20
Coal	0	230	0	887
Cotton Batting	0	39	0	0
Cylinders	0	1	0	0
Earthenware Pails Bbls.	0	7	0	0
Fertilizer	0	0	0	1
Fish	89	6	0	0
Flour & Feed	0	0	2	7
Fruit & Vegetables	0	27	8	19
Furniture	20	4	0	2
Glass & Bottles	0	2	0	1
Hardware	0	1	0	0
Iron & Steel	1	111	0	41
Iron & Steel Nails	0	6	0	0
Steel & Wire Fencing	0	0	0	1
Kerosene	0	5	0	7
Lime & Soda Ash	121	4	0	5
Liquor	0	0	0	50
Lumber & Forest Products	138	2	967	14
Posts & Poles	4	0	5	0
Machinery	4	5	2	1
Merchandise	492	353	0	0
Methyl Chloride	2	0	0	0
Miscellaneous	3	54	34	40
Oil	0	24	0	63
Ore	0	0	2	0
Paint	0	0	0	5
Paper	430	9	660	5
Paper Articles	1	1	2	7
Pipe	0	16	0	53
Potatoes	16	0	16	0
Salt	0	42	0	62
Copper	0	0	8	0
Sulphur Dioxide	36	0	0	0
Stoves & Pipe	0	0	0	1
Stone & Stonevaults	0	2	5	0
Tanks Empty	4	1	9	0
Tinware	0	0	0	2
Theater Seats	88	0	0	0
Woodpulp	0	89	3	9
Excelsior	532	0	0	0
Tractors	0	0	1	0
Wax	0	0	0	9
Total	2293	1176	1971	1362

For the year 1936 value of raw materials has been reported as $1,434,500 while value of finished products totaled $3,177,000.

The annual carload business of this firm alone of both raw materials and finished products shipped is approximately 3,000 carloads if trap car movements are included.

Paper Mills

Probably the next largest group of industries are the paper mills. There is one mill in Marinette with a branch pulp plant in Menominee, and another mill in Menominee.

The Marinette plant is that of the Southern Kraft Corporation which has paper mills in the south and is part of the former Continental Paper and Bag Corporation and International Paper and Power Corporation. This plant consists of a pulp mill, a paper mill and a converting mill in Marinette and a pulp mill with an abandoned paper mill at Menominee.

This plant manufactures tissue papers, also a cellulose product from which sanitary napkins of the Veldown brand are manufactured. The tissue papers are converted to paper bags and other paper specialties.

The annual carload business of this firm totals approximately 2,500 carloads of raw materials and finished products.

The Menominee plant is a large independent Kraft wrapping paper mill. This plant purchases its wood pulp from producers much of it coming in in the form of foreign wood pulp from Scandinavian countries.

The plant employs about 150 employees with an annual payroll of about $150,000. Its raw materials of coal and pulp consumed annually total about $850,000. Its annual finished product is valued at about $1,500,000. These figures are based on 1936 data.

The annual carload shipments of raw materials and finished products of this plant total approximately 1,000 carloads.

The Badger Paper Mills, Inc., Peshtigo, Wisconsin

In any survey of the twin community of Marinette and Menominee, the city of Peshtigo located 6.6 miles south of Marinette, on the C & NW Railway, and on U.S. Highway 41, should be considered. Many of the employees working in industries located in the City of Peshtigo live in the cities of Marinette and Menominee. The same is true of employees residing in the City of Peshtigo and working in industries located in Marinette and Menominee. The natural shopping center of Peshtigo citizens is in Marinette and Menominee. Wholesale distribution of commodities for Peshtigo is made through Marinette and Menominee.

The Badger Paper Mills, Inc. of Peshtigo is the largest single industry of that community. This company owns a large pulp and paper mill and manufactures printing paper, other than newsprint, plain wrapping paper, plain and printed waxed wrapping paper, ice cream can linings, and tissue wrapping paper, together with some other specialties such as shelf rolls.

The industry employs about 300 people and has a payroll estimated at $350,000 annually.

A study of the tonnage produced by this industry shows that carload tonnage totals approximately 2,300 carloads per year.

Wood-Working Groups

The wood-working group of industries includes the Menominee Box & Lumber Co., J. W. Wells Lumber Co., Menominee Lumber & Cedar Co., Menominee Lumber Yard, Bresnahan Lumber & Fuel Co., American Rule & Block Co., Gibout Wood-Working Plant, Kartheiser Wood-Working Plant of Menominee, Michigan; also, Marinette & Menominee Box Co., Sawyer Goodman Co., Gilkey-Brown Cedar Co., American Excelsior Corporation, Miller Sash & Door Co. of Marinette, Wisconsin; and Thompson Boat Company of Peshtigo, Wisconsin.

These plants as indicated in an earlier statement, are more of a permanent nature than the large sawmills which preceded them two or three decades ago. The present wood-working

industries supply constant or growing demands for staple articles. They offer employment to a substantial part of the community's male population.

The Marinette & Menominee Box Company and the Menominee Box & Lumber Company both manufacture box shooks, crates, bottle carriers and related articles. The total employees for both plants will approach 300 men and payroll is in the vicinity of $200,000.

The carload shipments of these plants total about 1,000 cars.

The J. W. Wells Lumber Company operates a new flooring plant, also a small sawmill. The latter is used only for sawing maple lumber for the flooring plant.

The Sawyer Goodman Company has discontinued most of its operations. It has plants located at Goodman, Wisconsin and Sagola, Michigan, for which it acts as the sales agency. It is responsible for a large movement of forest products through the twin cities.

The raw materials and finished products of the Wells Lumber Company total about 275 cars annually.

The Gilkey-Brown Cedar Company of Marinette and the Menominee Lumber & Cedar Company of Menominee deal in posts, poles, ties and other similar materials. Their combined carload shipments are about 150 cars per year.

The Bresnahan Lumber & Fuel Company with the Menominee Lumber Yard and the J. W. Wells Lumber Company supply the retail lumber trade locally. Their retail needs are supplied by about 50 carload shipments annually.

The American Rule & Block Company are manufacturers of rulers, yardsticks, Venetian blinds slats and numerous other wood specialties. Their inbound raw materials are principally basswood logs. Outbound shipments consist mostly of less than carload shipments. A report made by this company of their 1936 tonnage is as follows:

Inbound tonnage	22,191,782 pounds
Outbound tonnage	3,096,252 pounds
Total	25,288,034 pounds

On the basis of an average car of 40,000 pounds, the total tonnage of this plant expressed in carload units, would be 632 carloads.

The American Excelsior Corporation of Marinette is a part of an organization which has plants in several parts of the State of Wisconsin as well as other states. It receives logs or bolts inbound, and ships excelsior and excelsior pads outbound. Total annual carload movement is about 1,600 carloads.

The Miller Sash & Door Company of Marinette and the Gibout and Kartheiser Wood-Working plants of Menominee are small wood-working plants supplying the local building trade. These three plants account for about 50 carloads of tonnage annually.

The Thompson Boat Company of Peshtigo manufactures all types of small power and sail craft. This company uses about 20 carloads of lumber annually and its total shipments, expressed in carload units, would probably approach 75 cars per year.

Refining

The Superior Sugar Refining Company manufactures beet sugar from beets grown in Michigan and Wisconsin. Their carload shipments of beets, sugar, pulp and molasses will be about 1,500 cars annually.

Fishing

A substantial portion of the population of the twin cities makes its living by commercial fishing. Both fresh fish and salt pickled fish are shipped in substantial volume. About 225 cars of salted fish are shipped by the Dormer Company of Menominee. Approximately 100 cars of fresh fish are shipped by other fish houses.

Chemicals

The Ansul Chemical Company of Marinette is the largest chemical plant in the community. Its products are sulphur dioxide and methyl chloride together with smaller by-products. The industry is an important one to the transportation agencies. Its carload shipments will total about 400 cars annually.

Lime - Hydrated

The Limestone Products Company of Menominee manufactures a high grade of Hydrated Lime from limestone brought to this port by cargo vessel; is one of the community's heaviest shippers. It receives upwards of 150,000 tons of limestone annually.

Machinery-Electrical Appliances

The Signal Electric Manufacturing Company of Menominee manufactures electric fans, motors, telephone and telegraph instruments and other electrical appliances. It employs about 150 persons and ships its products outbound mostly in less than carload lots. Expressed in carload units, this plant ships about 450 cars per year.

The Prescott Company of Menominee manufactures pumps, saw-mill machinery, and other parts of machinery. It employs about 75 men. This plant ships about 200 cars per year.

Quarries

The Pike River Granite Company of Marinette operates large quarries in Marinette County where red granite is produced in large volume. The Marinette plant partly finishes the stone and then ships it throughout the United States east of the Rocky Mountains to local monument works. This industry ships about 250 cars annually.

Brewing

The Menominee & Marinette Brewing Company, established following repeal, is one of the Northland's largest breweries. Its total tonnage expressed in carload units, approaches 450 cars annually.

Leather

The Boreal Manufacturing Company of Marinette manufactures leather gloves. For this purpose, it receives about 10 carloads of leather per year and ships out numerous less-than-carload shipments which, expressed in carload units, would equal between 15 and 20 carloads annually. Thus, the total for this industry would be about 25 cars.

Dairy Products

The farming in both Menominee and Marinette counties is almost entirely diversified dairy farming. The value of dairy products produced annually in these two counties will exceed $3,000,000 in value. While the communities of Menominee and Marinette are concentrating points for milk, cheese, and butter, the bulk of these commodities are concentrated at Green Bay and others are shipped direct to Milwaukee and Chicago. The volume of milk and cheese concentrated at Menominee and Marinette is approximately 250 cars per year.

Miscellaneous

A considerable amount of miscellaneous tonnage received by smaller industries, comes into this twin community for distribution or consumption. For example, it is estimated that at least 100 carloads of automobiles are received annually, 50 carloads brick for construction purposes, 25 carloads live-stock for the local packing plant, 15 to 20 cars cement, 100 cars of beverages, 300 carloads flour and feed, 15 carloads fresh fruits and vegetables, 10 carloads machinery, 100 carloads meat, 15 carloads potatoes, 500 carloads oil, 200 carloads miscellaneous freight. This makes a total of approximately 1,435 carloads per year.

TONNAGE HANDLED BY CARRIERS

Railroad Reports of Carload Shipments

Reports of railroad agents in the twin cities of Menominee and Marinette for the year 1936 show that 25,232 carload shipments were made from and to this twin community. This figure

includes merchandise cars.

Motor Carrier Tonnage Estimate

A close estimate of tonnage handled by common motor carriers shows that such carriers handled approximately 50,000,000 pounds of general freight to and from the twin community of Menominee and Marinette. To compare this tonnage with that hauled by the railroads, it is necessary to convert into carload units. Merchandise cars load anywhere between 5,000 to 12,000 pounds. Striking an average of 8,000 pounds, this is the equivalent of 6,250 railroad merchandise cars. It is estimated that the common carrier truck lines handle at least 25% more merchandise freight than is handled by railroad carriers.

No figures are available for contract motor carriers movements, such as household goods, canned goods, glass, soap, meat, and numerous other commodities brought in by contract motor carriers operating for a single shipper and private carriers, and where such shipments are distributed within or from the twin cities.

DISTRIBUTION

The community of Menominee and Marinette does a substantial volume of wholesale business. Its distribution reaches the upper peninsula of Michigan and the entire northern half of Wisconsin. The wholesale institutions located here include groceries, hardware, general merchandise, mill supplies, coal, stone, cement, brick, lime, wood pulp, flour and feed, automobiles, farm machinery, furnaces, oil and gasoline, beverages, and coke. The above is in addition to commodities distributed in the wholesale trade which are produced at Menominee and Marinette, for example, sugar, lumber, etc. A close estimate indicates a volume of wholesale business exclusive of industries, of 5,000 cars annually.

Docks

The heaviest carload shipments in the twin cities are produced by those industries which ship large quantities of tonnage in by cargo vessel. Outbound shipments by rail of coal, lime, cement, brick, and wood pulp alone will total between 8,000 and 9,000 cars annually. These distributing agencies ordinarily grouped under Wholesale Distribution, are of most importance to the community when use of the harbor facilities are considered. That is, these industries have become a part of the community by reason of the harbor advantages.

Markets

The combined population of the two counties of Menominee and Marinette exceeds 50,000. In addition to this population, the twin cities retail markets serve a portion of Oconto County. It is estimated that the total population served for retail distribution is 75,000.

The wholesale distribution as indicated in a previous paragraph, is throughout the upper peninsula of Michigan and in the northeastern portion of Wisconsin. This is the primary market for most of our wholesale agencies. Distribution of coal, however, is not confined to this area. The market for coal is spread to the entire northern two-thirds of the State of Wisconsin, including the Fox River Valley and Wisconsin River Valley.

For products produced at Menominee and Marinette, the natural market is to the south and east. By the south is meant points in the States of Wisconsin, Illinois, Indiana, and the lower peninsula of Michigan, while by the east is meant the tier of states located north of the Ohio and Potomac Rivers. A considerable quantity of bulk commodities is marketed westward, including lumber, posts, and furniture. A very substantial portion of the salt pickled fish produced is also marketed in southeastern states such as Georgia and the Carolinas.

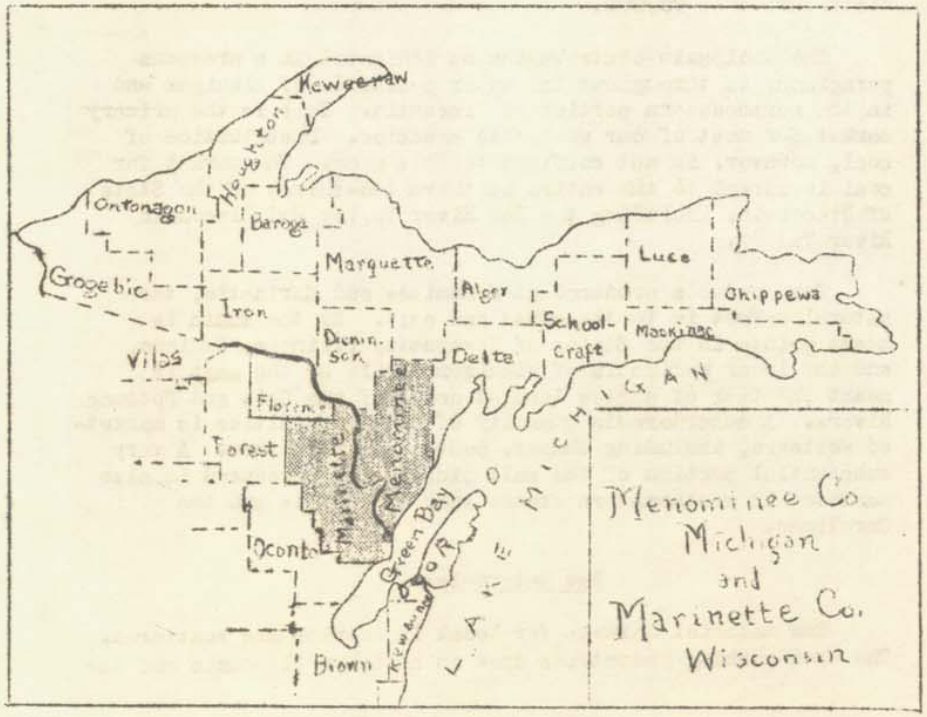
Raw Materials

Raw material markets for local industries are scattered. The wood-working industries draw on northern Wisconsin and the

upper peninsula of Michigan. Sulphur is brought in from Texas. Coal comes in from mines of eastern Kentucky and West Virginia. Salt comes from lower Michigan, clay from Georgia, steel from Chicago and Milwaukee, while the wholesale distributing agencies obtain their supplies wherever they may be found, but dominantly from the south and east.

Menominee-Marinette Important Gateway

While this community is a gateway for the north and southbound movement of traffic to and from the upper peninsula of Michigan and northeastern Wisconsin, the dominant movement is east and west through the port of Menominee and Marinette.

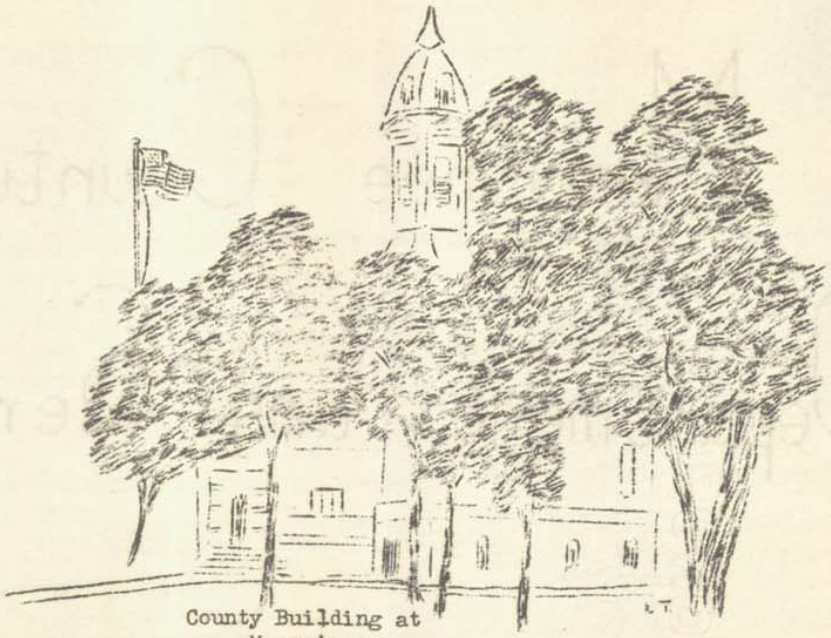


CITY OF MENOMINEE — SMALL CRAFT HARBOR

Green Bay — Breakwater — Small Craft Harbor
Sheridan Road — From part of the 400 block in the foreground to the 1000 block at the northern end of the breakwater.
Hinker Coal Company dock extending into bay beyond northern part of breakwater.
Victory Beach — stretch of trees southward nearly to open park.
Menominee Beach Park — Bandshell and beach house — Building with semicircular front. Open space along the bay.
Hotel Menominee — large red building with high smokestack on the bay side in the foreground.
Lumbermen's Bank building — light-colored building at southern extremity of Menominee Beach Park.
Old Opera House — large light-colored building in left foreground.
Post-office — roof just back of opera house. Opposite it across Quimby Avenue red brick building of Menominee Herald-Leader Company.
Schale Block — tall building northward diagonally across Sheridan Road from bank building.
Community Building (Store) — white building west of Sheridan Road opposite Victory Beach.

Menominee County

Departments and Services



County Building at
Menominee

HOW THE OFFICE OF COUNTY CLERK AND REGISTER OF DEEDS SERVES MENOMINEE COUNTY

By Harry N. Gilbertson, County Clerk and Register of Deeds, 1940

The County Clerk is elected for a term of two years and is required to execute satisfactory bond.

The County Clerk serves as clerk of the circuit court, recording all proceedings and filing documents of litigation in civil, chancery, and civil cases before the Circuit Court of Menominee County. Also, he files transcripts of the judgments from Justice courts, and prepares all appeals to the Supreme Court.

The County Clerk acts as clerk of the Menominee County Board of Supervisors, attending all meetings and keeping a complete record of the proceedings.

The County Clerk signs all checks drawn on county funds.

As clerk of the Board of Canvassers the County Clerk receives all county, state, and federal election returns from all precincts in the county, also special elections and he instructs election boards as to their duties.

The County Clerk acts as clerk of the County Road Commission and of the County Licensing Board and of the County Tax Commission, attending meetings and keeping a record of proceedings.

Other duties performed by the County Clerk are these:

Issues passports (NOTE: In Menominee County only three or four a year);
Issues peddler's licenses to U.S. war veterans;
Issues warrants for spread of taxes in the county;
Records and issues marriage licenses in the county;
Records births and deaths;
Records the credentials of physicians, surgeons, dentists, graduate nurses, drugless healers, optometrists, and chiropodists who expect to practice in Menominee County;
Files articles of incorporation of organizations with home office in the county, and files annual reports of the same;
Files certificates of persons doing business under an assumed name;
Files certificates of persons conducting co-partnerships;
Keeps a record of persons doing collection agency business with home office in the county;
Records notices to redeem property under tax sale;
Records army and navy discharges of United States veterans;
Keeps list of all deputy sheriffs in county;
Lists all attorneys admitted to the bar;
Files oaths and bonds of elective and appointive officials including justice of the peace throughout the county;
Files petitions for the incorporation of cities or villages, and annexations thereto;
Files copies of city charters and amendments thereto;
Records trademarks for certain beverages and dairy products;
Records notices by purchaser under tax sale;
Makes and files report of county tax spread with Auditor General;
Countersigns and checks all tax receipts issued by the County Treasurer, and forwards copies to the Auditor General.

Vital Statistics for Menominee County

	1939
Marriage Licenses issued	221
Births recorded	535
Deaths recorded	270

1940

Marriage Licenses issued	223
Births recorded	505
Deaths recorded	283

Register of Deeds

The Register of Deeds is elected for a term of two years. In Menominee County this office is combined with that of the County Clerk. It is the duty of the Register of Deeds to make an exact copy of all instruments left with him for record. To be entitled to record, instruments must comply with statutory requirements.

All written instruments conveying or mortgaging real estate must state whether or not any and all male grantors, mortgagors or other parties executing the same are married or single or widower.

Property conveyed or encumbered must be described as to give the location by Township, Range and Section, and in City, Lot and Block numbers.

Instruments must be signed in the presence of two witnesses and acknowledged before a Notary Public or other officer qualified to administer oaths.

In addition to recording instruments affecting title to real property, the Register of Deeds by statute is required to accept and file numerous other instruments, including all chattel mortgages on personal property located in the county, and all instruments in connection with chattel mortgages.

All chattel instruments and record books which were formerly kept by city and township clerks have now been transferred by law to Register of Deeds Office; Register of Deeds now being custodian of all such instruments and records.

A chattel mortgage cannot be filed unless there is made and annexed thereto an affidavit setting forth that the consideration of said instrument was actual and adequate and that the same was given in good faith for the purposes in such instruments set forth. Affidavit may be made by mortgagee, or some person having knowledge of the facts.

Register of Deeds keeps indexes of Deeds and Mortgages in which names of Grantors and Grantees, Mortgagors and Mortgagees are kept alphabetically and liber and page in which recorded instrument appears, is given.

Index of chattel mortgages is also arranged alphabetically under the names of mortgagors.

Deeds containing warranty of title clause must be accompanied by tax certificate issued by County Treasurer, certifying as to taxes for a period of five years previous. Land contracts must have mortgage tax paid before it can be accepted for record. Federal statutes require that all deeds conveying property sold for a consideration exceeding $100 shall have revenue stamps attached thereon.

NATURALIZATION

In Menominee County there were 43 persons who took out their final citizenship papers in the year 1939 and 31 in 1940. It is customary to hold final proceedings in June when a naturalization officer is present and when applicants take the oath of allegiance to the United States before the judge of circuit court.

Persons desiring to take out first papers begin the proceeding by securing an application form from the County Clerk at Menominee. When this form is obtained applicants are instructed on the procedure to take. As regulations change from time to time no hard and fast rules can be set down in print that will apply indefinitely. Each applicant should visit the County Clerk's office to obtain up-to-date information. The District Office for Naturalization is at Detroit.

HOW THE COUNTY TREASURER'S OFFICE SERVES MENOMINEE COUNTY

By Mrs. Maude Prince, County Treasurer (1940)

The most important duty of the county treasurer is to take charge of all county monies, and to pay out funds when prdperly authorized to do so.

Monies are received from various sources, the main one inside the county is from taxes.

Each year, between March 1st and March 15th the township and city treasurers turn over their delinquent tax books and all county tax monies which they have collected from December 10th to March 1st. This year the treasurers collected about 85% of the tax levy.

(NOTE: Delinquent taxes are taxes not paid when due. Taxes for the current year should be paid to the township or city treasurer between December 10 and March 1. Sometime between March 1 and March 15 each of the treasurers has a settlement day with the county treasurer after which date taxes are delinquent and whenever payment of them is made thereafter it is to the county treasurer. In the interval between March 1 and the Settlement Day no taxes can be paid. When the county treasurer collects delinquent taxes the part to be returned to the township treasurers and city treasurer is paid to them on quarterly settlement days. Checks are mailed and copies of tax receipts mailed to township clerks.)

Inheritance taxes are paid to this office and we send same to the Auditor General at Lansing.

All penal fines are paid to this office, and distribution is made, once a year, to school districts, to be used for school libraries.

All school monies received from the State are distributed from this office to the school districts.

State Swamp Tax and Homestead land taxes and Commercial Forest Reserve taxes received from the State are distributed to various townships.

Every year on the first Tuesday of May, a Tax Sale is held in this office of real estate, taxes on which are three years delinquent. In former years the State Tax Department compiled the Sales Book, but the past two years it has been compiled in this office. If taxes on the Sales Book are not redeemed at this office, within a year from date of sale, the properties so involved, revert to the State.

All fees collected by other county offices are turned over to this office.

Settlement of delinquent school, township and city taxes collected by this office is made every three months with townships and city.

Books are balanced every month and trial balances sent to the Auditor General at Lansing.

This office handles approximately $1,000,000 per year. Money is paid out by the County Treasurer only for those expenses duly authorized by the County Board of Supervisors, or by statute.

Funds handled by the County Treasurer are put to such uses as the following:

Upkeep of institutions, as county building, jail, poor farm, sanatorium;
State funds passed on to roads, schools, health department;
Election expense and other governmental expenses;
Direct relief and work relief;
Officers' and employees' salaries;
Medical aid and transportation of patients to state institutions;
Contributions to community enterprises as Spies Public Library, Ambulance equipment, County Stream Development.

HOW THE SHERIFF'S DEPARTMENT SERVES MENOMINEE COUNTY

By Edward J. Reindl, Sheriff (1940)

The sheriff's department includes the work of the sheriff and his deputies and is concerned with the maintenance of law and order and the safety of the public. The sheriff makes arrests, maintains the county jail, arranges for the transfer of prisoners to other institutions, and investigates accidents, and is concerned with all the types of activity outlined in the following report of cases handled in the preceding year.

Total arrests	184
Total booked, including vagrants	1,181
Total women held in jail in year	38
Mental patients held and transferred	37
Runaways picked up	3
Escapes from detention home arrested	2
Number of persons committed to jail to serve sentences	137
Accidental drowning investigated	1
Suicide, by hanging, investigated	1
Suicide, by drowning	1
Suicide, by use of firearms	1
Accidents where property damage and injury was incurred	41
Pedestrians run down by cars (3 were small children; 1 man, 1 woman, and 1 child were killed)	11
Train accidents with cars (1 man killed)	2
Passengers in cars killed	2
Driver of car killed	1
Accidental death by gun	1
Investigation of case where a man was found dead in a car accident; found that he died of cerebral hemorrhage	1
Assistance rendered in capture of men escaped from prison at Marquette	4
Up to January 1, 1940 we had a total of 1,045 sets of finger prints on file	
Number of school buses inspected	36
Worthless checks made payable ($177.15)	3
Value of stolen property recovered	$1,170.50
Liquor raids	8
Safety talks	40
Assistance rendered city firemen on ambulance calls	
The Sheriff's bloodhounds trailed and captured two men wanted for murder in Wisconsin, and also made five other successful cases	
Taverns inspected	64

Out of all the criminal cases handled through the Sheriff's Department, 98% resulted in convictions. 94% entered pleas of guilty. We have 1,650 miles of road to police in Menominee County which embraces a total territory of 1,056 square miles to cover.

HOW THE PROBATE COURT SERVES MENOMINEE COUNTY

By Katherine Stiles Laughton, Judge of Probate and Juvenile Courts (1940)

The duties of a Probate Judge, as delegated by the Michigan Legislature are as follows:

Probating and keeping record of the estates of deceased and disappeared persons, which probating includes appointment and discharge of all Administrators, Executors, and Trustees; approval of all fiduciary bonds; allowance or disallowance of wills; appointment of appraisers for personal property inventory; appointment of freeholders for real estate appraisal; determination of heirs, survivorship, and inheritance tax; authorizing license to sell or mortgage real estate; authorizing sale of personal property; authorizing deed in pursuance of land contract; allowance or disallowance of claims; granting widow's allowance; allowance or disallowance of final accounts, and fees of Administrators, Executors, Trustees, and Attorney. Other things the judge of probate has to do are these:

Appoint guardian of minors and mental incompetents;
Approve or disapprove of adoption of children under 21;
Authorize recording of delayed birth registration;
Commit insane, feeble minded, and epileptics, habitual drunkards and dope addicts to state institutions;
Authorize marriage license issue without five-day delay, also in special cases issue secret marriage license to girl under 16 and boy under 18;
Perform marriage ceremony;
Authorize change of name of adult;
Approve appointment of Notary Public;
Prepare election ballots as chairman of County Election Board, receipt of tally sheets from each precinct and canvass of county vote following election;
Serve as chairman of Jury Commission drawing annual panel of jurors;
Approve selection of Juvenile Detention Home;
Appoint Probate Register, Probate Clerk, official Court Stenographer, and Juvenile Probation Officer;
Approve appointment of County Welfare Agent;
Appoint conveyor of patients to hospitals and state institutions;
Fill vacancy that may occur in regular term of office of Sheriff, County Clerk or County Treasurer;
Appoint two members of Tax Allocation Commission;
Appoint three members of Soldier's Relief Commission;
Serve as chairman of County Plat Board;
Issue citations, subpoenas, and court summons.

In addition to above duties the Probate Judge presides in following types of trials -- sterilization proceedings, partition proceedings, uncalled for bank accounts, financial settlement for illegitimate children, concealed assets of estates. restoration to soundness of mind, and cases of adult children who fail to provide for indigent parents.

The Juvenile Court is a division of the Probate Court and the duties of the Judge include:

Commitment of delinquent and wayward minors to state institutions, neglected and dependent children to private licensed boarding homes or state institutions;
Authorization of clothing and medical care for children who are wards of the court;
Commitment of afflicted and crippled children to approved Michigan hospitals.

A total of 1465 new cases in Menominee Probate Court have been heard since January 2, 1937 and 983 old cases closed. (NOTE: About 3½ years.)

St. Joseph's Hospital was in 1937 approved by state.

authorities as a suitable hospital for city and county afflicted children, and 375 have been hospitalized at state expense.

Twelve afflicted children needing care of a specialist were committed to University Hospital, Ann Arbor, and Northern Michigan Children's Clinic at Marquette.

Thirty-six new cases of crippled children and 108 old cases were cared for at St. Luke's Hospital, Marquette, which is the only recognized orthopedic hospital in the Upper Peninsula. (A clinic for crippled children was held in 1939 in Escanaba and 69 Menominee crippled children were examined.)

For the past four years through the co-operation of the Menominee County Health Department, ten underprivileged, city and county children were sent each year to Bay Cliff Health Camp near Marquette, where they spent a month and gained in weight from two to eight pounds. Transportation for the 40 children was arranged for by the Probate Court and various service clubs.

Juvenile Court

In Juvenile Court there have been 514 hearings and re-hearings of delinquent, dependent and neglected children.

Since January 2, 1937 (NOTE: 3½ years) 112 dependent and 160 neglected children have appeared with parents in Juvenile Court of which number 172 were made wards of the court and clothing and medical care furnished. Included in these wards of the court were 55 Indian children, a special session of court being held in Harris Township in July, 1939. Forty-three neglected children were taken from parents and temporarily committed to state approved institutions.

Six homeless Wisconsin children were brought to the attention of the Wisconsin Board of Control.

Two hundred and forty-five children were brought into Juvenile Court charged with delinquency and seven were brought in as wayward minors. Cases were disposed of as follows:

Boys' Vocational School, Lansing - - - -	9
Girls' Training School, Adrian - - - -	8
Ford Republic, Farmington - - - - -	1
Convent of the Good Shepherd, Detroit - -	10
Placed on probation (varying times 6 weeks to 2 years) - - - - -	211
Charges dismissed - - - - - -	13

In addition to reporting each month to the Juvenile Probation Officer, 26 delinquents earned by their own efforts $65.45 for damage done to property. Five delinquents were placed in free licensed boarding homes. Of the 211 placed on probation 11 were from Marinette and 7 others were returned to their homes in Chicago and Wisconsin towns.

A program of foster home care has been worked out, and 29 neglected children placed in private licensed boarding homes.

An annual Hallowe'en theatre party sponsored by the Juvenile Court and attended annually the past three years by over 1,000 children, has aided materially in reducing the delinquency of previous Octobers. The Menominee Juvenile Court proudly boasts of the only Juvenile Court Library in Michigan for through the generosity of the Michigan Children's Fund, we now have 100 fine books which are distributed each month to probationers.

An advisory committee of 20 prominent city and county men and women was selected in 1939 by the Probate Judge, and to these counsellors a number of probationers have been assigned for guidance and help. A co-ordinating council is contemplated.

This spring the Probate Judge called three meetings of representatives of various service clubs and lodges, to plan summer recreation for children of the city and through the co-operation of the WPA Recreation Director, a number of kinds were planned.

HOW THE OFFICE OF COMMISSIONER OF SCHOOLS SERVES MENOMINEE COUNTY

By Ethel Schuyler, Commissioner (1940)

The office of the commissioner of schools serves as a medium for assembling information and keeping records about schools, both for local use and for the State Department of Public Instruction. Also the commissioner works with the various school authorities of the county and acts in a supervisory capacity for the rural schools.

Among the general duties belonging to this department are the following:

To keep and revise the school census records annually, following the census of the districts taken the last twenty days of May each year. Card files for all children 5-19 and their families are kept by districts, also a master file of families.

To receive, check, and file teachers' reports, bus reports, personnel reports, and school officers' financial and statistical reports, and to prepare a combined report for the thirty-six school districts of Menominee County.

To record teachers' certificates, check upon the certification of the teachers employed, approve applications for limited certificates, and prepare a list of certificated teachers.

To prepare a school directory, issue circular letters and other materials, handle correspondence, and conduct interviews.

To advise school officers and arrange for officers' meetings, and file treasurers' bonds.

To receive institute fees and pay them to the county treasurer and to make quarterly reports on the same, also to arrange for an annual institute.

To visit schools, work with teachers, and evaluate the work of the schools. To keep eighth grade records and issue diplomas.

To direct the work of the county attendance officer. To issue working permits for young people of rural areas.

To handle applications and correspondence for the County Normal, and make transcripts of credits.

In the year 1940 the following activities have been carried on in addition to the foregoing.

Attended professional meetings outside the county as Commissioners' Short Course, M.E.A. meeting of 7th Region, Mid-Winter Conference of Superintendents and Commissioners, and the National Education Association meetings.

Attended M.E.A. meetings and Institute inside the county, arranged for a local Superintendents' Conference, and held seventeen group meetings for teachers; also attended a considerable number of eighth grade commencements, and meetings of P.T.A., Health Committee, County Planning Committee, and others. Gave several public talks.

Served as editor of the seven issues of the Menominee County M.E.A. Bulletin, published an English bulletin for grades 7-8, and began organization of material for the book of which this is a part.

Served as Junior Red Cross chairman and cooperated with other agencies, such as the Michigan School for the Deaf, the W.P.A., Seal Sale committees, and the Health Unit in promoting their endeavors. Also, distributed used clothing, magazines, and books.

Carried on a standardized testing program in rural schools. Acted in an advisory capacity for a number of schools in the selection of textbooks and library books.

THE EARLIEST SCHOOLS IN MENOMINEE COUNTY

For accounts of the very earliest schools in Menominee, see the articles in this book, written by Sue Lyon Douglas and Harriet Woodford Bill. District organization took form immediately after Menominee county was set up in the spring of 1863.

Order of District Organization

1) The first two schools were in districts one and two in the
2) township of Menominee. Plans were formulated for a third district but its organization was not completed for years.

3 - In Cedarville township Dist. 1 was organized at Cedar Forks and 8 mo. of school held in the year 1864-65.

4 - In the old settlement of Birch Creek, school was held 2⅔ mo. in the year 1869-70. This was numbered Dist. 4, Menominee Twp.

5 - The fifth school was at Spalding, organized as Dist. 1 of Ingallston township in 1874. Reports indicate that the first school held was six months in the year 1874-75, with a membership of ten children.

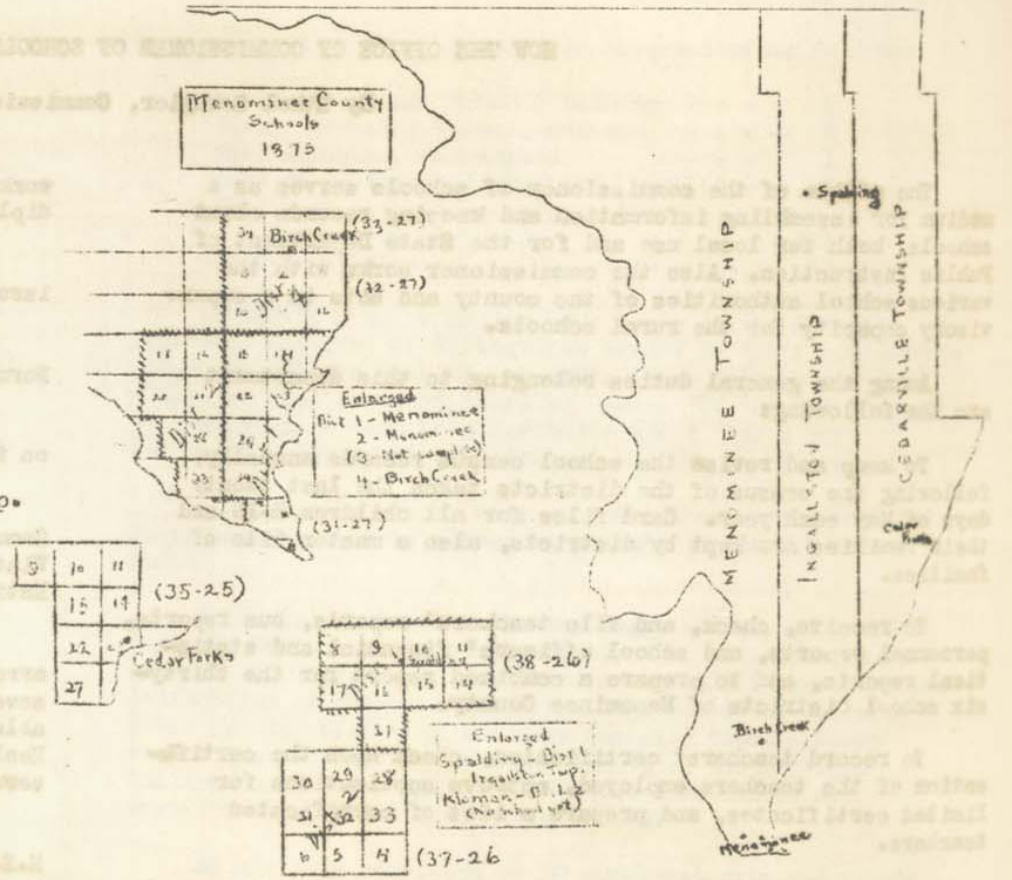
6 - Kloman school district was organized as Dist. 2, Ingallston Twp. in 1875, and held four months of school in 1875-76.

7 - Stephenson was first organized as Dist. 5, Menominee Twp. In the year 1875-76 it had three months of school with 27 pupils enrolled.

8 - Dist. 2 in the newly organized Stephenson Twp. was the one later known as Holmer school in Nadeau Twp. For an account of it see the article by Louis Nadeau. It was established in 1876-77.

9 - Dist. 3 of Menominee township had 60 days school in 1877-78.

10 - Bay View in Ingallston Twp. had 63 days of school in 1878-79 maintained partly by subscription. It was called Dist. 1 as the first Dist. 1 had been taken out with Spalding Twp. in 1877.



Menominee County School Districts
1875
Maps are from the reports of school officers, Oct., 1875.

MENOMINEE COUNTY SCHOOLS (1940)

*Includes high school transportation outside

Township or City	School	School Year May, 1940 Ages 5-19 Census	1939-40 Pupils Enrolled	1940-41 Grades Taught	1939-40 Approximate Budget Disb.	1940-41 Teachers	1940-41 Officers Order: Sec. Pres. Tr. Trustees
Cedarville	1-Cedar River	26	16	K-7	$1,773*	Elsie Foley	Chas.Ruleau, Ben Foley, Mrs. Sara Bolen
(Primary	4-Elmcrest	26	10	K-7	1,212*	Ellen Ahlskog	J.P. Johnson, Ellsworth Peterson, Steve Szoke
Districts)	6-North Fox	20	11	K-6	1,359*	Alphonse E. Houle	Roy Peterson, Einer Jacobson, Arthur Sauvoy
	8-Jimtown	15	8	K-8	915*	Fern Safstrom	Adolph Flamm, P. Wutkevicz, P. Wirhanowicz
Gourley	1-Jam Dam	62	32	K-8	1,320*	Lawrence Smith	Jos. DePas, Ignes DePas, Mrs. Mary DePas
(Primary	2-Gourley	32	15	K-7	940*	Virginia Suchovsky	Mrs. A. Suchovsky, John Pavlot, E. Kralovetz
Dists.)	3-Jasper	39	18	K-6	970*	Luella Ranger	Henry Jasper, Jos. Blahnik, Matt Dillenberg
Ingallston	1-Bay View	18	7	K-7	1,128*	Octavia Draze	Harry Johnson, Eli Williams, Emrick Johnson
	2-Wildwood	38	12	K-6	1,375*	June Hanf	Geo. Champeau, A. E. Menke, D. Mack Walcher
(Pri.	3-Sunnyside	48	15	K-8	1,207*	Mildred Grabowsky	E. Christianson, Mrs. F. Ziminski, F. Wolfe
Dists.)	4-Hayward Bay	38	20	K-7	1,222*	Lucille Barstow	Albert Backman, Francis Hayward, R. Norman
	5-Washington	26	12	K-8	902*	Evelyn Anderson	Mrs. Adelia Rye, George Nelson, Carl Rye
	6-Greenwoods	46	27	K-6	1,654*	Mildred Gerstner	George Rasner, Wm. Martz, Mrs. Myra Renner
	7-Arthur Bay	32	19	K-8	895*	John Edquist	William Kleinke, Chas. Behrend, L. Christianson
	8-Pinewoods	33	18	K-8	1,357	Mrs. Flora Roubal	Mike Schmidt, Antone Beyer, James Lucas
Menominee	1-Hamilton	67	37	K-8	1,482	John C'Neil	L. Rudginsky, A. Salewsky, W. Zeratsky
	2-Little River	46	23	K-7	1,441	Nelly Barstow	Emil Mancl, J. G. Mullen, Charles Nortquist
	3-Elmwood	46	37	K-8	1,167	Mrs. Elsie Martinek	S. Lemansky, A. Leitzke, C. J. Salewsky
(Pri.	4-Birch Creek	77	51	K-8	2,002	Marie Brault Rose Mary Braun	Mike Kass, William Kohrt, Mike Gruber
Dists.)	5-Carbondale	25	17	K-8	993	Genevieve Palarski	Paul Wagner, Jacob Kraus, George D. Jurgens
	6-Nine Mile	56	37	K-8	1,286	Mary Dougovito	A. Roubal, John Wesoloski, W. J. Christensen
	7-Spangle	58	37	K-8	1,407	Mrs. Lenora Lienna	G. H. Theuerkauf, J. Linsmeier, C. Linsmeier
	8-Evergreen	126	64	K-8	3,707	Margaret McGuire Mrs. Martha Anderson	Philip Rotter, Ignatz Nerat, Herman Hetcher
	9-Sobieski	25	16	K-8	1,035	Mary Wozniak	F. Ciszewski, F. Negoski, Thos. Banaszynski
Faithorn	Faithorn	(127	56	K-8	(5,864*	Frank Lepins, Vivien Hayes	G. W. Reid, Alfred Meiner, Raymond Curran,
(Unit)	Brandt	(	20	K-5	(	Mary Curran	J. Pivonka, Jesse McClure
Holmes	Swanson	(178	17	K-8	(10,300*	Frances Duffrin	Carl Aderman
(Unit)	Burklund	(	11	K-8	(	Ellen Wood	John Sohr
	No. Balsams	(	14	K-8	(	Lois Nelson	John Leichman
	Nathan	(	23	K-8	(	Anna Dal Santo	Martin Koller
	Gardner	(	12	K-8	(	Anna Strazzinski	Clarence Erickson
	Banat	(	41	K-8	(	Mary L. LaCombe, Emaline Raboin	
	Adams	(	8	K-8	(	Marjorie Voelker	

MENOMINEE COUNTY SCHOOLS (Continued)

*Includes high school transportation outside

Township or City	School	School Yr. 1940 5-19 Census	1939-40 Pupils Enrolled	1940-41 Grades Taught	1939-40 Approximate Budget Disb.	1940-41 Teachers	1940-41 Officers Sec.Pres.Tr. Trustees
Lake	Sands	(241	12	K-8	($ 8,880*	Viola Olson	Alfred Sands
	Edison	(	27	K-8	(	Madonna Shampo	Earl DeMille
(Unit)	Harding	(	10	K-8	(	Ruth Malmsten	K. J. Broberg
	Longrie	(	29	K-8	(	Martha Duffrin	Harry Toberg
	Kells	(	31	K-8	(	Hazel Hayward	William Tebo
	Lost Lake	(	20	K-8	(	Sarah Campbell	
Mellen	Wallace	(253	70	K-8	($12,555	David Roberts, Harry Corbisier	Arthur Newlin
	Ingalls	(	55	K-8	(	Marguerite Deacon, Elizabeth Brock	Chas. Schlenvogt
(Unit)	Bethel	(	18	K-6	(	Nannie Anderson	Hilding Jardeen
	Coolidge	(	19	K-6	(	Mildred Jarrett	A. Krantz, A. Douville
Daggett	Daggett	(299	(246	K-12	(27,300	Supt. Wm. Sharon, Norbert Letter, Geraldine	A. C. Samuelson
		(	(		(	Beitel, Margaret Nichols, Dean Tippett	Edward Nordgren
(Unit with		(	(		(	Edw. Wieciech, Ann Lundmark, Ann Ahlskog	Arthur Weng
H.S.)	Cedar Grove	(	(	K-6	(	Dorothy Adesko	August Meintz
	Bruno	(	(	K-6	(	James Doyle	Frank Stodola
Harris	Harris	(516	(401	K-12	(34,075	Supt. Joseph B. Gucky, Rose Devine,	Edward Beauchamp
		(	(		(	Edmer LaCasse, Eleanor Kaiser,	Rudolph Vetrovec
		(	(		(	Joseph Bartoszek, Marion Flynn	Alfred Schoen
(Unit with	Wilson	(	(	K-6	(	Wm. Constantineau, Lily Sharon, Mamie Sharon	Rayne Charboneau
H.S.)	Perronville	(	(	K-8	(	John Gucky, Mrs. Mabel Kilb, Anna Brukardt	Leslie Good
		(	(		(	Mrs. Josephine Barr	
	Hannahville	(	(	K-8	(	Julia Jossart	
Meyer	Hermansville	440	(377	K-12	(29,700	Supt. Hugh MacEachern, Jack Kleimola,	Wm. J. Anderson
		(	(		(	Letta Beaudry, Maude Kibbe, Harold Cass,	I. L. Sutherland
(Unit with		(	(		(	Alvin Spaulding, Mrs. Germaine Vescolani,	Harold Stecker
H.S.)		(	(		(	Arne Nelmark, Elsie Guimond, Stella	Stewart Earle
		(	(		(	Donovan, Edith LaFave, Ione Allen,	Elmer Johnson
		(	(		(	Mrs. Gwen Ralston, Sarah Downey	
Nadeau	Carney	(467	(310	7-10	(26,000*	Supt. Leo Jensen, Elmer Houghton, Fred	
		(	(		(	Vescolani, Mrs. Lillian Hubbard, Ann	Geo. W. Schenk
		(	(		(	Farney, Frances Carlson	Peter Hanchek
(Unit)	Nadeau	(	(	K-6	(	A.E. Nault, Mrs. Elizabeth Naslund,	Nels Johnson
		(	(		(	Beatrice Goretski, Evelyn Easley	Victor Lundquist
	Hammerberg	(	(	K-6	(	Alice Payne, Irene Sharon	Richard Lindstrom
	Oakwood	(	(	K-6	(	Eileen Miller	

Township or City	School	School Year 1940 5-19 Census	1939-40 Pupils Enrolled	1940-41 Grades Taught	1939-40 Approximate Budget Disb.	1940-41 Teachers	1940-41 Officers Sec.	Pres.	Tr. Trustees
Spalding (Unit with H.S.)	Powers-Spald.	476	399	K-12	$ 26,135	Supt. H.J. Robichaud, J. Edward Pearce Harry J. Yach, E. Llewellyn Riopelle, David Cargo, Marie Nadeau, Mary Girard Stanley McInnis, Margaret Schoen, Eleanor O'Donnell, Clarice Primeau, Eva Trotochaud	Frank Beatson	Chas. Behrend	Edward Veeser Roy Bagley Henry Hupy
	LaBranche			K-6		Gladys Houle			
	Veeser			K-8		Mrs. Edna Corriveau			
Stephenson (Unit with H.S.)	Stephenson	481	562	K-12	43,700	Supt. Buryl V. Radabaugh, Fanny Springsteen, Clarence Hartung, Walter Brotherton, Elizabeth Edwards, Marian Klock, (Mr.) Gail Bowers, W. R. Kapnick, Glen Hunter, Lucille Dillingham, Robert Decker, Oliver Aho, Thos. O'Connell, Sofia Ojala, Mrs. Helen Johnson, Ida Ritz, Mrs. Margaret Wright, Mrs. Mildred West	Herbert Corey	Dr. P. R. Carroll	Axel Pearson Frank Thoune Roy Gustafson
	Roosevelt			K-8		Lois Young, Lucille McIntyre			
	Grant			K-6		Victoria Dougovito			
Menominee City (Graded Dist.)	Menominee	2,837	1878	K-12	158,750	Supt. J.L. Silvernale, Prin. Frances Radford, Librarian Margaret Brammer, Nurse Margaret Harris, Marion Kassing, Raymond Rhea, Octave Paquette, Bernard McCann, Joyce Templin, Paul Prather,	E. J. Perry	L. J. Laursen	Dr. S. C. Mason J. J. Winkel M. P. Sawyer

J. C. Eidt, Kathryn Kittell, Lorraine Devine, Gwendolyn Bryce, Mary Read, Dorothy Barton, Hannah Benyas, Nellie LaPerriere, Carolyn Biddle, Gilbert Lokke, Ross Taylor, C. A. Meter, L. D. Erwin, Rodney J. Rogers, Martin Minne, Algernon Sharer, Ferdie Davis, Theodore Meyer, Alice Baxter, Harold VanCleave, Marie Collins, R. D. West, A. J. Smith, A. I. Cook, Floyd Larson, Melba Turriff, Susanna Ely, Jessie Barton.

Roosevelt: Kathleen Callow, Gertrude Herr, Ruth Kellogg, Ruth Cleary. County Normal: Paul & Mildred Coover.

Washington: Anna Decker, Helen Herscheid, Dorothy Heidenreich, Mary Barrett, Maidie Gustafson, Lilian Gries.

Boswell: Ann Sullivan, Gladys Clark, Evelyn Berwin, Lucille Martelle, Hertha Graminske, Ellen Salen, Marcella Gallagher.

Lincoln: Carolyn VanDenBerg, Gertrude Olson, Mary Maihofer, Marion Bickler, Vera Murphy, Mae Schaefer.

Grant: Ruth Friday, Bernice Haasch, Tena Magnusen, Leone Desjardins, Hallie Sutherland.

PAROCHIAL SCHOOLS

Several hundred children in the city of Menominee attend three Catholic parochial schools, established in the parishes of St. Ann's church, St. John's church, and the Church of the Epiphany. Sisters in each school are in charge of instruction for elementary grades. Many of the pupils later attend the public high school in Menominee, some attend the Lady of Lourdes high school in Marinette.

MENOMINEE COUNTY NORMAL

"The Normal Training Class began Sept. 14 in the Roosevelt school building with ten promising students. The principal is Mrs. Hazel Ackley."
The County School Bulletin, Oct. 1908

The County Normal was founded largely through the efforts of Jesse Hubbard, commissioner of schools, in days when teacher training was relatively rare. The first year's graduates were Agnes Hamilton, Phoebe Jane Bodle, Ophelia Larson, Bessie Haltug, Dorothy Lehmann, Lillian Murray, Christiana Schmidt, Clara Stover, Clara Tradewell, and Irene White, June, 1909.

The normal training continued until the class of 1920 was graduated. For a few years there was no class, but the normal was re-opened in the fall of 1925 and has been continued without further interruption.

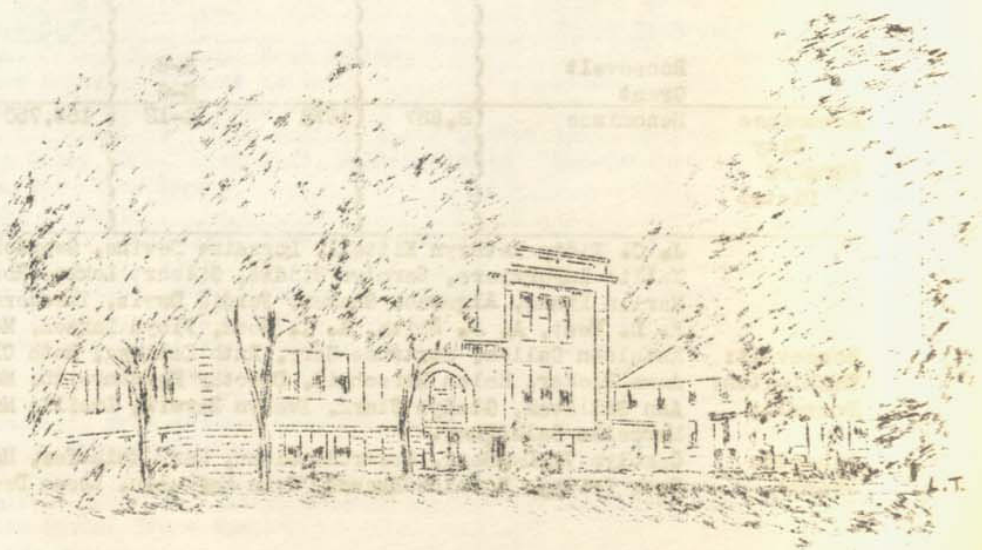
Principals:
Hazel Ackley	1908-10
Cora Willsey	1910-1915
Edith Keen	1915-17
Edna Bostedor	1917-20
Louise Kilbourne	1925-29
Paul H. Coover	1929-41

AGRICULTURAL SCHOOL AND JORDAN COLLEGE

The Menominee County Agricultural School was established in 1907, continuing in operation until 1929, under superintendents Wojta, Nye, Kebler, and Knaus.

Buildings were later used for a short-lived military school. Following the removal of the military school, the buildings were used by the Salvatorian order to establish Jordan college. This college was gradually built up as time went on until it offered a college course of four years. Since 1939 no sessions have been held, although the college project has not been definitely abandoned.

The drawing below is a sketch of the buildings successively occupied by the agricultural school, military school and college.



HOW THE PROSECUTING ATTORNEY'S OFFICE HANDLES LEGAL MATTERS FOR MENOMINEE COUNTY

By Michael J. Anuta, Prosecuting Attorney (May, 1940)

Ministry of Justice

The office of the Prosecuting Attorney in a County government corresponds to the office of the Attorney General of the State or the Ministry of Justice in a National government. The Supreme Court many years ago held that the Prosecuting Attorney is a sworn minister of justice whose duty it is to see that the innocent are protected, as well as the guilty are brought to punishment, and he must act impartially. In another case it held that he is vested with a personal discretion as a minister of justice, and he must act impartially as well in refraining from prosecuting as in prosecuting. He must safeguard the interests of public justice in behalf of all concerned. A national radio program has used the following definition of the duties of this public officer:

> "And it shall be the duty of the District Attorney not only to prosecute to the limit of the law all persons accused of crime, but to defend with equal vigor the rights and privileges of all of its citizens."

Attorney for State and County

The Prosecuting Attorney appears for the State, the County in the respective counties, and prosecutes or defends in all the courts of the county, prosecutions, suits, applications, motions in which the State or county may be a party or interested in, whether they are civil or criminal.

Legal Advisor of County Officers

The Prosecuting Attorney gives opinions in connection with cases where the state or county is a party or interested, if required by any civil officers in the discharge of their respective duties, pertaining to interests of the state or county.

It is the duty of the Prosecuting Attorney to advise all township officers on matters pertaining to collection or raising of taxes and also to advise township officers charged with enforcement of the penal law.

Legal Advisor of County Boards, Commissions and Departments

The Prosecuting Attorney may be called upon and is required to give, legal advice to county boards and commissions concerning matters relating to discharge of their official duties in the interest of the county. He shall also give legal advice to the various departments of the county government and the County Board of Supervisors on matters relating to the discharge of their official duties on matters concerning the welfare of the county.

Counsel for Children

The Prosecuting Attorney shall appear in all divorce cases in the county in which children under sixteen years of age are involved, on behalf of the children of the parties thereto, to determine, after investigation, whether a divorce would be against the best interests of the children.

Assistance to Magistrates, Judges and Courts

The Prosecuting Attorney shall, when requested by any magistrate of the county, appear in behalf of the People of this state before any such magistrate, other than those exercising the police jurisdiction of incorporated villages, and prosecute all complaints made in behalf of the People of this state, over which such magistrate shall have jurisdiction.

Attendance of Supreme Court in Cases Involving Crimes Originating Within the County

In all criminal proceedings taken to the Supreme Court it shall be the duty of the Prosecuting Attorney of the County from which the cause is so removed to prepare a brief on behalf of the People and furnish the same to the Attorney General where such case is on the calendar. It shall also be the duty of such Prosecuting Attorney to appear on behalf of the People in said cause in the Supreme Court on the request of the Attorney General and to assist the Attorney General to conduct such cause in such court.

Procedure in Prosecution of Crimes

Prosecutions for violations of criminal law of the state are commenced by complaint before a magistrate, usually a justice of the peace or municipal court judge. The complaint is reduced to writing and sworn to before such magistrate.

A warrant is then issued upon the approval of the Prosecuting Attorney authorizing the sheriff to apprehend the person named in the warrant.

When apprehended the accused person is taken before the magistrate for arraignment. If the penalty for violation of the particular law is not more than three months in jail or a fine of not to exceed $100 the case is within the jurisdiction of the justice of Municipal Court. The person accused is then asked to plead either guilty or not guilty to the charge. If he enters no plea the court enters a plea of not guilty and proceeds to trial the same as where the accused pleads not guilty.

Where the punishment for the offense exceeds three months in jail or the fine exceeds $100, on arraignment the person accused is asked to indicate whether he wishes the magistrate to hold an examination or hearing to determine whether there is probable cause to believe the accused guilty of the offense charged, or whether the accused waives the right to such hearing or examination.

If the accused waives examination, or upon examination, the magistrate finds probable cause to believe the respondent guilty, the accused is then bound over to the Circuit Court where upon arraignment the accused is asked to plead to the charge the same as explained above for Justice Court cases.

In the Justice or Municipal Courts jury trials are before a jury of six persons. In the Circuit Court trials are before a jury of twelve persons. The accused may waive trial by jury and may be tried by the Court. In the Circuit Court such waiver must be in writing.

Upon a plea or verdict of guilty sentence is pronounced by the Justice or Judge. Persons sentenced in Justice Court may be committed to jail only. Persons sentenced in Circuit Court may be sentenced either to jail or to the state prison or other penal institution depending upon the penalty provided by statute.

Statistical Review for 1939

A survey of criminal prosecutions handled in Menominee County during the year 1939 shows 402 cases were commenced and handled in 1939 exclusive of Circuit Court cases. In 1938 there were 315 such cases. In 1939 46 cases were commenced and handled through the Circuit Court.

Law enforcement officers, including the sheriff and prosecutor's departments, returned to the county coffers large sums of money which often exceed the cost of maintaining such law enforcement departments. In 1939 fines reported by Justices of the Peace with those collected in the Circuit Court total approximately $3,000.

Costs assessed and collected during the year 1939, according to Justice reports totalled over $1,200.

Settlements in illegitimate child cases in 1939 totalled $3,380 for ten cases.

Often in criminal prosecutions money is collected, as in

the case of bad checks charges, larceny, etc. or where restitution is made. It is estimated that for 1939 the amount of property or money collected, when added to the fines collected, approximated $6,500.

THE CIRCUIT COURT AND OTHER COUNTY GROUPINGS

In a county, such as Menominee and other upper peninsula counties, court cases of the graver kind are not numerous. For this reason several counties together form one circuit court district, sharing the $6,000 salary paid a circuit judge. At present (1940) Frank A. Bell of Negaunee is judge in the 25th circuit court district. His salary is paid thus: Delta County, $1,500; Dickinson County, $800; Iron County, $1,200; Marquette County, $1,500; Menominee County, $1,000. Usually, sessions of court are held once each quarter at the county seat, at which time the county clerk acts as circuit court clerk in his own county.

Menominee County's Representation (1940)

Menominee County is part of the 11th Congressional District. Also, in the 11th are Delta, Alger, Schoolcraft, Luce, Mackinac, Chippewa, Emmet, Cheboygan, Presque Isle, Antrim, Otsego, Alpena, Charlevoix, Montmorency, and Kalkaska counties.

Menominee, Alger, Chippewa, Delta, Luce, Mackinac, and Schoolcraft counties make up the 30th senatorial district and choose one member of the state senate. Menominee County chooses its own member of the house of representatives in the state legislature.

PINECREST SANATORIUM

The Pinecrest Tuberculosis Sanatorium was built at Powers 1921-24 by Delta and Menominee counties. Since that time the capacity of the institution has been greatly increased and two other counties have taken shares in it. It is now operated for the benefit of tubercular patients from Menominee, Delta, Dickinson, and Iron counties. Menominee county's share in the expense the past year was $6,500. Recently a bacteriological laboratory has been added. To this, local doctors often send various kinds of specimens to be tested.

COUNTY CORONERS

Menominee County has two coroners. Their duty is to inquire into the causes of violent and unexplained deaths. The coroner's jury of six men examines such evidence as may be presented and renders a verdict.

COUNTY SURVEYOR

There is one county surveyor for Menominee county. His duty is to prosecute such surveys as affect the public interest of the county.

THE BOARD OF SUPERVISORS

The Board of Supervisors is the governing board for Menominee county as a whole. It is made up of one supervisor from each township and one supervisor from each ward in the city of Menominee and the mayor of the city, 22 members in all. This board determines the public policies and dictates the ways in which county funds are spent.

COUNTY TAX ALLOCATION BOARD

Michigan has a constitutional 15 mill tax limitation. The county tax allocation board apportions the millage among the governmental units, the county, the townships, and the city of Menominee and the school districts. This board consists of the county treasurer, school commissioner, chairman of finance committee of board of supervisors and three other selected members.

A TWENTY-FIVE YEAR HISTORY OF AGRICULTURAL EXTENSION WORK IN MENOMINEE COUNTY

By B. D. Kuhn, County Agricultural Agent (1940)

The Beginning of Agricultural Extension Work and the War Period

In the year of 1915 $1,500 was appropriated by the Menominee County Board of Supervisors to pay salary and expenses of a competent man to act as instructor in agriculture at the Menominee County Agricultural School during the school year, and to devote the rest of his time to extension work among farmers of the county.

(NOTE: Previous to this time considerable extension work had been done by Supt. Wojta of the County Agricultural School after it was established in 1907. This work was extended under his successor, Supt. R. L. Nye. Every winter a Farmers' Short Course was held at the school and once a year there was a Round-up for the children enrolled in Junior Clubs, the forerunners of the modern 4-H Clubs. The men at the school made many farm visits and were available for consultations and public talks. Supt. Nye published a small monthly paper known as "The Menominee County Agriculturalist." This was distributed through the mails to 2,000 families each month. The domestic science teacher did some extension work among women and children.)

E. B. Hill was the first county agricultural agent, and has been followed by five others.

County Agents

E. B. Hill	-July 1, 1916	-	January 15, 1919
E. G. Amos	-Feb. 21, 1919	-	August 31, 1919
Irving Kirshman	-Dec. 1, 1919	-	November 30, 1922
Karl Knaus	-June 16, 1923	-	June 30, 1927
C. E. Skiver	-Oct. 16, 1927	-	June 15, 1930
B. L. Kuhn	-July 1, 1930		
(Asst.)George D. Hurrell	-May 10, 1939	-	Feb. 15, 1940

Also following are the home demonstration agents, and club agents and their periods of service.

Home Demonstration Agents

May E. Foley (emergency)	-June 1, 1916	-	June 30, 1919
Marian E. Moore	-Jan. 1, 1936	-	July 31, 1939
Margaret Cole	-August 1, 1939		

Club Agents

Ralph Tenny (temporary)	-Sept. 1	-Oct. 31, 1917
	-May 1	-Aug. 15, 1918
John L. Bumbalek "	-May 1, 1924	-Oct. 31, 1924
Gus A. Thorpe "	-July 1	-Dec. 31, 1925
Guy P. Williams "	-July 1	-Dec. 31, 1926
Gus A. Thorpe "	-July 1	-Sept. 30, 1927
Wm. F. Thomas "	-May 1	-June 30, 1929
	-April 1	-June 30, 1930

The first real year of agricultural extension work commenced in 1916, and among the happenings of that year were: the organization of a cow testing association, the first Farm Loan Association was formed, grain variety demonstrations were conducted, soils were tested for acidity, purebred sires were placed, a livestock buying association was formed, and club work began.

Two farm loan associations were formed, which during the first year loaned $80,000 to farmers, which contrasts with the $928,000 loaned to farmers as of August 1, 1939. Most of these loans were used to pay off existing mortgages, and for buildings.

A cow testing association was formed which operated successfully until the tester originally selected left for

another job. The two succeeding testers did not give satisfaction and although the records are not complete on this point it is assumed that the association broke up due to their testing troubles, as no further mention is made of the work for the next few years.

A livestock purchasing association was formed among business men of the county, known as the "Menominee County Dairy Stock Association", which loaned money for the purchase of good grade and purebred stock. It was the foundation of the dairy industry of Menominee County and its effects can still be seen among the herds in Menominee County. Among the livestock placed were 17 purebred bulls.

Potato work at the beginning of extension work consisted largely of the field selection of seed, and the beginning of spraying work. In 1916 the agricultural agent pooled orders for 500 pounds of copper sulphate. In 1939 one agency sold 23 barrels of copper sulphate, and it is estimated that a total of 50 barrels were used.

Work with grains during these first years was largely with wheat and rye, as these grains at that time were in much demand on account of the war. During the height of the wheat growing period over 3,000 acres were grown where but 200 to 300 acres are grown at present.

Boys and Girls Club Work also started at this time with six garment clubs, 1 potato club, and 1 calf club. Today over 700 boys and girls are enrolled yearly in clothing, home management, handicraft, canning, food preparation, potato, garden, and dairy calf club work.

Evidently the need was also recognized in 1916 of more cleared land because the agricultural agent arranged for eight blasting demonstrations.

The following year war activities entered more into the work of the agent, as he assisted in promoting Red Cross work, Y.M.C.A., Liberty Loan drives, and also gave the Four-Minute-Men talks to help get people behind the war aims. The agent was also called upon to examine claims of exemptions of farm men when called by the draft board. Considerable work was done in each community in organizing farmers for the production of wheat to fulfill the campaign slogan, "Food Will Win the War".

However, other agricultural extension work was carried on. The first report of alfalfa acreage is given in this report showing 110 farmers had alfalfa fields. This compares with today's acreage of over 26,000 acres.

Variety demonstrations were conducted with commercial fertilizer, largely acid phosphate, showing increases for the use of this material of ½ ton of hay and 35 to 40 bushels of oats.

The beginnings were made also in the organization of the Farm Bureau, although the actual organization did not take place during the year.

Much service was rendered during this early period by the agricultural agent, when it is remembered that the work was new, there were no known paths to follow, the horse was the means of transportation, and farmers in general were rather skeptical of the new book farmer. On the side of advantages, however, it was a period of rising prices, and the problem of more production was foremost of all the farmer's problems.

The Post War Period

The post war period is characterized by rapid expansion in the clearing of new land. During this period 14 carloads of dynamite were used. This expansion and use of dynamite was brought about by the use of war salvage explosives, and the relatively high prices of farm products.

Also during this period occurred the real development of the alfalfa acreage. Previous to 1925, it was thought that the lack of lime was the needed element for successful growth of the crop, but during 1925, the land economic survey showed

most Menominee County soils to be neutral or alkaline in reaction and that lime was not needed. Following this more attention was given to the use of adapted seed, fitting of seed beds, and the use of inoculation, and there followed continual expansion of the alfalfa acreage.

Practically all emphasis during the period was toward increased production, as is indicated by the poultry culling, certified seed potato production, and many variety and fertilizer demonstrations.

Agricultural extension work was also growing fast at this time. In 1925 there appears a program of work for the first time in the agent's report. It was very brief, as follows: "The program of work for Menominee County is 10 cows, 5 acres of potatoes, 300 laying hens, and a bank account for every farm." Each year following this initial step, the program of work shows more and more detail as to aims, and ways that were to be used to accomplish these aims.

At this time the extension work was divorced from the Farm Bureau, which had previously been the sponsoring organization. The Farm Bureau had in the years just before secured funds from the County Board of Supervisors and then it had administered the funds for extension work. So this was the time when it was fully recognized that Extension work was for all, and that the agent's job was to carry the information from the agricultural experiment stations to all farm people.

A cow testing association was formed in 1925, and this association has continued without any major interruption until the present time. For several years two associations were maintained and interest in dairy cows was at its height. Purebred cows and sires were purchased by farmers at prices that at the present time seem fabulous. Toward the close of the period interest waned somewhat, due to less favorable feed and butterfat ratio, and the two associations dropped down to one, and purchase of high priced breeding stock almost stopped.

The Land and Economic Survey was made in Menominee County in 1925-26, a valuable piece of work, but it was undoubtedly done at a time when people were not thinking along the lines of the correct use of land, and probably only limited use was made of the information at the time. It remained for 14 to 15 years until the present Land Use Program Planning work really made use of the information it offered. It was too bad that during this period people did not realize that all land had its best use, which might not be for agriculture; for instance, the cover information on the wild lands included in the survey could have been used to better advantage than at present. Also plans could have been developed to prevent the ruthless second cutting that is taking place today.

Description ends with 1929, and again can adequately be described as a boom period both from the standpoint of growth of farms and in the extension program.

Depression and Recovery Period

The years of 1930 to 1934 represent years in which agriculture experienced its greatest difficulties in history, and many have been the adjustments that have of necessity taken place in the management of farms, and in the thinking of farm people. Drought also entered the field to make matters worse, so that in addition to the government progress to alleviate the depression, drought relief activities were necessary to save the day for many a farm. Additional lending has been necessary to farmers to enable them to spread their distress over a greater period of years, the production without regard to cost practice has had to be changed, a lower tax burden was necessary, and an adjustment in living costs had to be made.

No really serious difficulty was encountered in Menominee County during 1930, because the major source of farm income was from the dairy cow, and feed prices fell faster than did dairy products, so that the dairy producer remained in a favorable position throughout the first year of the depression. The drought started that year, however, and its effects through that and the next two years were to exert tremendous influence upon the lot of the farmer.

The first A.A.A. program had very little effect upon the farms in Menominee County as the crops controlled were not produced in the county. Seven hog farmers were all that applied for benefits under the program. Later a sugar beet program was offered which was taken advantage of by slightly over 300 farmers. However, due to the drought years, yields were small, and thus benefits were small, and little relief was gained. Dairymen were generally in favor of a controlled production of dairy products at this time, but due to actions taken by farmers in other areas, it was never included in the first A.A.A.

The agricultural extension program changed materially during the start of this period. Emphasis was placed upon farm family living on the farm. Canning, preservation of foods, gardening, small fruit raising, home butter making, home cheese making, and even the making of soaps at home were emphasized at this time. Budgets were set up showing the needs of a family and how most of that could be produced at home.

The agricultural agent secured movies and showed them throughout the county, because it became necessary for farm families to almost eliminate any expenditures for recreation. It was also during this time that homemade games, and home organization of play was started and encouraged throughout the county.

In the field of farm information more attention was paid to small items that could cause a saving to the farmer, such as homemade louse powder, cattle sprays, feed mixtures, post treatments, etc. Of course, the regular program of demonstrating new varieties of grain, fertilizer, and other good practices was carried on, but with less emphasis on increased production and more upon production at a lower cost per unit.

The dairy herd improvement association was continued throughout this period but with great difficulty. It was necessary to lower monthly dues and to make available the bi-monthly plan of testing in order to keep farmers in the association with their curtailed income. Replacement of pure-bred herd sires almost stopped and that brought into effect the leasing plan of placement of purebred bulls, in which the farmer grew the bull out of his use for about two years. Purchase of female foundation stock stopped. From 1935 to the present time farmers have made adjustments, to a considerable extent in their minds, that the boom days were over and that more care was necessary to produce at a lower cost, largely through higher production per unit. Since then, dairy herd improvement association work has increased to two associations, and the replacement of sires has started again, although this year the leasing plan was used to place 66 bulls on farms.

Dairy production has increased in total amount of products since 1928, partly because Menominee County is relatively new in agriculture, acreage is expanding and thus cows also are increasing, but it is also due to the fact that as farmers need more money they expand their business to get it. Part of the increase may also be accounted for by better feeding methods and better breeding. A survey made in 1928 by the agricultural agent, and another in 1939, show the following results:

	Lbs. Butterfat	Income
1928 –	1,649,000	$1,008,400
1939	2,400,900	960,360

So it may be seen that farmers in Menominee County received approximately the same income as 1928 but have a much higher total production.

Many changes have occurred in methods of extension teaching during the last six or seven years of extension work. While most of the old methods, such as result demonstrations, method demonstrations, etc., are still very much a part of the teaching method, there are many new tools that are being used far more than formerly, such as film strip and film slides made from local material, various forms of discussion groups, movies, all of which are supplanting to a considerable extent the plain talks given by agents and specialists. The farm visit, although still used and very effective, requires too much time for the agent to cover all of the work that must be done during these times, so greater emphasis has been placed upon the use of the news story.

HOME DEMONSTRATION AGENT (1940)

Closely allied with the work of the County Agricultural Agent is that of the Home Demonstration Agent. She works with women in extension groups, young people in 4-H clubs, and recreation groups.

For the year ending August 31, 1940, work reported by Miss Margaret Cole, Home Demonstration Agent for Menominee County, was as follows:

Supervision of 65 clothing, handicraft, and hot lunch clubs directed in the schools, with a club membership of 607 boys and girls.

Supervision of 9 summer clubs in canning and food preparation with a membership of 74.

Two leaders' conferences were held, and two visits were made to each club, and the Achievement Day (Apr. 12) program at Menominee was carried through for 600 club members, with the program broadcast continuously by Radio Station WMAM, Marinette. The summer clubs had their Achievement Program at Powers on the evening of October 1.

Assistance with twenty homemakers' groups followed various lines of activity, such as clothing, tailoring, home management, home furnishings, and landscaping grounds. In fostering the work of these groups a Rally Day and an Achievement Day program was held, Winter and Summer Picnics, Farm Women's Week, and Homemakers' Camp and other activities were included.

Besides work with the foregoing, considerable time was given to Rural Youth organization for recreation, summer camp work, deer yard study, work with potato show and cooking schools, and the compilation and mimeographing of a cookbook of county women's favorite recipes, and regular newspaper publicity, circular letters, and radio.

HOW THE SPIES PUBLIC LIBRARY SERVES MENOMINEE COUNTY

By Emily Mattson, Assistant Librarian (1940)

The Spies Public Library is an institution which supplements the other educational facilities of the city. It carries on and gives permanent value to much of the work begun in the schools.

(NOTE: The public library in Menominee was started in 1872. It was then housed in the Woodford Jewelry Store and was open to the public on Friday afternoons.)

After having been insufficiently housed over the fire department and in the rear of the city clerk's office for a number of years, the library was moved to the lovely building erected beside the bay and presented to the city by Augustus Spies. In 1905, the Spies Public Library was dedicated to the city.

After moving the 4,441 books owned by the library at that time to the new building a plan for management was necessary. The trustee form was decided upon and five citizens were appointed by the mayor to serve as trustees for a period of five years. These trustees and the mayor meet with the librarian monthly to direct the work of the library.

The library is supported through city taxes. The city council appropriates a sum each year which it deems necessary for the maintenance of the library. This sum is apportioned to meet expenses, improvements, etc. by the librarian and the board.

In 1920 a contract was made between the County Board of Supervisors and the Board of Library Trustees. This contract

extended the privileges of the city library to the county and for this service the County Board agreed to pay one half of the maintenance and upkeep of the library. However, besides allowing the county patrons to have access to the entire library, a special plan was worked out whereby books are sent to county towns and schools and, exchanged at our library every three months, make the books more accessible.

We have at present 21 town branches and 53 county school stations. All custodians serve without compensation. The town branches are placed in stores, post-offices, and private homes. Supervisors of townships confirm stations to insure efficient service.

At present our library has 31,237 volumes or about 1.3 books per capita. This is considerably below the standard of 4 books per capita set by the American Library Association.

The total number of books loaned for home use in 1939 was 117,210. This circulation was apportioned as follows:

Main adult	54,233
Juvenile	24,848
County adult	15,947
County juvenile	22,182
Total	117,210

At the main library the number of adult borrowers registered at present is 3,706, and children is 622, making a total of 4,328. This means about 42% of the population of Menominee are registered borrowers, an extremely high per cent when compared to other libraries.

MENOMINEE COUNTY HEALTH DEPARTMENT

By C.C. Corkill, M.D. (May, 1940)

The Menominee County Health Department was organized in the summer of 1936, by authority of the Board of Supervisors and with the coeperation of the State Department of Health. The personnel consists of a Doctor of Medicine as director, a dentist, sanitarian, two graduate nurses and one clerk. The dentist and one nurse are supplied by the Children's Fund of Michigan. The remainder of the unit is financed in part by the State, part by the Federal Government and part by the County.

The Health Department performs a purely public health function which has been defined as the prevention of disease, the prolongation of life and the promotion of physical and mental efficiency through organized community effort.

The department does not engage in the practice of medicine and in no way replaces the private practitioner or the welfare agent. Our main objective is the promotion of health in the community as a whole. Every school in the county is visited several times each term by director, nurses, and sanitarian. Children are checked for defects and all defects reported to the family physician. Vaccinations for smallpox and immunizations against diphtheria are offered to all who wish it. Sanitary problems are discussed and improvements suggested. This phase of the work includes checking of water supply, sewage disposal, lighting, heating and ventilation.

The Health Department stands ready at all times to investigate any suspicion of a contagious disease, any problem of sanitation or nuisance, and to co-operate in every way possible for the health, happiness and well-being of the people of Menominee County.

STATISTICS TAKEN FROM THE 1940 ANNUAL REPORT OF THE COUNTY HEALTH UNIT

General Health Statistics for County

(Birth and death rates are not strictly accurate because some non-residents are treated at St. Joseph's Hospital, Pinecrest Sanatorium, and private homes.)

Birth rate for Menominee County in 1940 per thousand of population 20.29

Death rate per thousand 11.37

Leading causes of death

Heart disease	66	
Cerebral hemorrhage	31	
Cancer	32	residents; 1 non-resident
Diseases of infancy	20	
Tuberculosis	13	residents; 27 non-residents
Pneumonia	13	
Nephritis	10	
Diseases of arteries	10	
Diabetes	9	
Auto accidents	7	

Physicians in Menominee County made 1,534 blood tests for syphilis, discovered and placed under treatment 15 new cases.

Fourteen schools have 100% immunization records against diphtheria and smallpox.

Menominee County money to physicians for cases not paid for by private funds	$7,000
County money to Health Unit Upkeep	4,000
Hospital facilities in Menominee County 55 beds — 13 bassinets — X-ray machine	
Number of physicians in county	16
Ratio of physicians to population 1 to 1555 persons	

How the Health Department is Supported

United States Public Health Service	$4,000
State of Michigan	3,000
Children's Fund of Michigan	6,450
Menominee County	4,000
Total for Upkeep	$17,450

Some of the Work Done in 1940

Visits to scarlet fever, measles, whooping cough, chicken pox, infantile paralysis, and typhoid cases	896
Visits to homes on behalf of mothers and young babies	1,113
Tuberculin tests given during year	409
(228 X-rays were taken at Pinecrest)	
Immunizations against diphtheria	869
Vaccinations against smallpox	1,015
All schools visited	
Pre-School Clinics held	
Public meetings and talks	
Publicity in newspapers	
Clinic visits to dentist of eligible cases	2,908
Baby teeth extracted	1,353
Permanent teeth extracted	443
Fillings put in children's teeth	3,924
Inspection for sanitation of schools, swimming places, resorts, etc.	484
Inspections of private, public, and school water supplies	589
Inspections of excreta disposal systems	645
Inspections of food handling establishments, dairy farms and dairy plants	455
Approval of water supplies installed, septic tanks, etc.	157
Tests of water	112
Tests of milk	1,279

HEALTH PROGRESS IN MENOMINEE COUNTY

Babies in 1940 have a better chance to live than those born in 1870 or 1880 did. Old records are incomplete, but they indicate that Death stalked little children. When the whole county had less than 3,000 people in 1872 there were as many babies died as in 1940 when the population was about 24,000. There are not fewer deaths now on the whole, for every person dies at some time, but the proportion is not now 19 babies and 3 older children to 3 adults. The work of physicians, nurses, and the Health Department shows that lives are prolonged.

In 1873 40 deaths were recorded for Menominee County; 32 of them were children less than three years old. Summer complaint, or cholera infantum was listed as the cause for 17

of the deaths. In sparsely settled Spalding Townsip in 1880 out of 8 deaths in Aug.--Oct. 6 were of babies under two years.

In 1884 in Spalding Township out of 15 reported deaths, all but 3 were of babies and young people under eighteen. In Menominee Township that year there were 8 deaths, all of them of children under eleven years. In Stephenson Township out of 11 deaths, 8 were of babies less than a year old. In the city of Menominee in that same year 1884 out of 46 deaths, 34 were of children under twelve years, and 28 of these were under two years of age.

Contagious diseases are better controlled in 1940 than they were long ago. In 1882 in Spalding Township in February and March, 21 grown people died of smallpox.

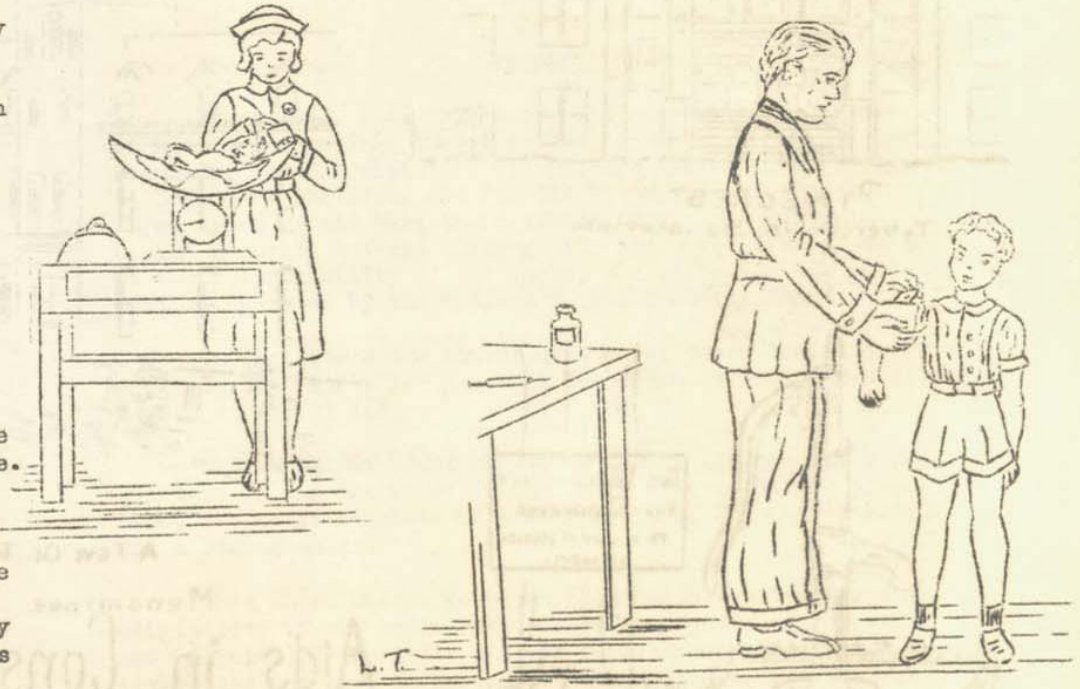
Comparing 511 deaths in 1886 and 1887 with 513 deaths in 1939 and 1940 we find that many infectious diseases took a greater toll long ago than they do now with immunization, quarantine, school inspection, and attention to sanitation.

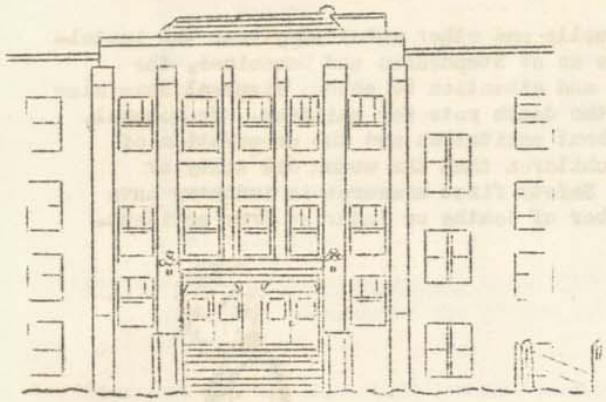
1886 and 1887		1939 and 1940
6	Measles	0
23	Diphtheria	0
7	Scarlet Fever	1
3	Whooping Cough	1
42	Typhoid Fever	0

In Menominee county many factors have contributed to the conservation of child life and the prolongation of adult life. The railroad and the automobile have made medical aid more accessible. The facilities offered by such institutions as the St. Joseph's Hospital, Bastien Maternity Home, and Pinecrest Sanatorium have saved many lives. Advances made by the medical profession have brought into use new treatments, and greater skill in certain surgical operations. The University Hospital at Ann Arbor, to which many Menominee county persons have gone for treatment is far superior to the old hospital there.

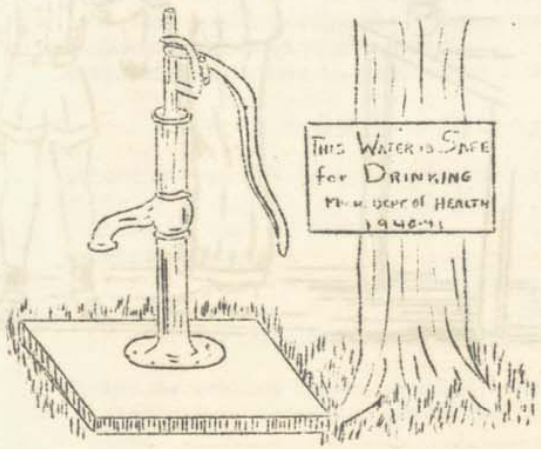
Medical supervision of mothers and their babies, the examination of school children by doctor or nurse, the use of vaccines and serums as preventive measures, the quarantine of persons suffering from contagious disease have all proved their value.

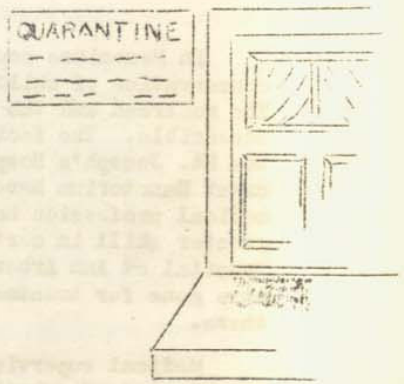
Inspection of wells and other water supplies, the installation of waterworks as at Stephenson and Menominee, the inspection of milk, and attention to sewage disposal have also helped to cut down the death rate for children. In general, mothers know more about sanitation and the preparation of suitable foods for children than the women did sixty or seventy years ago. Safety first measures in industry have greatly cut the number of deaths or injuries from accident.





PINECREST
Tuberculosis Sanatorium





A Few Of The

Menominee County

Aids in Conserving Life

Drawings by Lorraine Telot

BOARD OF SOCIAL WELFARE

By Herman R. Brukardt, Secretary of Board of Social Welfare

Organization

Act 280 of Public Acts 1939 created a State Social Welfare Commission under whose direction two departments of public welfare were instituted, named the Bureau of Social Aid and Department of Public Welfare. The Bureau of Social Aid supervises Aid to Dependent Children, Aid to the Blind and Old Age Assistance. The Department of Public Welfare under supervision of each county supervises all cases not eligible for ADC or OAA or AB, for all forms of public aid, including county infirmary care, hospitalization, medical service, CCC enrollments, certification to WPA projects, state hospitalization and transportation for cases which cannot be cared for locally.

Duties

The Menominee County Board of Social Welfare consists of three board members, two of whom act in a dual capacity of investigator and member, one full time investigator, one certifying officer and one disbursing officer. The board members and investigators aim to rehabilitate all employable persons into private employment before certifying them to WPA rolls. At the present time our average case load amounts to approximately 300 made up as follows: single persons, 15 employable and 74 unemployable; families, 132 employables and 79 unemployables. Where persons are unable to secure shelter in private homes or are unable to care for themselves alone, they are maintained at the County Infirmary (Note: This infirmary is a large brick dwelling located on a farm at Talbot).

Procedure

Each individual case is reviewed on its own merits and not determined on general conditions; a state established budget is followed which although not adequate; is supplemented by Surplus Commodities and Surplus Clothing. Medical services are included for all persons and families eligible for public aid; incidentally there is no plan for medication for persons under the Bureau of Social Aid, so that the Board of Social Welfare extends its medical services to persons in that category.

MENOMINEE COUNTY BUREAU OF SOCIAL AID

By W.E. Anderson, Supervisor (March, 1941)

Organization

By Act 280, P.A. 1939 there was created in the State of Michigan a welfare bureau called the State Bureau of Social Security, which administers (a) Old Age Assistance, (b) Aid to Dependent Children, and (c) Aid to the Blind. These three types of aid have their foundation in the Federal Social Security Act and although the administration of them is the responsibility of the state, the state law and policies must be approved by the Federal Social Security Board.

To facilitate the administration of these Social Security programs, the state law provides for a county unit known as the Bureau of Social Aid.

THE MENOMINEE COURT BUREAU OF SOCIAL AID has its headquarters in the Menominee County Court House. At the present time, the staff consists of the supervisor, two case workers, and a stenographer.

This local bureau receives applications and determines eligibility of the applicants within the bounds of the act and policies of the State Welfare Commission. The bureau is interested not only in providing financial aid, but also in giving assistance that will insure the good health and general security of its clients. To attain these ends, cooperation is given to local social agencies and in turn assistance is received from these agencies which include

the school nurse, County Health Department, County Board of Social Welfare, Probate Court, the medical profession, units of county government, school authorities, civic organizations, religious organizations, and many others.

Through publicity of various types the general public is kept informed of the nature of the aid dispensed. Persons who feel that they are in need of assistance, whatever kind it may be, make formal applications, and it is then the duty of the bureau staff to make investigation and if the individual is found to be eligible, he is placed on the approved list and receives the bureau's assistance and attention.

Old Age Assistance is granted to those persons who make applications and who are found to be at least sixty-five years of age and to be in need. The state law and policies of the State Bureau of Social Security have defined need and other requirements which could only be covered by a lengthy discourse on the subject.

Aid to Dependent Children is granted to a person who has children below the age of seventeen years, is a relative of the children and can establish that the children are denied support by reason of the death, continued absence from home or physical or mental incapacity of the parent. Here again, there are numerous policies and regulations governing the acceptance and approval of the applicant.

Aid to the Blind is granted to an applicant who is found to be totally blind or has so little sight that he cannot earn a living. He must be at least sixteen years of age and here again the individual must be in need of assistance.

Old Age Assistance, Aid to Dependent Children and Aid to the Blind in Menominee County

During the past year (1940) the case load of Old Age Assistance has been, on the average, about 350 individuals. These people receive a check every month which varies according to their needs, 50% of which is paid by the State government and 50% by the Federal government.

There has been an average case load on the Aid to Dependent Children program of 117 cases which represents between 350 and 370 children. The person who receives the aid for the children gets a check each month and here again 50% of the grant is provided by the State and 50% by the Federal government.

There has been an average of 11 persons who receive Aid to the Blind. They, too, receive a check each month and the grant provided is 50% State funds and 50% Federal funds.

Confidential Nature of Records

Naturally, an investigation, which is thorough, will disclose to the social worker a great deal of information which is very personal and confidential. While this information is necessary to establish eligibility of an applicant, it should have no other purpose which might be harmful to the individual. Therefore, both the Federal and State Social Security Acts make it mandatory that records of the bureau be held in the strictest confidence. Only when bona fide social agencies request information or when a client waives confidence can the bureau divulge contents of its records.

HOW MENOMINEE COUNTY ROADS ARE MAINTAINED

By E. J. Pearce, Supt. (May, 1940)

The first county in the State of Michigan to approve and adopt the present system of road operations under the board of County Road Commissioners was Menominee County.

The County Road Commission consists of three men appointed by the Board of Supervisors for a six year term, with one term expiring every two years. The first meeting of the Board was held on June 25, 1894 with the following personnel: A. C. Stephenson, Chairman; Ira Carley, and A. F. McGillis. On June 11, 1895, Mr. McGillis was succeeded by Louis Nadeau, who served as a member of the Board for 37 years, resigning in September, 1935 upon his removal from the county. In the 46 years of the life of the Commission, there have been only sixteen different men on the Commission, thus the Supervisors acknowledged their satisfaction for service well performed.

The duties of the Commission are prescribed by law as administrative, and the executive work is under the direction of the County Highway Engineer, who is appointed by the Commission. His duties are described by statute, but he has no vote on the Commission. Acting under the County Engineer is the Maintenance Superintendent, who is in full charge of maintenance. Under him are three foremen, one for each of the districts into which the county is divided for convenience of operation. The main garage is located in the southern end of the county in the City of Menominee (the County Seat) and two other garages, one located at Stephenson, 22 miles north of the City of Menominee and one at Powers located 20 miles north of Stephenson.

The main garage at Menominee consists of a concrete block building 60 feet by 120 feet. At one end of this building is an attractive two-story brick office building 40 feet by 60 feet which is used as the general office. On the main floor is the office of the maintenance superintendent, stock room, rest room, vault and hall with stairway leading to the second floor where the County Engineer's office is located, also Board Room for meetings of the County Road Commissioners, office of chief clerk, bookkeeper, and the drafting and engineers' room, also additional vault room for filing of records. At the far end of the general garage, there is an addition 24 feet by 40 feet in which is located a machine and blacksmith shop furnished with the necessary equipment properly to take care of all work, such as work bench with grinder, an acetylene and a Miller electric welder, lathe, power hacksaw, shaper, milling machine, drill press, hydraulic press for gears, a forge and an anvil.

The personnel in the garage consists of garage foreman, two mechanics and a blacksmith. They take care of most of the repairs on equipment, although there are two well trained mechanics at the Stephenson and Powers shops who do a great deal of work on county equipment stored there. The storage garages are all well filled at night with the trucks as they come in from work. The gas pumps are located just outside the door of the garage and trucks are gassed as they return to the shop at night and the amount used charged to the work done by the truck that day.

In the yard to the rear of the main building in the city of Menominee is a warehouse 40 feet by 100 feet of wooden construction covered with corrugated sheet iron which, previous to the year 1935, was used as the main garage. It is now used as a storeroom for materials and equipment.

The other garages at Stephenson and Powers are also of concrete block construction, size 60 feet by 120 feet and house the equipment which is used to service the roads in that section. The foreman in charge is a first class mechanic. About 25 men work out of each garage the year round, but during the summer months when construction work is carried

on this force is increased. Approximately 485 miles of road are serviced from each garage.

The major portion of the county equipment is in trucks with a few automobiles for the administrative department and some heavier construction equipment. The list is as follows:-

8 - 1½ ton Chevrolet trucks
4 - 1½ ton Ford dump trucks
6 - 1½ ton Dodge dump trucks
4 - 2 ton Dodge trucks, equipped with Pneu-Hydro underbody scrapers
1 - International 1½ ton dump truck
1 - Reo 3 ton stake body truck
3 - FWD 3½ ton dump trucks
2 - FWD 5-6 ton trucks on which are mounted Snogos
3 - FWD Diesel 7-10 ton dump trucks
2 - Walters Diesel 7-10 ton dump trucks
1 - Oshkosh Diesel 7-10 ton dump truck
1 - Oshkosh 4 ton dump truck
6 - FWD 2-4 ton dump trucks, equipped with St. Paul underbody scrapers
1 - FWD 4 ton truck equipped with Hvass Bituminous Distributor
4 - Pneu-Hydro planers with 10 foot blades
3 - Adams Motor Patrol Graders
1 - Russell Motor Patrol Grader
1 - McCormick Deering 1½ ton tractor
1 - Caterpillar 10 ton tractor with bulldozer
1 - Caterpillar 15 ton Diesel tractor
1 - Caterpillar 4 ton tractor
1 - Allis Chalmers 6 ton tractor with bulldozer
1 - International one ton tractor
1 - Michigan 3/8 cubic yard gas shovel
1 - American 3/4 cubic yard gas shovel
2 - Large Adams Pulled graders
1 - Large Caterpillar Pulled grader
28 - Snow plows of various styles and sizes
1 - 28 passenger transportation bus
1 - Austin Western 5 ton roller
1 - Austin Western 10 ton roller
2 - Universal New Deal Gravel Crushing plants complete, with power units, bins, conveyors, etc. - capacity each 600 cubic yards per day
2 - boilers on truck chassis
1 - Chip spreader
1 - Chloride spreader
6 - Sanding machines
4 - Tar heaters
1 - 10,000 gal. storage tank
2 - Republic Concrete mixers
2 - Fresno scrapers
2 - Rotary scrapers
4 - Wheel scrapers
2 - Pumps
1 - Scarifier
1 - Pile driver
1 - Pr. Loadometers
2 - Gledhill Road shapers
2 - Breaker plows
2 - Rooter plows
1 - 40 ton Freuhauf Trailer
4 - Trailers - various sizes
2 - Concrete mixers - 1 Lansing and 1 Fairbanks Morse
4 - Power mowers

Menominee County extends 64 miles north and south approximately 20 miles east and west and comprises 1056 square miles in area. It contains the largest number of farms of any county in the Upper Peninsula, namely 2318, which necessitates a large mileage of roads to service these farms.

The total road mileage is as follows:

Federal & State Trunk Lines - US-41, M-35, and M-69 US-2

Concrete	68.5	miles
*Gravel	53.3	"
Total	121.8	"

* 5.7 miles of road in Delta County

County Roads

Hard Surfaced	20.0	miles
Gravel	234.9	"
Total	254.9	"

Township Roads (Including 7.5 miles of streets and alleys in unincorporated villages.)

Gravel	716.0	miles
Dirt	255.9	"
Hard Surfaced	35.0	"
Total	1006.9	"

Total all roads 1383.6 "

The township road mileage segregated into townships follows:

Cedarville	58.1	miles
Daggett	45.7	"
Faithorn	36.9	"
Gourley	28.0	"
Harris	131.2	"
Holmes	60.7	"
Ingallston	61.2	"
Lake	83.8	"
Mellen	45.1	"
Menominee	105.4	"
Meyer	48.5	"
Nadeau	106.2	"
Spalding	130.0	"
Stephenson	66.1	"
Total	1006.9	

Road construction in this county consists of sub-grades made with material at hand and provided with adequate drainage structures and grade constructed 28 feet wide with 4 foot shoulders, outside slopes 4 to 1 and a 2 foot flat bottom ditch with back slopes fitted into the remaining 66 foot right of way. We try to build a minimum of 6 inch compacted pit run gravel base, up to 16 inches, depending upon soil conditions. A 20 foot wide surface wearing course, four inches in thickness of 3/4" crushed gravel with 10 to 12% binding material is provided. In some cases, additional clay is required. Regular dragging or floating operations are carried on throughout the year, depending on road and weather conditions. This type of maintenance insures a better riding quality and helps to prolong the life of the road.

With the increase in traffic on our main county roads, it is necessary to resurface with crushed gravel about every three years at an expense around $1,000 per mile or an average cost of $330.00 per mile per year. Additional charges for patching and dragging would increase this cost to $400 per mile.

Our crushing plant produces 120,000 cubic yards of gravel per year on a 10 month basis, thereby taking care of 120 miles per year. At this rate, it will take ten years to resurface all highways and then it will be time to start over again. In other words, traffic wears off the gravel faster than we can put it on.

During the year 1935, as an experiment, the Road Commission built six miles of road-mix black top road on Highway 577 at a cost of $1850 per mile. In the year 1936, ten additional miles were constructed at a cost of $1830 per mile. The maintenance cost per mile on these roads has averaged $60 per mile per year. There is a saving of approximately $350 per mile per year. In other words, the saving thus derived would pay for the black top type of road in five years time.

Lack of funds prevents the Road Commission from building additional roads of this type, but a bond issue was proposed in 1937 and voted on for the sum of $150,000 for improvement of 100 miles of main county roads. Unfortunately, it failed to pass, but the need of hard surfaced roads is ever increasing.

The State and Federal Trunk Lines are maintained by the County Road Commission under a contract with the State Highway Department conducted under a strict budget control system.

The amount expended by the State Highway Department for maintenance on State and Federal Trunk Line Roads in this

county during the year 1939 was $64,000. This is at the rate of $520 per mile.

The 254 miles of county roads are maintained from monies received from the State under the so-called Horton or Weight Tax Act, passed in the year 1932, under which the State returns to the County monies paid for weight tax on automobiles, also a percentage paid for gasoline tax. The first half of these revenues belongs to the Road Commission for the original county road system. The first half of the second half may be used for McNitt or township road systemby securing a 3/5 vote of the Board of Supervisors. The last 1/4 is then pro-rated between the cities, villages and County Road System according to the population as indicated by the 1930 census. Attention is directed to the fact that this method of distribution gives amounts as low as $14.00 per mile and as high as $1900.00 per mile to cities with resulting inequality.

The McNitt Fund is the so-called Township Road Fund and is a fixed amount of $60,000 from the gasoline fund based on mileage and population ratio. Beginning in 1932, the counties of Michigan were required to take over 20% of this township road mileage each year and this money is an added fund to assist in the upkeep of these roads. No increase in funds for village streets and alleys taken over in July, 1938 by the Commission from unincorporated villages has been received. The snow removal fund is $6,000 and is distributed by the State Highway Commission according to McNitt Road Mileage and average inches of snowfall in the county for the previous year. (The average annual snowfall for the winter 1938-1939 was 90 inches.) The amount each county receives varies each year, according to inches of snowfall, but the total from the State remains at $200,000. The law further provides for a maximum of one-mill from the property tax which may be allocated for roads by the Board of Supervisors.

A statement of receipts for the year 1939 is as follows:-

Weight Tax Refund	$99,768.64
Gas Tax Refund	12,788.33
McNitt Fund	60,706.91
Snow Removal Money	$ 6,930.47
County 1-mill Tax	15,459.93
Total	$195,654.28

$195,654.28

Less amount paid:

City of Menominee	$15,279.14	
Village of Daggett	339.12	
Village of Powers	419.56	
Village of Stephenson	520.94	
Total	$16,558.76	
Daggett Township Road Bonds & Interest	1,175.00	
Total	$17,733.76	17,733.76
Net Receipts		$177,920.52

At the annual or October session of the Board of Supervisors, the Road Commission submits an estimate for a budget for the ensuing year, based on anticipated receipts. When this is laid before the Board of Supervisors and approved, it becomes the annual determination of the Board of County Road Commissioners and adopted as part of the budget of the Board of Supervisors.

Our budget being $178,000 on 1250 miles or road, exclusive of the State System, gives approximately $142.00 per mile. This is of value principally to show the money available here as compared to amounts received elsewhere. Deducting $50 per mile for snowplowing leaves $92 per mile.

Under disbursements, direct charges are made against construction and maintenance accounts, general expense, equipment, materials, equipment repairs and outside accounts.

In figuring costs, the State Highway Department rental rate tables are used for equipment rental, thus assuring a fair charge for this account. The inventory value of equipment on hand to date is approximately $200,000, exclusive of buildings.

Menominee County was the first county in the Upper Peninsula of Michigan undertaking to snowplow all of its County and McNitt roads, approximately 1250 miles. One of the reasons for this is that Menominee County, being the largest dairy county, requires the roads to be open for the collection of around 300,000 lbs of milk daily. This, at an estimated cost of two cents a pound, gives a value of $6,000 a day. If the roads are not plowed so that the milk can be collected daily, the loss to the farmer amounts to a considerable sum, and in a short time would pay for an expensive piece of snowplow equipment. Another reason is that, during the past few years, school districts have found it cheaper to close some of the schools and have the children transported by bus to other schools. This has lessened the cost to the school district, but has increased the cost to the county road system because better roads and better road service for snow removal are required. Often it is necessary to plow the roads in the morning and again in the afternoon for the return trip, on account of high winds and open country, as we have little, if any, second growth protection in a farming territory. A recent survey shows we are transporting 1800 children in 30 busses and 6 automobiles a distance of 1760 miles every school day.

During the winter of 1938-39, the snowplowing of county roads averaged $50 per mile for 1250 miles or a total cost of $62,500.00. The snowplowing equipment is put out on Federal and State Highways first, then on the county main roads, which include milk routes, mail routes, and school bus routes, and last the remaining township roads. Federal and State roads are kept open continuously, even in the worst blizzards. When the snowfalls are quiet, the plows are sent out to keep all the roads open, but when there is a heavy wind or blizzard the equipment is held in the garage and sent out when the storm stops. This is a rational idea as strong winds only drift the snow back into the plowed roadway in a short time and makes the work more difficult after the storm subsides. A fleet of 22 trucks and plows comprise the snow removal equipment, varying in size from 2 to 10 ton capacity. Two 5 to 6 ton trucks are equipped with Snogos.

The County owns about 30 miles of snowfence which are scattered around the county in different locations where drifting is the worst, and helps considerably to keep the roads open. We find it the cheapest method of keeping the highways clear of snow.

The County owns six sand spreaders for use in winter in combating icy road conditions. Special attention is given Federal and State Trunk Line Highways in this respect, although all bad hills on school bus routes are also sanded.

In looking over our bridge problems in Menominee County, we find that we have 175 bridges varying in length of span from 10 feet to 400 feet. Of this number, 65 are modern, of concrete and steel construction. The balance are wood and light steel inherited from horse and buggy days and are in constant need of replacement and repair. A bridge crew is kept busy the greater part of the year. We feel, if necessary, that the public can sometimes travel over a rough road if the County cannot afford to improve it, but it is inexcusable to leave a bridge, over which the public passes, in an unsafe condition.

The problem of adding and replacing culvert crossings has been particularly expensive to the Commission. In some sections of the county, when roads were formerly under township control, the culverts used consist of homemade concrete pipe which are of poor design and of insufficient strength to support modern traffic. In one year, $9,000 worth of corrugated metal culvert pipe were installed.

Adequate traffic signs have been installed on roads throughout the county to convey to the driver some message directly related to his driving operation, such as distance and directional signs, number of county highway, signs to indicate the need for caution or application of certain laws, to remind him of special conditions and of his responsibility. Also signs designating places of special interest to tourists throughout the county.

Any comment on local roads would be incomplete unless due credit was given to the Federal Government for the additional help furnished under the WPA program for the improvement of the roads in Menominee County, but there is still more to be done to put in proper shape some of the roads which have not yet been reached and roads in progress of improvement.

If it were not for this government help on improvement of the roads, the amount of monies provided would be barely sufficient to take care of actual repairs required from year to year and cost of snow removal. There would be but a slight amount, if any, left over to develop needed road improvements.

The cost of the program has been shared between the WPA and County Road Commission with the Road Commission paying 28% and the WPA 72% of the cost. During the last fiscal year, the project proposal was as follows:

	Federal Funds	Menominee Co. Road Funds	Totals
Labor	$325,704.00	$ 25,170.00	$350,874.00
Supervision	15,876.00	3,000.00	18,876.00
Equipment	43,344.00	119,630.00	162,974.00
Material	1,742.00	11,384.00	13,126.00
Other Non-Labor Costs	5,817.00	----------	5,817.00
	$392,483.00	$159,184.00	$551,667.00

The greater part of the Federal Expenditures is for relief labor. The number of men employed varies from 400 to 850. The road project acted as a constant reservoir of unemployment. Men were assigned to road jobs and then transferred to other projects and back again as various functions of government completed odd jobs. In this way, there never was a time when a properly certified unemployed man was not immediately put to work.

We believe that considerable progress has been made in the service and improvement of roads in Menominee County. That being the case, we can look forward confidently to still more progress in the future.

The County Road Commission is also the County Park Board. Under their supervision, a system of public parks has been developed and maintained where residents and visitors are always welcome. The following parks are scattered through the county.

Airport Park consists of 20 acres and adjoins the airport located on the shore of Green Bay, six miles north of Menominee in Ingallston Township on Highway M-35, also provided with facilities for Tourist Camp.

Bailey Park, Ingallston Township, 75 acres located on shore of Green Bay on Highway M-35.

Kleinke Park, Ingallston Township, 24 acres located on shore of Green Bay on Highway M-35.

Fox Park, Cedarville Township, 60 acres located on shore of Green Bay on Highway M-35.

Wallace Park, Mellen Township, 20 acres located on Federal Highway US-41.

Woessner & Marson Park, Lake Township, one acre located on County Highway 577.

Longrie Park, Lake Township, 6 acres located on County Highway 352.

Chain of Lakes Park (Shakey Lakes), Lake Township, 219 acres, located on County Highway 352.

River Park, Menominee Township, 29 acres, located on banks of the Menominee River on County Highway 581.

Hermansville Park, Meyer Township, 80 acres located on Federal Highway US-2.

MENOMINEE COUNTY OFFICERS
1941-1942

STATE OFFICERS

United States Senator. .....Arthur H. VanDenBerg, Washington
United States Senator.....Prentiss M. Brown, Washington
Congress Eleventh District.....Fred Bradley, Washington
Governor.....Murray D. VanWagoner, Lansing
Lieutenant Governor .....Frank Murphy, Lansing
Secretary of State .....Harry F. Kelly, Lansing
Auditor General .....Vernon J. Brown, Lansing
State Treasurer .....Theodore I. Fry, Lansing
Attorney General..... .....Herbert J. Rushton, Lansing
State Senator.....Joseph LaFromboise, Lansing
Representative in Legislature.....James A. Spies, Menominee

CITY OFFICERS, MENOMINEE, MICH.

Mayor .....Michael C. Olsen
Clerk.....Bernard W. Delgoffe
Treasurer.....Rudolph Cernoch
Assessor.....Edward Nowack
Judge of Municipal Court.....Victor A. Lundgren, Jr.

Sealer of Weights and Measures .....Robert Haese, Menominee
County Agent of Board of Correction and Charity.....
.....Frank Kowalski, Menominee
Juvenile Probation Officer.....Albert Raymaker, Menominee

COUNTY SEAT, MENOMINEE, MICHIGAN

Circuit Judge..... .....Frank A. Bell, Negaunee
Circuit Court Stenographer.....Aaron F. Tufts, Crystal Falls
Judge of Probate.....Katherine Stiles Laughton, Menominee
Register of Probate.....Ella B. Christensen, Menominee
Clerk of Probate.....Blanche H. Potter, Menominee
County Clerk and Register of Deeds, Harry N. Gilbertson, Menominee
Deputy County Clerk and Register of Deeds.....
.....Aimee D. Acker, Menominee
Deputy County Clerk and Register of Deeds.....
....Arleen Rick, Menominee
Treasurer.....Maude Prince, Menominee
Deputy Treasurer..... Charlotte Guay, Menominee
County Officer's Clerk.....Margaret Miller, Menominee
Sheriff.....Edward J. Reindl, Menominee
Prosecuting Attorney.....Michael J. Anuta, Menominee
Assistant Prosecuting Attorney.....Wm. J. Clancy, Menominee
County Stenographer .....Marie Quarrier, Menominee
Circuit Court Commissioner..... Meredith P. Sawyer, Menominee
Coroner..... Roy Cadieu, Menominee
Coroner.....Albert M. Larson, Menominee
County Surveyor.....John Jenkins, Menominee
School Commissioner.....Ethel Schuyler, Menominee
School Commissioner's Clerk .....Lucille Ratayczak, Menominee
Undersheriff.....Robert Ackerman, Menominee
County Agricultural Agent.....B. D. Kuhn, Menominee
Home Demonstration Agent .....Margaret Cole, Menominee
County Agricultural Agent's Clerk.....Gladys Baker, Menominee
Probation Officer—Friend of the Court .....Alex Bouty, Spalding

BOARD OF COUNTY ROAD COMMISSIONERS

	Appointed	Term Exp.
George Barstow, Chairman, Menominee	Oct. 1936	Oct. 1942
Oliver Nadeau, Nadeau	Oct. 1940	Oct. 1946
George Dame, Ingalls	Oct. 1938	Oct. 1944
E. J. Pearce, Superintendent and Engineer		Menominee
Rose Nylund, Office Clerk		Menominee
Ray Mullins, Office Clerk		Menominee

BOARD OF SOCIAL WELFARE

	Appointed	Term Exp.
Dr. Clarence B. Flanagan, Chairman Menominee	Oct. 1939	—
Bert Vescolani, Commissioner, Hermansville	Oct. 1939	Oct. 1942
Herman R. Brukardt, Secretary, Menominee	Oct 1939	Oct. 1941

PINECREST TUBERCULOSIS SANATORIUM TRUSTEES

	Appointed	Term Exp.
Dr. E. Sawbridge, Stephenson	Oct. 1940	Oct. 1942
G. A. Blesch, Menominee	Oct. 1939	Oct. 1941

Any comment on local roads would be incomplete unless due credit was given to the Federal Government for the additional help furnished under the WPA program for the

That being the case, we can look forward confidently to still more progress in the future.

MENOMINEE COUNTY MICHIGAN

BOARD OF SUPERVISORS 1941-1942 TOWNSHIP OFFICERS

ALBERT KIPFER, Chairman W. H. ZERATSKY, Chairman Pro Tem
HARRY N. GILBERTSON, Clerk

TOWNSHIP	SUPERVISOR	CLERK	TREASURER	HIGHWAY COMMISSIONER
CEDARVILLE	John Barstow, Cedar River	Roy Peterson, Fox	Bernard Dougovito, Cedar River	
DAGGETT	Arvid E. Revall, Daggett, R2	Edward Johnson, Daggett, R2	Albert Voigt, Daggett, R2	
FAITHORN	James Kelly, Faithorn	Clarence LeGrave, Faithorn	Arnold Salzieder, Faithorn	
GOURLEY	Lawrence Smith, Wilson	Charles LaCount, Carney, R2	Arthur Berger, Carney, R2	Frank Hahn, Wilson
HARRIS	Wilbert J. Nault, Wilson	Edwin Schoen, Wilson	Wm. Kleikamp, Wilson	
HOLMES	Edmond Duca, Carney, R1	Victor Toberg, Daggett, R1	Frank Kanton, Daggett, R1	
INGALLSTON	Charles A. Hanf, Stephenson, R2	Carl J. Johnson, Ingallston	Walter Hornung, Stephenson, R1	Anton Paulson, Wallace, R1
LAKE	Henry DeMille, Stephenson	Walter Carlson, Daggett	Edmund Sager, Stephenson	
MELLEN	Albert Larson, Wallace	Bernard Nelson, Ingalls	Nels Brander, Wallace	Frank Shampo, Wallace
MENOMINEE	W. H. Zeratsky, Menominee, R1	Ervin Siehrs, Menominee, R1	Victor Delfosse, Menominee, R1	
MEYER	Conrad Swanson, Hermansville	James M. Riedy, Hermansville	William Whitens, Hermansville	Ed. J. Lacoursier, Hermansville
NADEAU	Clement Ritter, Carney, R1	Richard Lindstrom, Carney, R2	Joseph Gronmark, Carney, R2	August Kohtamaki, Daggett, R2
SPALDING	John Fazer, Powers	Wm. O'Neil, Powers	Karl Behrend, Powers	Mose Gagne, Powers
STEPHENSON	Albert Kipfer, Stephenson	Edward J. Beaudoin, Stephenson	Peter Thoune, Stephenson	
City of Menominee				
FIRST WARD	Adolph Provancher, Menominee			
SECOND WARD	E. J. Eagen, "			
THIRD WARD	George J. Bomber, "			
FOURTH WARD	Harold Peterson, "			
FIFTH WARD	Joseph S. Bilodeau, "			
SIXTH WARD	Andrew H. Jurgens, "			
SEVENTH WARD	Elroy K. Converse, "			
MAYOR	Michael C. Olsen, "			

VILLAGE OFFICERS

DAGGETT	POWERS	STEPHENSON
President, Robert A. Patterson	President, Julius Hansen	President, Herbert W. Corey
Clerk, George Bergstrom	Clerk, Mrs. Evelyn Fezatte	Clerk, Napoleon Lacomb
Treasurer, Gust Lundmark	Treasurer, Karl H. Behrend	Treasurer, Carl Winter
Assessor, Oscar F. Dahl	Assessor, Milton Kell	Assessor, Walter Dishneau

ROSTER

OF

MENOMINEE COUNTY

OFFICIALS

1941

Compiled by
HARRY N. GILBERTSON
County Clerk

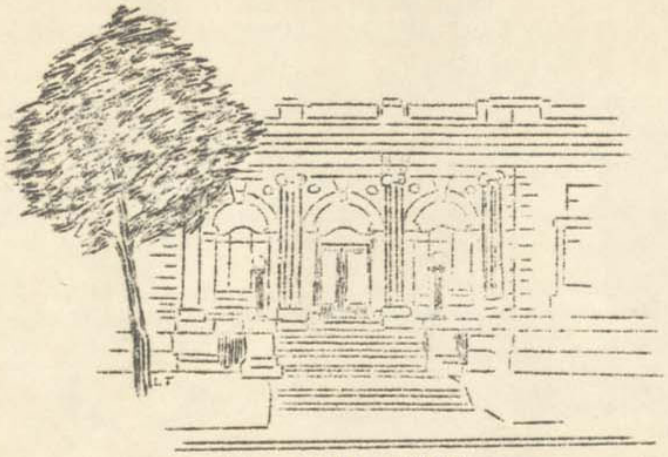
a properly certified unemployed man was not immediately put to work.

We believe that considerable progress has been made in the service and improvement of roads in Menominee County.

River Park, Menominee Township, 35 acres, located on banks of the Menominee River on County Highway 581.

Hermansville Park, Meyer Township, 80 acres located on Federal Highway US-2.

80

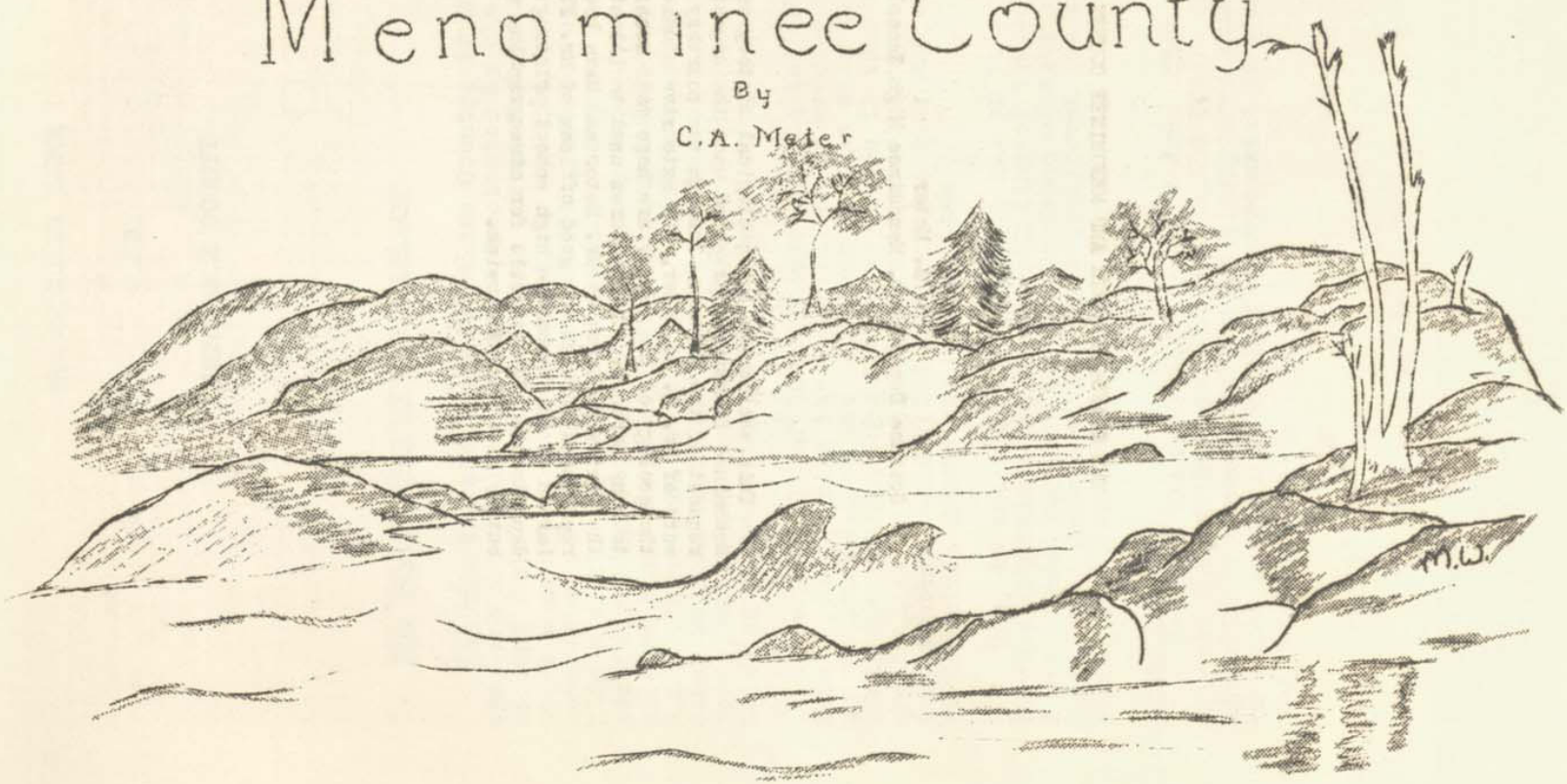


Spies Public Library

The Changing Earth
and
Menominee County

By

C.A. Meier



THE CHANGING EARTH AND MENOMINEE COUNTY

By

C. A. Meter
Science Department, Menominee High School

This section on the geological history of Menominee County was prepared upon the urgent request of the Editor. Through the courtesy and work of Mr. C. A. Meter, his extensive studies of the geology of the county are here made accessible to many persons. The pictures used to illustrate the text were taken by Mr. Meter and have been reproduced through the good offices of Mr. Floyd Larson of the Menominee high school printing department. The stencils for mimeographing were cut by Miss Mary Wachowiak.

THE CHANGING EARTH

AND

MENOMINEE COUNTY

I. The Sculpturing of the Glaciers

As one travels about Menominee County, if he has an alert eye, and a curious mind, he is fascinated by the wide variety of land forms and features which spread before him in what seems to be a more or less helter-skelter fashion. Here one sees a succession of long oval shaped hills, between some of these ridges a wide expanse of spruce-covered swamp land. In another section of the county there are sandy dune-like hills. In yet another place there are areas of almost level or gently rolling plains, sometimes covered with boulders of various sizes. In other regions there are exposed patches of hard fine-grained rocks, which most dramatically portray the gigantic earth-building forces which have been at work upon them.

How have all of these things come to be? What forces have been at work during the two billions or more of years since scientists believe the earth has been in existence, to shape the landscape of Menominee County as we see it today? For those who should like to know the answers to some of these questions that perplex them, this brief story of the rock and surface formations of Menominee County has been written.

Now, to the trained geologist, all of this wide variety of surface formations and topography (lay of the land) in Menominee County means just one thing--the drama of ages of scouring and grinding by layers of ice which sculptured the surface of the county as we know it today.

Great Ice Age

You have heard of the Great Ice Age. Then great glaciers covered the northern part of the United States and Canada. Later the climate warmed, and the ice disappeared some twenty thousand or more years ago. No glaciers now exist in the United States east of the Rockies.

If we go back in the history of the earth to still more ancient days, there must have been still greater changes of climate. You know that coal is the remains of forests. In the ice-covered Antarctic continent, a continent still in the Ice Age, coal has been found. No tree grows on the Antarctic continent today. There must have been a warmer time for the South Pole region. Remains of maple and other temperate climate trees have been found in Greenland. There nowadays willows a few inches high are the big trees. That land, too, has seen warmer times. Obviously, the earth has seen great changes of climate.

The interior of Greenland still is covered by a remnant of the continental glacier. The Antarctic Continent also contains a continental glacier. We may still be in the Ice Age from which only a part of the earth has yet emerged.

At earlier times, there were other ice ages. Scratches in the rock and glacial deposits show them. There are records of at least four great ice ages. And they occurred about 250 million years apart. It seems that about every quarter of a billion years, the earth has an ice age. When we speak of the Ice Age, we mean the last one. The ice from this age melted away from the mainland of North America some time about 30,000 years ago.

During these cold periods, snow falls and piles up and the pressure of the thick layers gradually changes it into ice. In this last Ice Age, more than four million square miles of North America were covered by glacial ice. The North American ice sheet apparently developed from three principal centers, one east of Hudson Bay, one west of it, and one in the western mountains. Ice from the first two centers spread far south into the United States. The line of its farthest advance may be drawn from Long Island and New York city on the east, across Pennsylvania, southwestward down the Ohio River valley, across the southern tip of Illinois, up the Missouri River, and westward from the course of the Missouri to Puget Sound. So we see that Menominee County was well within this region covered by the glaciers.

Now, fortunately, we have an excellent opportunity to know just how different the topography of Menominee County would have been had there been no glacial sheet here. For within the glaciated region which has been outlined above, there is a region in Wisconsin and adjoining parts of Illinois and Iowa southwest

of Madison, some ten thousand square miles in area, which for some reason which geologists do not yet understand was not covered by the glaciers. We may think of it as an island of land in the glacial ocean. If you have travelled from Madison to Dubuque, Iowa, you have had an opportunity to see how different it is from the Menominee County area.

This so-called Wisconsin Driftless Area is a well drained region, with much branched rivers flowing in deeply cut valleys between the rounded hills. In Menominee County, we have by comparison, a poorly developed drainage system, with about a third of the county consisting of undrained marshy or swamp land. The Wisconsin Driftless area is not a region of lakes or ponds. The soil at the surface grades gradually into a rock-fine soil on top, coarser below, finely broken rock, coarser fragments, and then rock below just beginning to decay into soil. It is a region which is much more rugged than is Menominee County. So we can see that Menominee County should be much more rugged if there had been no glaciers here. The glacier, we can realize, has been a leveling influence. In the Driftless Area the soil is much more uniform. In comparison, the glaciers have left a wide variety of soils. The soil map of Menominee County is spotted with about thirty different types of soils.

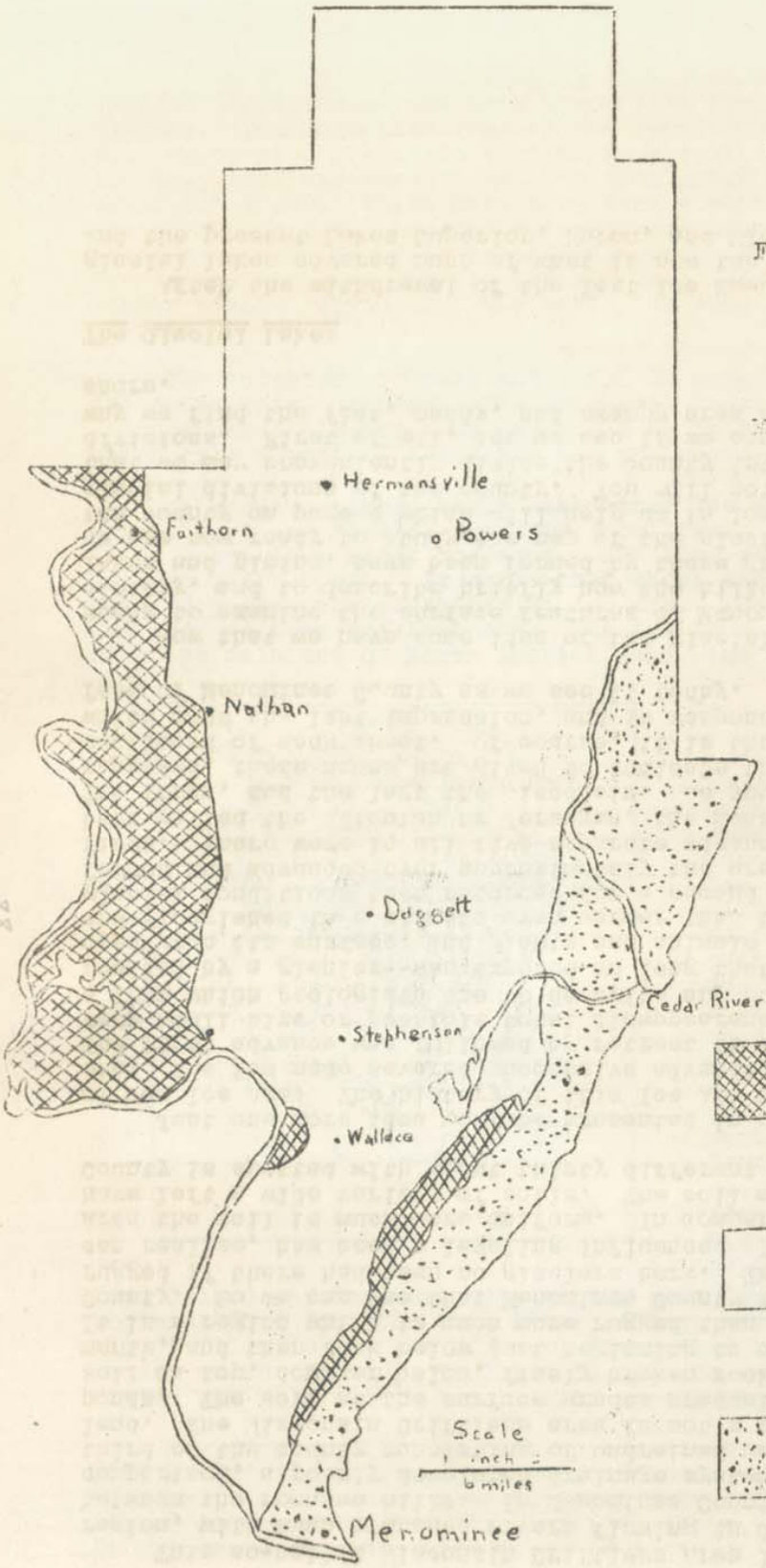
Just one more idea must be presented in our short story of the Ice Age. The history of this Ice Age was not a simple one. The ice made several successive advances and retreats. The first advance was followed by retreat of the glaciers to a very small size or possible total disappearance. The drift--a term which geologists use to describe any soils or rocks deposited by a glacier--was exposed so long that deep soil developed upon its surface, and plants and animals took possession and flourished in a climate even warmer than that of today. The glacial conditions then returned for a second time, and ice formed and advanced over approximately the area covered by the first. There were in all five separate advances. These have been called the Aftonian or Jerseyan, the Kansan, the Illinoian, The Iowan, and the last the Wisconsin. As you may have already supposed, these names are given to indicate the farthest advance southward of each sheet. Of course, it is the Wisconsin sheet which made the last impression, and is responsible for the surface of Menominee County as we see it today.

Now that we have some idea of the glacial periods, we are ready to examine the surface features of Menominee County more closely, and to describe briefly how the hills and valleys, lakes and plains, have been formed by these great ice movements. We are now ready to study the map of the glacial deposits of the county on page 4 which will help us in locating the principal glacial divisions of the county. You will notice from the map that we may conveniently divide the county into three principal divisions. First of all, let us see if we can better understand why we find the flat, sandy, and swampy area all along the bay shore.

The Glacial Lakes

After the withdrawal of the last Ice Sheet, a number of glacial lakes covered much of what is now the Upper Peninsula and the present Lakes Superior, Huron, and Michigan. The oldest

GLACIAL FEATURES OF MENOMINEE COUNTY



Terminal Moraines. Irregularly placed hills. Rough, "Knob & kettle" topography.

Ground Moraine Region. Generally level plain, broken by numerous drumlins, eskers and kames.

Sandy lake bed country. Swampy, sandy bed of old glacial lakes. Western limit marks the shores of Lake Algonquin.

and highest of these was Lake Ontonogan, which was held in the basin of the Ontonogan River, to the east and northeast of the present Lake Gogebic. Another was Lake Duluth, which occupies a large part of what is now the west end of Lake Superior.

Another old glacial lake, Lake Algonquin, covered part of what is now Menominee County. Lake Algonquin was a large lake, which occupied roughly the present areas of Lakes Michigan, Huron, and Superior. In fact, it was larger than the total combined areas of these three lakes, for the part of the Upper Peninsula, from Munising eastward was below the surface of this lake. Only a few small portions of this eastern area of the peninsula rose upon the level of its waters as islands.

Later there were the Lakes Nipissing. The extent of the Nipissing waters was but little greater than that of the modern Lakes Huron, Michigan and Superior, for on the borders of the Northern Peninsula its shores are found only from about ten to fifty feet above the level of the present lakes, and they are usually within a mile or two of the present shores.

Sand hills in northwestern Menominee, shore line of old glacial Lakes Nipissing.

On the map of the glacial features of Menominee County, it will be seen that the sandy area in the eastern part is of the Lake bed of old Lake Algonquin. Near the city of Menominee, the shore lines of Lake Algonquin are found about three miles back from the present shore; near Cedar River, about six miles back. This area is low, and is now the most continuous and extensive area of swamp land in the county.

Within this area, and just back of the present shore line may be found the beaches of Lakes Nipissing. The sand hills in the northwestern part of the City of Menominee are parts of this old shore line. Highway 35 enters Menominee County from the north on these old beaches. These beaches may be seen all along the bay shore. They may be recognized by the fact that they are little ridges of sand, which run parallel with the present shore line of Green Bay. At the western edge of this sandy, swampy area may be found the higher ridges left by the older Lake Algonquin. Besides the sand and gravel accumulated by shore currents, much red clay was deposited in the protected, quiet waters of Lake Algonquin. The best place to see these pebbleless clay deposits is north and northeast of Cedar River.

From the map, we can see that Menominee City, Arthur Bay, and Cedar River are built upon the beds of these old Glacial Lakes. In Menominee, much sand has been removed from the Nipissing

shore lines and used for making fills. For example, much of the fill for the approach to the Menominee side of the Interstate Bridge has been made from sand from these beaches.

The Glacial Moraines

It will help in understanding the kinds of deposits laid down by a glacier to compare the action of the glacier with the scraping and pushing action of a snow plow. Along the sides of a road, the snow plow leaves embankments of snow. Ahead of the plow, a similar piling up of snow will be found. The glacier likewise left materials at its sides and at the point of its farthest advance. These deposits are called moraines. They are called marginal moraines if they are left at the sides of the ice flow, and terminal moraines if they are left at the ends. Moraines may be recognized by the very rugged, hummocky, "knob-and-kettle" landscape, and secondly by the composition of the materials in these deposits, which largely consist of an unassorted mixture of sand, clay, cobbles and boulders. This mixture indicates clearly that they were laid down at the edge of the ice.

Rugged terminal moraine country, just southwest of Bonat.

If you will refer again to the map of glacial deposits, you will find that there are two such areas of moraines in Menominee County. One extends from a point about two miles southwest of Birch Creek in a northeasterly direction as far as Hayward Lake. It varies from about a half mile to two miles in width. The road which is known as the Ridge Road, which leaves the Bay Shore Road near the Menominee Air Port hits this moraine area about three miles after it leaves the bay shore. In general, this moraine area is fairly low, and not very clearly marked.

However, the moraine area to be found in the western part of the county is very typical, and will be easily recognized. This will be found in a strip two to six miles wide along the Menominee River in the northern portion of the Menominee River boundary. Its most rugged and hummocky portions are to be found west of Nathan and Faithorn, along the Menominee River. Northward from Chalk Hills to Penenee Falls, along the river, it provides some of the most picturesque and beautiful country in Menominee County.

In addition to these major marginal moraine areas, there is a smaller area on the Menominee River about a mile west of Wallace on Highway 577. There there is a high morainal hill,

known locally as "Wolf Mountain", which has been almost entirely removed as a source of gravel. If one climbs the hill, it is possible to view a large part of the area of southern Menominee County, and one can look westward as far as the Thunder Mountain region of Marinette County, Wisconsin.

Ground Moraine Region

Between the sand lake bed portion of the county in the eastern part, and the marginal moraine areas in the western part, to which we have just referred, there is a mixture of glacial formations which we may refer to generally as a ground moraine region. Now a ground moraine is a deposit made some distance behind the margin and shows evidence of having been continually covered by ice. As a result, it has a tendency to be generally level, and to be broken by hills with gentle slopes. The soil consists of very finely ground rock particles carried near the bottom of the glacier, often called "rock flour", with an occasional boulder. Like the marginal moraine, it is neither assorted or in layers, but rather a mixture of these several types of materials. This ground moraine area covers a larger part of the county than any other type of glacial deposit, and in the northern tier of townships, extends across the whole width of the county.

Breaking the generally level surface of this ground moraine territory, and making it exceedingly more interesting, are the hills and ridges which are variously known as drumlins, eskers, and kames. Each of these has a different method of formation, and its own individual characteristics.

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The Drumlins

Of these features, the drumlin is the most important. In fact, the drumlins in Menominee County are so abundant that hardly any square mile is without a portion of a drumlin. The drumlin is a half-egg or half-cigar shaped hill, noticeably much longer than it is wide, and with very smooth slopes. They are one of the very best proofs of the direction of the motion of a glacier of a given area, as the drumlin is always lengthened in the direction of the flow of ice. The slope of the hill which points towards the direction of the movement is always more gentle. These drumlins show that the ice moved in a north-east to south-west direction, particularly in the southern part of the county. Near the northern part, the flow was in more of an east to west direction.

Smooth slopes of a typical drumlin, west of Stephenson.

As to the materials of the drumlin, it is similar to the ground moraine, but some of them show some sand and gravel, and often the materials show a slight tendency to be deposited in layers.

The largest and most interesting drumlins in the county are to be found in the northern part of the county, Around Stephenson, the drumlins are especially typical, and easily identified. Menominee County has the greatest number, and the most typical drumlins to be found in the Upper Peninsula.

Eskers

The esker is another of the most common surface features in the county. These are ridges of gravel usually only a few yards in width, and resembling a railway embankment. In Menominee County they are usually from ten to fifteen feet high. Like the drumlins, they are to be found largely in the ground moraine, or till-plain areas in the central part of the county.

Where a side road cuts an esker, north of the Nine-Mile Farm on Highway 577. Note the gravelly materials.

Their origin is still a matter of dispute among geologists, although it is now quite generally believed that they were formed by streams flowing in tunnels in the lower part of the ice sheet. While their general trend is in the direction of flow of the ice sheet, they have a more or less winding course. Unlike the drumlins and marginal moraines, they are in the main gravelly ridges, with some sand and very little clay. Some of them are notable for the size of the cobbles which they contain. They are distributed quite generally through the county, and every township has one or more of them. Many are less than a quarter of a mile long, and some may be as short as thirty or forty feet, but the great majority are three-quarters of a mile in length. One esker which crosses Highway Number 2 just east of Wilson runs southwesterly in a winding fashion with small interruptions for a distance of about seven miles. Perhaps the highest esker in the county is located just west of the Big Cedar River, about six or seven miles northwest of Cedar River. They are especially plentiful in the regions just west of Carbondale and Talbot.

Eskers are the prominent sources of gravel for the building of roads in Menominee County. For instance, a county gravel-pit on Highway 577, just north of the Nine-Mile farm out of Menominee is located in an esker which runs westward toward the river. One which hits the southwestern limits of Daggett was used as a source of gravel for paving Highway 41.

Kames

Another type of glacial hill to be found in Menominee county is the kame. The kame is an irregularly shaped or sharp gravelly hill composed of sand and gravel in layers. The drumlins may sometimes show layer formations, but the eskers seldom do. So the layer formation may be the feature by which the kame may be identified.

Kames are thought to have been formed where streams flowing from the edge of the ice dumped their material. Kames are often found at the ends of eskers. They may occur singly or in clusters on the till-plains and also in the moraines. In Menominee County, kames are especially plentiful in a zone which trends from northeast to southwest, beginning near Perronville and extending to a point three miles west, and one mile north of Birch Creek. The zone varies in width from six miles to about ten miles in the vicinity of Daggett. A kame cluster usually occupies but a small fraction of a square mile. Like the eskers, these formations are of value as sources of road ballast.

Other Glacial Deposits

Besides eskers and kames, there are other types of ice deposits which consist of the same materials. These are called outwash plains, kame terraces, or subglacial outwash. All of these features are nearly level and thus can easily be distinguished from the other features. Like the kames, they were formed by material carried from the ice edge by flowing and melting water. However, the streams which carried out this material spread it out to form flat plains rather than steep hills, as in the case of kames. As is to be expected, the coarser materials were deposited first, and the finer materials last. In some parts of the Upper Peninsula, such outwash plains composed largely of sandy soil were very extensive and were covered by large forests of white pine. But in Menominee County they are very small and inconspicuous. The largest areas of such plains in Menominee County are in eastern Holmes and eastern Lake Townships, just east of the terminal moraine areas. The Shakey Lakes are located in an outwash plain area.

Inland Lakes

Just one last interesting feature of the work of the glaciers should be mentioned. As the glaciers heaped their load more of less regularly over the country, they made drainage of water difficult. As a result, in highly glaciated areas there are usually found small lakes. Unfortunately, these lakes are not so numerous in Menominee County as they are in some areas.

Disappearing lake, northwest of Cedar River. Leather-leaf and sphagnum moss in the foreground, and trees are encroaching upon the lake.

And most of them are quite shallow. The Shakey Lakes, the largest and best known of all of our lakes, has provided the site of one of our county parks. Hayward and Mud Lakes are very shallow, and are of interest largely to duck hunters.

We can also see scattered around the county the remnants of other shallow lakes. The blueberry marshes are examples. As the lake has slowly dried over past years, such plants as sphagnum moss, leatherleaf or blueberries begin to grow in the old lake bed. Small spruce or cedar trees will be found scattered throughout the old lake beds. Larger swamp trees line the edges. In a few hundred, perhaps a thousand or more years, these disappearing shallow lake beds will become just another cedar or spruce swamp.

II. The Hard Rock Formations of Menominee County

Now, thus far, we have been talking only of the surface geology of Menominee County. We have noted the wide variety of land forms--plains, hills, valleys, swamps, and other features of the surface of the county. In fact, it has been said that the surface features of Menominee County are more varied than they are in any area of similar size in the whole State of Michigan. That makes observation of these features especially interesting.

But below the surface soil all over the world are the underlying rock formations, which we shall refer to as the hard rock formations. These are the crust formations of the solid rocky and metallic core which makes up most of the volume of the earth.

Glacial drift on bedrock at Ingalls Dam. Flow of the ice has smoothed the rock in the foreground.

In Menominee County, this hard rock, or bed rock, is exposed at comparatively few places, and most of our readers will have had less opportunity to observe it, or wonder about it. Most of the rocks below Menominee County were deposited in a series of ancient seas that covered this territory, long, long before the glacial lakes which we have previously mentioned. The rock layers are quite level, and the glacier in moving over this level rock was able to cover the underlying rocks in most places in the county. For this reason, the basic rock formations are in most places concealed below the glacial drift.

However, in many places this hard rock was not concealed, and we may find it at, or nearly at the surface. Now some of our readers will want to know about these exposures of hard rock formations. A number of questions may be in mind: What kinds of rock do we find under the glacial soil? How long ago

has it been since these rocks were formed? What kinds of plants and animals were living at this time? What kinds of fossils may we therefore find in these rocks? To give a brief answer to some of these questions, the second part of this story of the geology of Menominee County has been prepared.

But if the answers to these questions are to have much real meaning to the reader, we must first have some picture of the geologist's story of the history of the world. We must also have a general idea of the hard rocks to be found in the whole state of Michigan, and particularly in the Upper Peninsula. Only then will we be able to fit the story of the hard rocks of Menominee County into this general picture. To do this, we must go much further back into the earth's history than the age of the glaciers which we have been talking about. We have already noted that the sculpturing done by the last of the ice sheets to cover this country was done at a time estimated to be about thirty or perhaps even eighty thousands of years ago. In contrast, the oldest rock formations of Menominee County are believed to be over one billion years old. So if we see the places where the glacial formations rest upon the underlying bed rock, we are viewing a comparatively recent formation in contact with an extremely old one.

For all of the hard rocks of Menominee County are very old ones. Along the Menominee River, in the central part of the western boundary of the county, we find the oldest rocks in the county, and as we travel eastward from this area towards the shores of Green Bay, we come in order to younger layers of rock.

Our Changing Earth

But now we must begin to get our general picture of the geologist's story of the rocky formations of the earth. It seems almost impossible to think that the world has not always been just as it is now. There are so many thousand miles of solid earth that its very size makes us feel secure and stable. Yet very few of us have not had the experience of finding some part of the earth changed. We go back one summer to the bay shore we have known for years, and find a part of the shore eaten away by winter storms. We go to some lake to fish, and find that we can stand upright in a spot which before required an anchor of eight feet to reach the bottom. Or perhaps the bank of our favorite stream is a little straighter than it was when we first knew it.

These are little changes. In the newspapers we read of greater ones. During the last few years great areas of our own country have changed so that they can no longer be farmed. We also read of volcanic eruptions and of earthquakes. If these things have happened in just a few years, think of what has happened in the millions of years which have come and gone since this old world came into being.

How the Geologist Reckons Time

In reckoning time in geology, or rather in expressing geological time in man's years, there has to be some point from which to begin to reckon, just as your birthday is reckoned from the date when you were born. In the case of the earth,

GEOLOGIC TIME-TABLE

Periods and When They Began	Changes in the Land of North America	Changes in Plants and Animals
	ARCHEOZOIC ERA	
(Lower Precambrian 2000 million years ago) Laurentian Keewatin	Mountains were forming all over the world Much volcanic activity Seas small	Blue-green algae. Bacteria. Probably simple one-celled plants and animals
	Long Interval of Erosion--Mountains Worn Away	
	PROTEROZOIC ERA	
(Upper Precambrian 1200 million years ago) Keweenawan Huronian --Upper Middle Lower	Mountains formed Great lava eruptions Much sedimentary rock formed	Lime-forming algae Sponges
	Long Interval of Erosion--Mountains Worn Away	
	PALEOZOIC ERA	
Cambrian* (550 million years ago)	Seas across western United States. Climate mild	First fishes
Ordovician* (445 million years ago)	Seas covered more than 60% of North America	Greatest development of invertebrates Trilobites
Silurian (375 million years ago)	Seas still covered much of the United States	First air-breathing animals. First land plants
Devonian (350 million years ago)	Seas still widespread over land. Climate warm	Lung-fish and first amphibian. First forests of fern-like trees
Carboniferous (315 million years ago)	Greatest coal-forming period. Appalachian Mts. began to form	Great coal-forming forests First insects First reptiles
Permian (235 million years ago)	Appalachian Mts. as high as Rockies are now	Reptiles were developing Gymnosperms spreading
	Long Interval of Erosion--Appalachian Mountains Worn Down Some	
	MESOZOIC	
Triassic (200 million years ago)	Continents not covered by seas Climate dry	Reptiles dominated Cycads and other gymnosperms First mammals appeared
Jurassic (169 million years ago)	Continents fairly high Shallow seas in western United States	First birds Flying reptiles Dinosaurs dominant animal
Cretaceous (130 million years ago)	Rocky Mts. formed Last great spread of seas over land	Flowering plants appeared Dinosaurs died out at end of period

GEOLOGIC TIME-TABLE (continued)

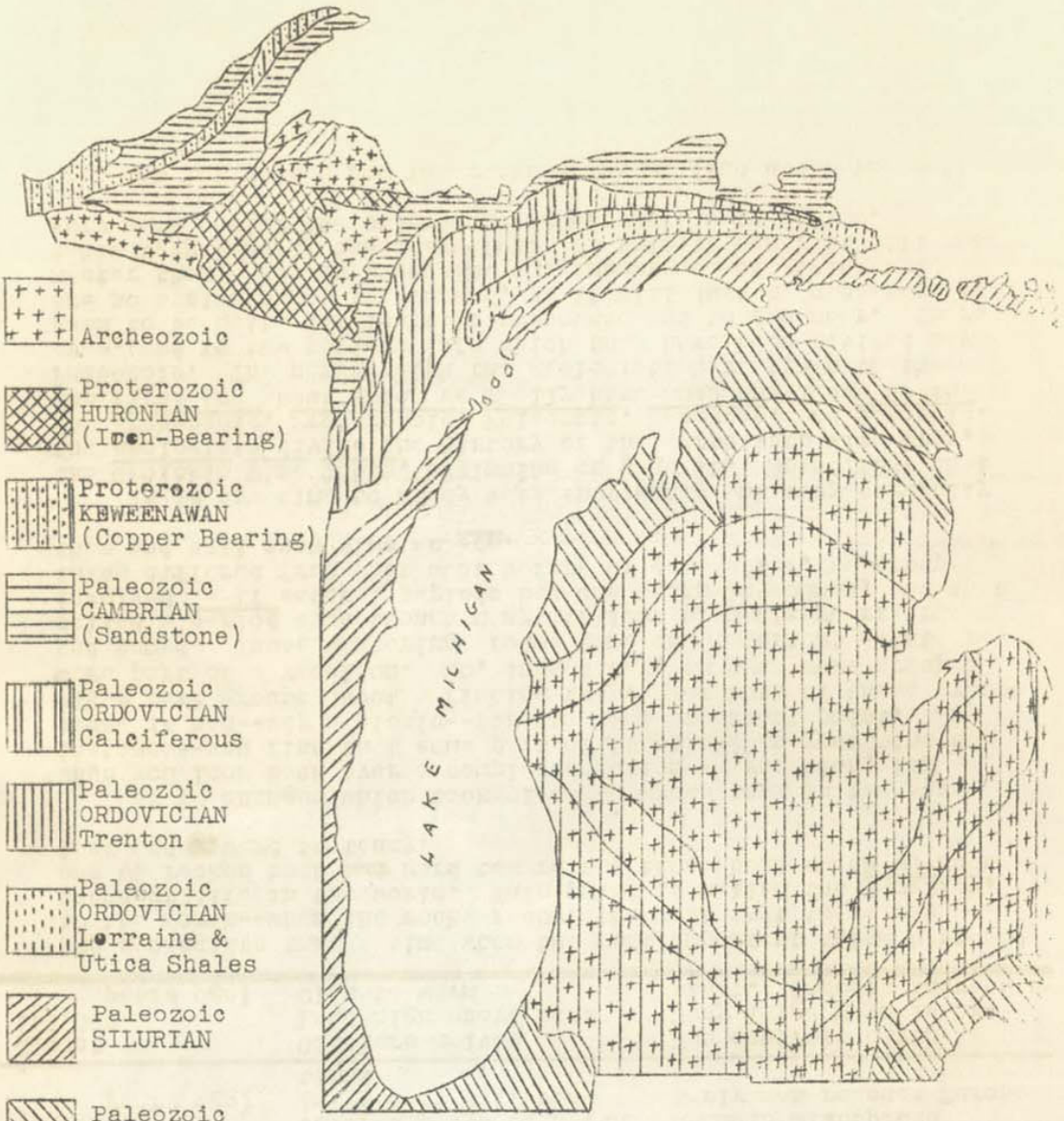
Periods and When They Began	Changes in the Land of North America	Changes in Plants and Animals
Long Interval of Erosion		
CENOZOIC ERA		
Eocene (59 million years ago)	Seas covered little of land. Climate cooler	Mammals abundant First-known horse--4 toes
Oligocene (40 million years ago)	Land lowered somewhat Climate cooler	Three-toed horses Early elephants
Miocene (30 million years ago)	Mountains began to form Great lava flows in northwest. Climate cooler	Mammals dominated Redwood trees appeared in California
Pliocene (12 million years ago)	Mountains in western United States continued to rise	Horses, elephants, camels almost modern. Mammals migrated between continents
Pleistocene (1 million years ago)	Four great ice sheets covered parts of North America at different times	Mammals widespread Early man reached Europe
Recent (50,000 years ago)	Glaciers melted Land high above seas Climate warm	Man controls earth Many large mammals extinct. Insects increasing

the geologists take a time when the most important thing happened to the earth--when the rocks record the fact that there was abundant life in the world. This point is called the Cambrian, and we reckon both backward toward the time about which we know less and onward to today.

As to changes which took place we group them in two ways. When you look back over a completed action--a vacation, for instance--you find that some part of it sticks in your mind because it had--say a picnic--for its most important point. Another part groups about a fishing trip. Yet both of these events were part of a vacation. So, in geology, changes were grouped and named. Those centering around some one important event are called a period even though many millions of man's years are involved. If several periods had one thing in common, and that thing differed from what went before or came after, we group them and call such time an era.

It is now time to study very thoroughly and very carefully the Geologic Time Table, beginning on page 12. Note first that the geologists divide the history of the earth into five eras, the Archeozoic, Proterozoic, Paleozoic, Mesozoic, and Cenozoic. The first era about which we really have much knowledge is the Paleozoic. The names which the geologists have given to these eras, and to the periods into which they have been divided may seem to be quite difficult to pronounce and to remember. There are no easier names to suggest, so it will just be necessary to master them. Let us emphasize the importance of giving this table very careful consideration. If this is done, it will make very much easier the understanding of what is to follow.

Now let us see how the rocks which we find under the soil



GEOLOGICAL MAP

STATE OF MICHIGAN

throughout the whole state of Michigan relate to this Geologic Time Table. For this "bird's eye view" of the rocks of Michigan, we should now refer to the rough sketch of the rocks of Michigan as shown on page 14.

All Michigan Rocks Are Old

We are now ready to make some observation of the rocks of the entire state. First of all, note that no rock later than the Carboniferous division of the Paleozoic Era is to be found in the whole state. In other words, the youngest rocks to be found in Michigan are about three hundred millions of years old. We see, then, that there are none of the rocks of the more recent geological ages in the entire state, and we may state at the outset, that the rocks of Michigan are all very old.

Again, we note that the oldest exposed hard rocks in the state are in the western half of the Upper Peninsula, where Archeozoic and Proterozoic Rocks are found. The southern part of the Upper Peninsula, including Menominee County, and the eastern half of the Upper Peninsula, are of the Paleozoic Era.

Rocks of the Paleozoic Era also comprise the entire bedrock foundation of the Lower Peninsula. Encircling the edge of the Lower Peninsula are rocks of the Devonian period, in about the middle of Paleozoic time. Within this circle, there are rings of rocks of Carboniferous time. At the center of the Lower Peninsula, there is a circular area of later Carboniferous rocks, the youngest rocks to be found in the state. This area is known as the "Coal Basin". Thus the positions of the rocks of the Lower Peninsula may be likened to a nest of shallow bowls, the top edges of which would be crossed in going from any boundary of the Lower Peninsula to the center, where is found the hollow of the smaller bowl.

Also, by comparing the map of the Hard Rocks of Michigan with the Geological Time Table, we find that there is a difference of about one and a quarter billion years between the ages of the rocks of the western Upper Peninsula and of the rocks in the "Coal Basin" in the center of the Lower Peninsula.

Having taken this brief look at the rocks of the state of Michigan, let us come back to the Upper Peninsula, and see how the older rocks there are related to the Geologic Time Table which we have studied.

Pre-Cambrian Rocks

Sometimes we refer to the first two eras, the Archeozoic and the Paleozoic as the Pre-Cambrian Age. Now the table shows that the Pre-Cambrian Era was much longer than the three eras which followed. It was perhaps fifteen hundred millions of years, and if we write it 1,500,000,000 it is much easier to think about. The rocks of this era, that is, the rocks made during this particular time, lie underneath all others. We believe that these rocks encircle the whole globe. No other later rocks do this, for where the Pre-Cambrian rocks are found, later rock formations are always lacking. It is estimated that the Archeozoic rocks appear at the surface over about one-fifth of the land area of the world.

Rocks of the Pre-Cambrian ages are visible at the surface only in the western part of the Upper Peninsula, all being west of a line roughly drawn between Menominee and Marquette. The Pre-Cambrian rocks occupy a very large part of Canada, where they form what is called the Canadian Shield, in eastern and central Canada. This shield extends for a short distance into the United States, south of Lake Superior. Most of the Archeozoic outcrops in the Upper Peninsula are found in Marquette County.

The Archeozoic Age

In general, the Archeozoic rocks are composed of an exceedingly complex system of rocks. These are rocks which the geologist calls granites, gneisses, and schists. In the main, they are produced by tremendous earthquake and volcanic action. In this time, huge mountain ranges were built up and worn down. In Canada and in the Upper Peninsula, a great chain of mountains -- the Laurentian Mountains-- was built up and worn down again. So the Archeozoic rocks of the Upper Peninsula are a part of the Laurentian Mountains, which were formed by a gigantic uprising of the southern part of the Canadian Shield.

For a long time, it was thought that there was no life on the earth during the Pre-Cambrian era. We have changed our mind about that. No life could exist in the variety shown in the next era without having been developed from a simple beginning. A curious fossil was found which was named Eozoon canadense-- meaning the Canadian dawn life. It is believed that this was some huge plant of the algae family. For plants of a simple kind to which the algae, or sea weeds, belong, have been found in this primeval world. Perhaps an extraordinarily simple worm belonged to this era. If so, both plant and animal had no hard parts whatever.

So, of this long era which still needs much study, we can say that its rockslie underneath all others; that it knew mountain-building and destruction, and that life had come into the world.

Proterozoic Era Brings Iron and Copper to Michigan

After the great Laurentian Mountains were formed, there was a general uprising of all of the North American continent. The warm, shallow seas receded, and nearly all of the continental platform of North America became land. Next there followed a period of long erosion, during which the Laurentian Mountain region was worn down to almost a plain. When the sea spread over the worn-down continent, the second, or Proterozoic Era began. During part of the era, most of the North American continent was under water, and at the end of the era, the outline of the continent was similar, but not exactly like what it is today.

In the Lake Superior region, where the Proterozoic rocks are better known than in any other region of the world, we separate these rocks into four great systems, or periods. During the intervals between periods, much folding takes place in the earth's crust. Mountains are formed, much volcanic activity occurs, and often there is time enough for erosion to destroy whole mountain systems. Many changes occur on the earth and in

plant and animal life during these times. Between the eras there are even more drastic changes. Because of such great changes, geologists often call the intervals between eras Critical Periods.

These four great periods of the Proterozoic age are known as the Lower, Middle, and Upper Huronian, and the Keeweenawan ages. These almost endless years brought a great gift to the Upper Peninsula, for it was during this era that most of the iron and copper deposits were laid down.

Proterozoic Rocks in Menominee County--Quinnesec Schist

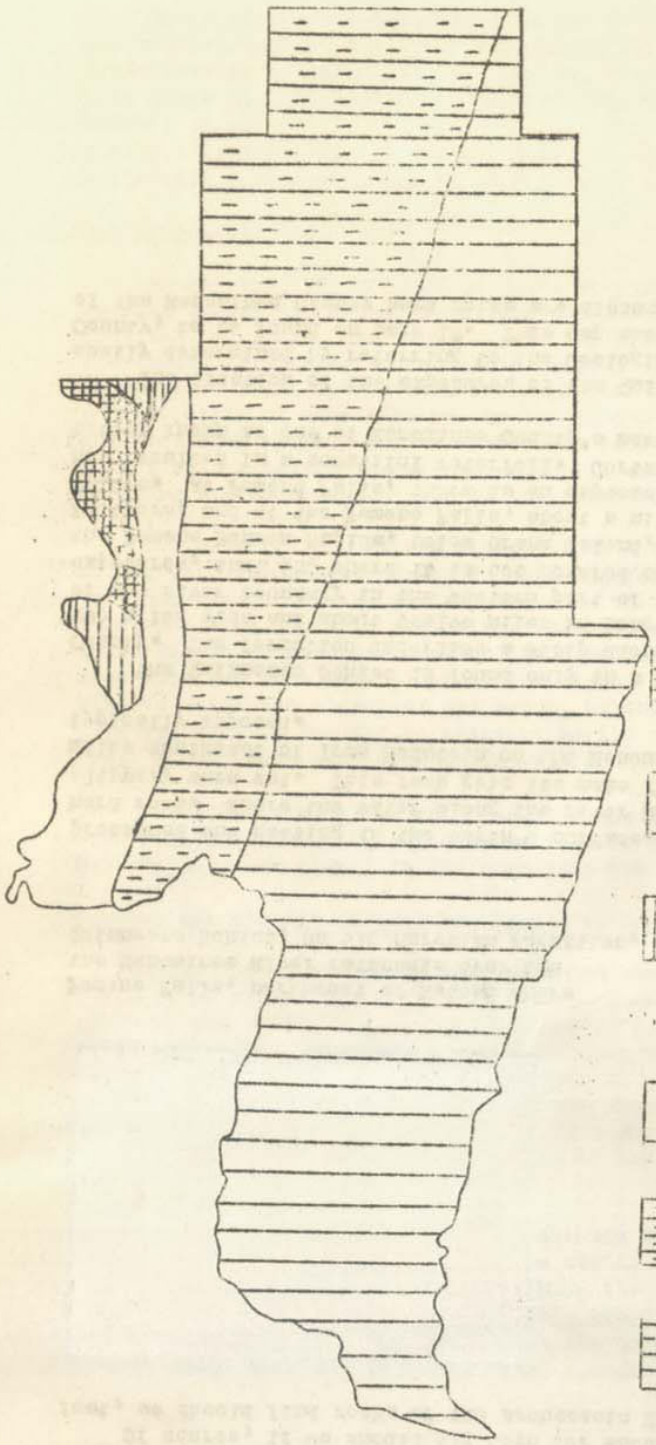
Of course, if we should dig down far enough, perhaps hundreds of feet, we should find rocks of the Archeozoic Era buried deep in the earth below Menominee County. But we do not have to dig to find the Proterozoic rocks here. All we shall have to do is to explore at the surface along the Menominee River west of Nathan and Faithorn. Here we shall find a rock exposed at the surface in places, particularly right along the river, which has been called the Quinnesec Schist. This is the oldest hard-rock at the surface in Menominee.

Pemene Falls, northwest of Nathan where the Menominee River cataracts over the Quinnesec Schist, an old Huronian Formation.

Now a schist is one of the rocks which we know as metamorphic rocks, which have been made from other rocks by pressures and heating in the earth's surface. The Quinnesec Schist is a very hard rock. Where the water along the river has worn it smooth, it is very slippery when wet. This rock gets its name from the Quinnesec Falls, three miles southeast of Iron Mountain on the Menominee River, where it is typically exposed.

The Quinnesec Schist is found only in a very small portion of Menominee County. The formation underlies a strip along the Menominee River, about two miles wide and about twelve miles in length, along the northernmost part of the river boundary in the western part of the county. The largest surface exposures, that is, where it is not covered by the glacial drift, are at the Pemene Bunwon Rapids, below Grand Island, about four miles southwest of Faithorn, and at the Pemene Falls, about a mile north of the Nathan Interstate Bridge. At Pemene Falls, there is an especially interesting outcrop, which has resulted in a beautiful waterfall. Certainly this spot deserves to be better known as one of Menominee County's most scenic spots.

The location of the exposures of the Quinnesec Schist rocks, will be most easily determined by referring to the Geologic Hard Rock Map of Menominee County, to be found on page 18. This map should be consulted as the remainder of the Menominee County hard rocks are discussed.



HARD ROCK

FORMATIONS

OF

MENOMINEE

COUNTY

MICH.

PROTEROZOIC ROCKS

Quinnesec Schist
(Middle Huronian Age)

Presque Isle Granite
(Middle Huronian)

Michigamme (Hanbury)
Slate
(Upper Huronian)

PALEOZOIC ROCKS

Lake Superior
(Potsdam) Sandstone
(Cambrian Age)

Hermansville
Limestone
(Ordovician Age)

Trenton Limestone
(Ordovician Age)

0 5 10
Scale in Miles

103

Presque Isle Granite and Hanbury Slate

Between these two exposures of the Quinnesec formations, just south of Merryman Lake, there is an outcrop of another of the rocks of the Middle Huronian period of the Paleozoic Era. This is a granite formation, formed from old lava flows which have come up from below. The formation has other names elsewhere, but here we know it as the Presque Isle Granite. These rocks are exposed in a very small area, in fact, only about three square miles in area. Its largest outcrop is in the Menominee River, just about two miles southwest of Merryman Lake.

A third series of rocks of the Huronian period is found in Menominee County. The Upper Huronian rocks, consisting mainly of slates occupies the largest area of all of the Pre-Cambrian rocks of the Lake Superior Region. But in Menominee County there is again only a small area of this rock exposed. You see, in Menominee County we are just on the edge of the exposures of these older rocks. Should we go northwestward into Dickinson County, we should find extensive exposures of these rocks. Wherever iron is to be found, you will find these slates also.

We name the slate formation to be found in Menominee County the Hanbury Slate. In Menominee County, the formation is found under a small triangular section in the north central part of Faithorn Township. We also find it in a more extensive area along the Menominee River in a strip two miles wide, extending from about a mile south of the Chalk Hills Power Dam, to about five miles above the dam. Slates are formed first as mud which settled at the bottom of a sea and first forms a rock called shale. Further heating and pressure changes them into slate. These are also very hard rocks, but they will split off into layers.

Rocks of the Keeweenawan series, which the Geologic Time Table will show you are the latest rocks of the Proterozoic Era are not found in Menominee County. However, they are of interest to us because it was during this age that the copper deposits which have made the Upper Peninsula famous as a copper mining country were made. Volcanoes during this age shot copper into rocks in the vicinity of the Keeweenaw Peninsula. This gave to Michigan the greatest deposits of native copper known anywhere in the world. During this age, there occurred one of the greatest outpourings of lava to be known in geologic time.

Great earthquake movements, rising and falling of land, brought the Proterozoic Era to a close. The great uncomformity between the latest Proterozoic rocks and the first or Cambrian series of the Paleozoic indicate a long interval of erosion between these ages.

Most Hardrock Formations in Menominee County Are Paleozoic

Paleozoic comes from the Greek words meaning "ancient life". A little while ago, you remember, we said that geologists reckoned upward toward today and downward toward that time of which they know little--the Archeozoic and Proterozoic. The point from which they reckon is the most important point in the earth's history--the time when life appeared. Of course, they know now that life appeared earlier than they at first thought.

But with the beginning of the Paleozoic Era, geologists are much more certain of the story they are telling. The rocks of that time contain so many more records of living things, or rather of things which have lived, that it is much easier to decide the conditions under which they had their existence.

Now the Paleozoic Era is of the utmost importance to us who would like to know of the rocks of Menominee County. For with the exception of these small areas which we have previously described, where we find the Proterozoic Rocks in Menominee County, by far the greater part of Menominee County is underlain with rocks of the Paleozoic Age.

Conditions in the Cambrian Period

The first period within the Paleozoic Era is the Cambrian. At this time, the coasts of North America stretched many more miles out into the oceans than they do now. The main land mass of the country was a low plain. Later in the period the interior of the country sank, and there was formed a great, shallow sea on the inland plain. We know that the land which was above the sea remained lifeless, for there are no land-plants found in the rocks formed during that time. The seas and oceans must have been warmer than ours, for the animals which lived in them resemble those living in the warmer seas today. All the world over, Cambrian rocks have fossils which would seem to have lived in an unvarying warm climate. These animals of the Cambrian period were able to build inner supports or outer coverings of lime-like material. This was a great improvement over the animals of earlier ages.

Among others, a new and very interesting group of beings had come into existence--the Arthropods. Arthropods are invertebrates, that is, animals without backbones, which have jointed bodies and jointed legs. Dragon flies and lobsters are both Arthropods. The important member of this group was a trilobite. It looked rather like the front of a horseshoe-crab made longer. Cambrian trilobites were small creatures, three to five inches in length. Then there were sea-urchins, mollusks, or shells, and jelly-fish. We might speak further of more lowly forms of Cambrian life, but they would hardly add to our general idea of the period. This we may best remember as a time of many new if lowly creatures living in warm seas.

Cambrian Sandstone in Western Menominee County

But do not look for many fossils in the Cambrian rocks of Menominee County. For the formation exposed is a sandstone, which contains few fossils. To find the outcroppings of Cambrian Sandstone in Menominee County you will have to go to a strip running from north to south in the western part of the county. To aid you in locating this, it will be well to turn again to the map of the Hard Rocks of Menominee County.

The area of the outcropping of the Lake Superior Sandstone of the Cambrian age in Menominee County may be traced from the region of the "Ox-Box" on the Menominee River, just southwest of the Shakey Lakes, where it is about four miles in width, northward through the western part of the county. From the White Rapids of the Menominee River, where it is typically exposed, it

narrows down to a strip averaging not more than two miles in width, which runs northward through Holmes and Faithorn townships.

To the southward of Menominee county, the formation broadens, and occupies a great part of the southwestern section of Wisconsin. To the northward, it continues through the Peninsula to the vicinity of Marquette, from which point it is exposed eastward all along the shore of Lake Superior as far east as Sault Ste. Marie. The picturesque Pictured Rocks near Munising, one of the famous beauty spots of the Upper Peninsula are the result of the work of the waves of Lake Superior on high cliffs of Cambrian sandstone. At the Soo, the famous Falls of the Saint Mary's river are in the formation. From this dark red and brown sandstone, many of the largest and finest buildings of the Peninsula have been constructed. It has been used in the trimming of buildings in the city of Menominee, including the old Senior High School building and the Spies Building.

Figures showing the dipping of rocks between Menominee County and the Lower Peninsula.

Beginning with the Cambrian Sandstone, there is a general dipping of the rock formations, from the western part of Menominee County to the Coal Basin of the Lower Peninsula. The rock formations between these two locations were laid down in a succession of ancient seas, which grew smaller and smaller until the Carboniferous period, when the coal and salt deposits were laid down in the basin of the lower central part of the Lower Peninsula. There is, then, in Michigan, as one goes from the western part of the Upper Peninsula to the central part of the Lower, a gradually younger series of underlying rocks. A reference to the figure on this page will show this general dipping of the sedimentary formations of Menominee County.

Shallow Seas in the Ordovician

At the close of the Cambrian period, the shallow seas withdrew from a large part of the interior of North America. But as a land mass it stood just above sea level. But early in the next period, the Ordovician, the earth's crust continued to

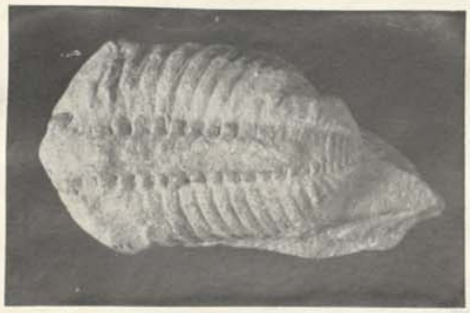
rise and sink, and the oceans covered the land again. Shallow seas once more spread over approximately the same areas which were covered in late Cambrian time. Look again at the map of the Hard Rock Formations of Menominee County on page 18. It will be seen that the rocks of the Ordovician period underlie all of Menominee County eastward from the exposures of the Cambrian Sandstones. This proves that practically all of Menominee County was again under the sea.

The Ordovician rocks to be found at the surface in Menominee County are limestones. In fact, limestone is the most common rock of the Ordovician period. For conditions favorable for the formation of limestone prevailed during most of the Ordovician. The small land area within the present area of North America yielded little sediment. The sea bottom was deep enough along the shore, and free enough from mud to allow abundant growth of animal and plant life. Animal life was particularly plentiful.

Most of the world was under water, and in such a world the living creatures were almost necessarily sea-creatures. All the forms of Cambrian life continued in existence but were somewhat improved and greatly increased in numbers and variety. Fossils of the lower animals which lived in the Ordovician period may be found in Menominee County. They will be most easily found along the Menominee River and the Bay Shore.

Fossils of the Ordovician Rocks

The trilobite was perhaps the most highly developed animal in the seas of this time. They had begun in a small way in the Cambrian period, but they became the most important creature of the Ordovician seas. The trilobite is an animal of the arthropod family, which has its segmented body divided into three lobes. Most trilobites were an inch or so long, but some reached a length of two feet. More than a thousand different species were in existence at this time. From this period they began to decline in numbers, and by the beginning of the Mesozoic Era, had become entirely extinct. However, at the time that the Ordovician rocks in eastern Menominee County were laid down, they were at the peak of their development.



A trilobite fossil of the Ordovician Period, found along the Menominee River.

The mollusks grew very numerous in this age. The mollusks are one of the large groups of animals, containing most of the animals popularly called shellfish. They have a soft body, and are protected in most cases by a limelike shell. They include the snails, slugs, mussels, clams, oysters, and so forth. Most of the fossils which are to be found in Menominee County will be the fossils of mollusks.

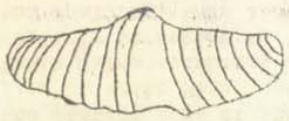
The largest, most powerful, and predatory of all the mollusks were the cephalopods, which seem to have developed into prominence very suddenly. They were doubtless the undisputed masters of the sea. The dictionary defines the cephalopod as "the most highly organized class of mollusks, the members of which have tentacles attached to the head." When you learn that cuttle-fish, squid, and octopus, are all cephalopods, they seem strange, indeed, to be called mollusks which we usually think of as shells. The principal forms were the straight cones about fifteen feet long with the tentacle-clad head projecting from the large end of the cornuccpia. Nothing like them remains today. Then there were curved forms and coiled forms, too, some of which resemble the nautilus of today.

Fossil of a Cephalopod, found in the Hermansville Limestone.

The gastropods, including mainly snail-like animals, were represented in Ordovician times by a variety of forms. Few types of Ordovician life so closely resembled their modern relatives as did the gastropods.

Pelecypods, the clam or oyster-like animals, were not so numerous as the gastropods during the whole of Ordovician time, but they are perhaps more generally found as fossils in the rocks of Menominee County.

Fossils of the brachiopods are also to be found. The brachiopods, or lamp-shells, were two valved shelled animals. Though there were few during the Cambrian, the echinoderms, or starfish type of animals, developed rapidly during the Ordovician, and before the close of the period all the classes had come into being. Of the latter class, the crinoids, or "sea-lilies" were excellent subjects for fossilization. The true starfish made their first appearance, but they are rare. Coral fossils, resembling honeycombs, are very commonly found in Menominee County.



Like the lobsters and crabs of today, the Ordovician trilobites were scavengers, and among the dead things which they swept up for food was the most exciting arrival of his age, the Ostracoderm, a forerunner of the fishes. A recent find suggests that fishlike forms may have appeared as early as the Cambrian, but the oldest well-authenticated fossils are those of the Ordovician. These are the earliest back-boned animals known with certainty.

Feeble Land Plants in Ordovician Times

We have a hint that very feeble land plants had managed to

gain a root-hold in spite of the floods, and in the warm waters the sea-weeds spread in increasing numbers. The land areas would have seemed strange at this time, for the vegetation was mainly of lowly plants like liverworts, algae, and ferns. There are strong reasons for believing that land plants abounded, but only a few doubtful remains have been found, and they reveal but little.

Thus, we have a brief picture of the types of living things on earth when the rocks which underlie the larger part of Menominee County were laid down, a story which tells of only very primitive types of plants and animals. No insects were yet flying, and no snakes or frogs or birds had yet appeared on the earth.

And so we leave the Ordovician universe as a world where, in spite of floods, volcanoes, and rising mountains, plant life had established itself on land, while the warm seas had various and numerous denizens during ninety millions of years.

Now, with the aid of the map of the Hard Rocks of Menominee County, we are ready to examine the formations in more detail. The earliest of the Ordovician formations in Menominee County is the formation known as the Hermansville Limestone. Of course, this is only a local name. In southern and western Wisconsin it is known as the Lower Magnesian Dolomite. The Hermansville Limestone, which lies just east of the Cambrian sandstone exposures, is a very coarse, sugary and usually porous limestone. From the eastern edge of the Cambrian sandstone area it extends eastward to a line entering Menominee County at a point on the Menominee River about three miles southwest of Stephenson, and runs generally in a north-north-easterly direction to the northeastern tip of the county. Between Daggett and Spalding, this line runs roughly about a mile west of the Chicago and Northwestern Railroad tracks. The formation outcrops in about sixty small areas, with its largest exposure at a point about a mile northwest of Swanson.

Trenton Limestone Underlies Most of County

Above the Hermansville formation lies the rock which underlies all of the southern tip and the eastern half of the county. Like the Hermansville Limestone, it is also of the Ordovician period. It is called the Trenton Limestone, because it was first studied in the vicinity of Trenton Falls, in New York. It outcrops in several places in the county. This formation is about four hundred feet thick and is composed of three different types of rock.

The lower portion is quite "limey"--that is, rich in carbonate of lime. Exposures of this lower part are to be seen in the Menominee River bed below the Ingalls Dam, just west of Ingalls. The middle part of the formation is a thin bedded sandy limestone, which may be seen outcropping two and a half miles east of Stephenson, south and west of Wilson and Indian Town, and west of Perronville.

The upper part of the formation is a very hard limestone, the lower part of which is green in color. It outcrops at the Third Dam, just west of the city limits of Menominee. It may be seen at the site of a former small quarry, just east of U. S. Highway 41, about a

mile and a half north of the city limits of Menominee. It may also be seen at places along the Bay Shore, and in smaller outcrops throughout the territory which it underlies.

These Ordovician limestones of Menominee County are put to no commercial use, but since the formation is the main rock formation of the county, it may be interesting to mention a few of its commercial uses elsewhere. For many years, the Trenton limestone in eastern Indiana and Ohio produced oil and natural gas in large quantities, although today the yield in these states is small. But large amounts of oil and gas are now being obtained from the Ordovician strata of Kansas and Oklahoma. In the region where Wisconsin, Iowa and Illinois meet, these limestones contain important ores of lead and zinc. In central Tennessee, these rocks locally yield calcium phosphate, valuable as a fertilizer.

At the time when the Trenton series in the eastern part of the United States were laid down, there was a flooding more extensive than that of any other age, for the beds of this period are more widespread than any other known formation. At the greatest extent of these Ordovician seas, at least three-fifths of the land area of the United States was under water. The Arctic Ocean was connected with the Gulf of Mexico. As you have noted from the Time-Table, these rocks were deposited almost a half billion of years ago. Menominee County has perhaps remained above sea level since that time, while other parts of North America covered later seas.

Now, logically, our story of Menominee County could end here, but it might be interesting to the reader to bring our story down to the present time. This should enable us to accomplish our aim in the latter part of this story--to see the rocks of Menominee County in their relationship to the general history of the world as it has been outlined by geologists. So we shall review, ever so briefly, some of the events that have happened in the world in these half a billion of years since the youngest rocks of Menominee County were laid down.

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How Green Bay Was Formed

First, it may be interesting to note the reason for the existence of Green Bay. It happened that after the Trenton rocks had been deposited, there was in late Ordovician time a third great flooding. During the flooding, the seas were muddy instead of clear, as is shown by the fact that rocks formed from mud, called shales, were widely deposited. The muddiness of the waters which caused shales to be deposited, was probably due to more active wearing away of the land areas, and the scattering of this muddy water by waves and shore currents. In the region occupied by Green Bay, a soft shale, with an abundance of Pelecypod fossils, was laid down. These are called the Lorraine and Utica Shales, also named after regions in New York, where they are exposed.

Silurian Period

After these shales were deposited, in the following or Silurian Period of the Paleozoic Age, there was deposited a very hard layer of

limestone, known as the Niagara Limestone. These Niagara Limestones are found in the Door Peninsula of Wisconsin. So we see that there was a soft shale formation which was deposited between the hard Trenton rocks of eastern Menominee County and the still harder Niagara Limestone. These soft shales were more easily worn away by the action of weathering or erosion, and so even in the days before the glacier, there was formed a valley where Green Bay now lies. There still remains a valley which runs eastward from the Garden Peninsula, which is across the Bay de Noc from Escanaba, eastward through the center of the eastern half of the Upper Peninsula. (See the regions occupied by these shales on the Geological Map of Michigan.) The great Seney Swamp, largest area of swamp land in Michigan, and the Taquamenon River occupy major portions of this valley.

In the region of the shale deposits which is now occupied by Green Bay, the exposures of this shale were in a line with the direction of the flow of the glacier, and as a result the glacier had an opportunity to hollow it out deeper. As a result, the flow of the glacier completed the deepening of the basin of Green Bay. So we see that we must not assume that the glacier is to be entirely credited with forming Green Bay. Had there been hard rocks deposited in this territory, it should never have been in existence.

During the Silurian Period, during which the rocks at the surface on the Door Peninsula were laid down, primitive fishes were numerous. Forerunners of the true fishes, called the Cyclostomes, relatives of our lampreys and hat-fishes, were in existence. But the great event of the period was the appearance of the first air-breathing animal, a true scorpion. So far as we know now, there were no land animals when even the youngest rocks of Menominee County were laid down. There were also land plants, though they were still frail and scanty. Land plants and land animals were to develop in the three and a half millions of years which were left until we come to modern times.

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The Age of Fishes

After the Silurian, there were left the Devonian, Carboniferous, and Permian periods of the Paleozoic Era. Of course, during neither of these periods was Menominee County under the sea. But to the east of the Door Peninsula, in what is now the bed of Lake Michigan, and the outer rim of the Lower Peninsula, Devonian rocks were laid down. So far as the invertebrates are concerned, there was little change from the preceding period. But there was a remarkable development of backboned animals, particularly the fishes. In the Devonian Age, fishes were so numerous that this is sometimes called the "Age of Fishes." Primitive ancestors of the sharks and lungfish appeared. Amphibians, animals living on both water and land, had come into existence. Even more amazing is the change in the plant world, for by this time no one doubts but that land plants flourished. There were the first forests of fern-like trees.

Great Coal-Making Period

The next, or Carboniferous Period is sometimes divided into two periods called the Mississippian and the Pennsylvanian. The last part of the Carboniferous, or the Pennsylvanian Period was the great coal making period.

During this period much of North America and the rest of the world was covered by warm shallow seas. Great fern-like plants made coal forming forests, which thrived in the warm, moist climate and when they sank into the water were not decayed. Further deposits on top pressed them into coal. One of the most striking things of this period was the vegetation. Our modern lowly horsetail has for its ancestor during this period a mighty plant called the Calamites, which grew to be thirty feet high. Plant life had really begun to flourish on the earth. Another reference to the Geological Time Table will show that this was about three hundred and fifteen millions of years ago. Yet the rocks of the Carboniferous period are the youngest to be found in the State of Michigan. As we have noticed before, they are to be found in the center of the Lower Peninsula.

In the Carboniferous, there was again little change in the invertebrates. But spiders and the first true insects had appeared. Fishes again showed great progress and there were Carboniferous sharks.

Bringing Our Story Down To Date

With the close of this period, the hard rocks which underlie the State of Michigan have all been laid down. But higher types of animals and plants are to live and die on this part of the world which we now call Michigan and in other parts of the world rocks are to be laid down which furnish us with the history of the drama of life from this time some three hundred millions of years ago down to the present. The glaciers, which we have seen have been so influential in shaping the surface conditions of Menominee County and the State of Michigan are still to come. The reader will perhaps want to know of some of the highlights of this great interval of time. So we shall attempt in a few brief paragraphs to give a short outline of the history of three billions of years.

Close of the Paleozoic

There is but one period of the Paleozoic Era remaining. This Permian Period was a period of great change. There was a rising of land to form ancient continents, much mountain formation, and much activity of volcanoes. Mountains were raised across southern and eastern North America. South America and Africa were connected with Gondwana Land, which remained above the sea for many ages. There were glaciers in North America and deserts in North America. Michigan, of course, was a part of this desert land.

Changing conditions caused much change in living things. The coal forests disappeared. Instead, primitive cone-bearing trees, the ancestors of our famous forests of white pine and cedars and spruce appeared. Such plants are called Conifers or Gymnosperms, the latter name indicating the naked seeds to be found in the cones.

With the shrinking seas, the age of fishes was vanishing. On the land, unwieldy, slow, sprawling vertebrates arrived. True reptiles had come into existence. Strange creatures they were, rapidly changing to fit a new world. And so, as it began, the Paleozoic Era ends with ancient life, but with ancient life alive to the future in a world whose shifting features foreshadow marvelous things to come.

The Mesozoic Era

The next, or Mesozoic Era, meaning "middle life," is the middle point in the earth's history, though the longest years lie behind, and only one very strange geological condition lies ahead. It is to the life on the earth to which the Greek words of middle point are applied. With far less change in the continents than in their inhabitants, the Mesozoic era marks life's steady, forward march.

In the Triassic Period, North America was relatively quiet, and largely a desert. Animal and plant life was continuing to follow along the same lines as in the Permian Period. The continued dryness made it impossible for coal-forming kinds of plants to live. Cone-bearing trees continued to develop. Cycads, a plant intermediate between the old tree ferns and the palms increased in numbers. Fishes continued to decline and reptiles became more important. Among the new reptiles, was the first of the dinosaurs, of which we have heard so much. However, they were still quite small. Yet South African reptiles, rather than the first dinosaur, had the chief interest. They do not look like other reptiles of earlier periods. For their fossilized bones prove them to have been the ancestors of the mammals. At last, true mammals had arrived.

The Jurassic Period, we may dispense with briefly. There was little change in the land, and therefore, little change in plants. The Cycads were very prominent. The dinosaurs had made great advances and now dominated the earth. The giant dinosaurs flourished during the period, and began to die out at its close. The most exciting event in the animal kingdom was the arrival of the bird.

The Cretaceous Period was the only one in which North America was cut in two by a sea. Even so, it was more like it is today in general outline than it had ever been. There were great upheavals of land in the west during this period, and the Rocky Mountains and the High Plateau of Utah and Arizona were formed. Dinosaurs completely died out. The bony fish, resembling our fishes of today, began to appear. Flowering plants, in the form of hardwood, or deciduous trees, had arrived. And so with all life showing much more modern forms, the Cretaceous Period finished the Mesozoic Era.

The Cenozoic Era

The Cenozoic is the last of the eras. Within its sixty millions of years, practically all the present forms of animal life came into existence. In its first period, the Eocene Period, the climate was mild, but not uniform. With the exception of the region north of the present Gulf of Mexico, all of North America was above the sea. Mammals were the most important animals in the world. But they were very small creatures, especially at the beginning of the period. Eohippus, one of the most famous Eocene animals, was the size of a small dog. However, he was the first horse; from him have descended all of the horses.

The second period of the last era, the Oligocene, was a rather uneventful time, so far as earth movements were concerned. There was little change in the outline of North America. Most of the Oligocene formations in North America are in the Great Plains region, having been deposited principally in streams and lakes. The climate was mild. The invertebrates and fishes changed little. In fact, except for a few minor details, most of them were as they are today. The marine life was that of the warm seas. Mammals continued to increase in numbers. The horse had become three-toed. Ancestors of the rhinoceroses were present. Rodents and gnawing animals were very prominent and numerous.

In the Miocene Period, small bits of sea encroached upon eastern and western coasts of North America. The Colorado River had begun to prepare its canyon. In Europe the Himalayas arose. The climate was warm, but each succeeding epoch was a little cooler than the last. Such modern plants as poplars, walnuts, hickories, oaks, elms, maples, and magnolias appeared. In this period, also, we find the first redwood, or sequoia trees. Mammals continued to advance and again dominated the earth. There were camels in North America and a large ape, the Dryopithecus, related to the living gorillas appeared on the earth.

The Pliocene Era which followed was one of the great mountain making ages. All of the western part of North America was thrust upward. The Great Plains of the United States went higher into the air. The Sierra Nevadas were also thrust upward and the Rockies were raised. The invertebrates changed little, except that they were becoming more modern. Representatives of all the modern mammals existed. The animal life of this time suggests a change to a cooler climate. Horses, elephants, and camels were the most modern of the mammals. Certain mammals died without having moved toward modern existence. But by far the most interesting event and the most important for the modern world, was the appearance of the mammal whom it pleases us to put at the top of the class. Man had come into the world.

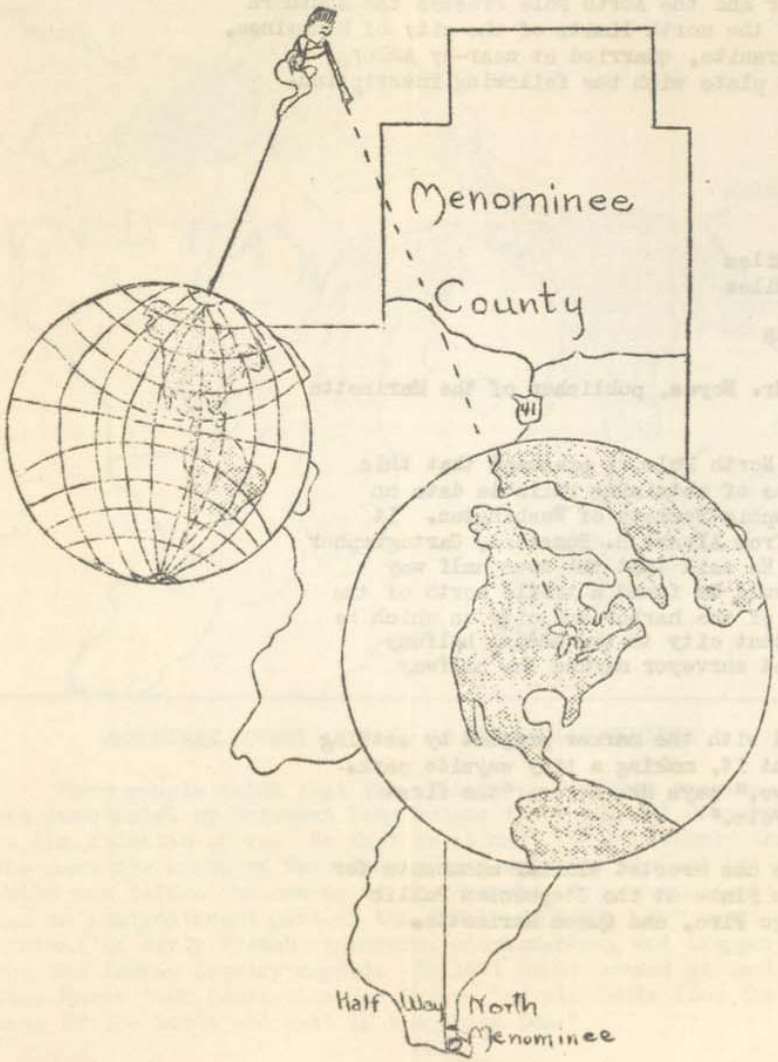
Glaciers in the Pleistocene Period

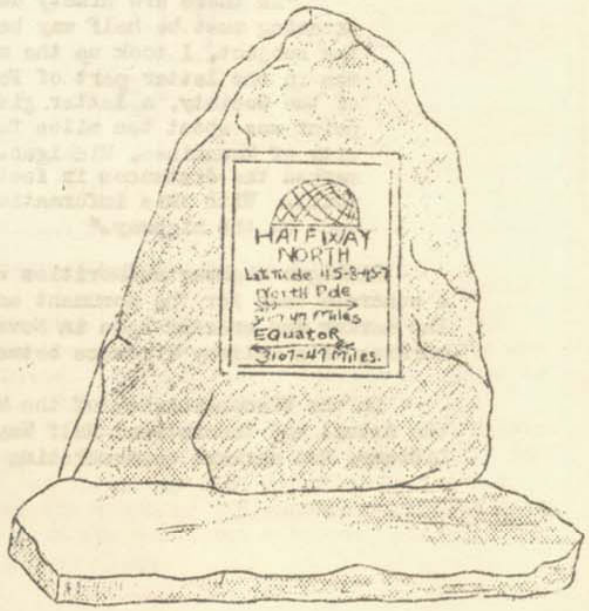
It became colder in the Pleistocene Period. Great glaciers covered the northern half of North America during most of the period. They did not make steady advances but had periods of retreat when the climate became warmer. This is the Great Ice Age of which we have previously spoken. It was this great change in climate which produced the succession of glaciers, the last of which was to leave impressions of the surface of Menominee County which we can see today. Between the beginning of the Pleistocene epoch and the period just before recorded history there could have been but a scant million of years. Of that time, rather less than thirty thousand years has elapsed since the glaciers retreated in North America.

And now we are reaching the end of our story. We are perhaps too near in time to the present age to write about the Recent Period. The glaciers are melting. With the pressure of the ice removed, the land rises higher above the sea. The climate becomes warmer, and the Arctic plants which the glacier caused to flourish in what are now temperate lands are beginning to vanish from these regions. Mammals are still widespread. The larger mammals, such as the mammoth and many of the species of rhinoceroses continue to disappear. Insects are increasing. Some geologists and biologists think that the future historian may call our age the Age of Insects. However, man still controls the earth.

But just a word of caution. These future historians and geologists, if man survives to tell the story, may millions of years hence know that our present age is not a new period in geologic history. Perhaps we are only in a present temporary warm period. Perhaps we are in an interglacial period. We who read shall never definitely know.

Menominee County and Its Changing Map





An imaginary line around the earth midway between the Equator and the North Pole crosses the southern end of Menominee county. Beside US-41, exactly 710 feet north of the north limits of the city of Menominee, at a point on the Half Way North line stands a marker of native granite, quarried at near-by Amberg, Wisconsin. This marker is over five feet high and bears a bronze plate with the following inscription.

H A L F W A Y
N O R T H

LATITUDE 45 8' 45.7"

North Pole ⟶ 3107.47 Miles
Equator ⟵ 3107.47 Miles

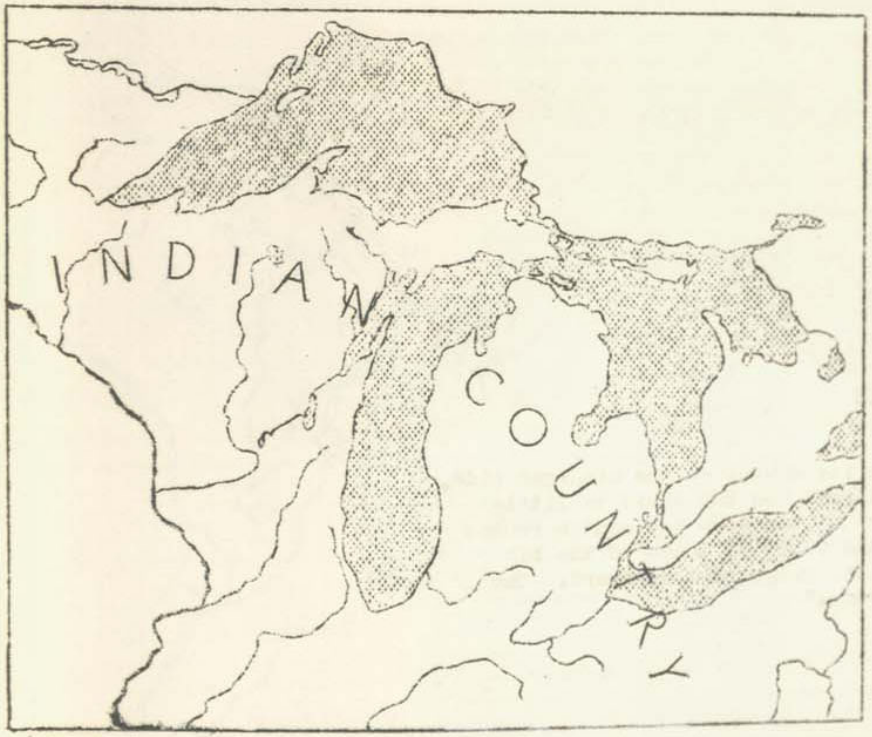
Erected by Frank E. Noyes, 1938

Of the location of the monument on the Half Way North line Mr. Noyes, publisher of the Marinette Eagle-Star, has written the following statement.

> "As there are ninety degrees from the Equator to the North Pole, I presumed that this crossing must be half way between the two . . . Desirous of obtaining reliable data on the subject, I took up the matter with the National Geographic Society of Washington. It was in the latter part of February, 1938 that I received from Albert H. Bumstead, Cartographer of the Society, a letter giving me definite information. He said that the true half way point was about ten miles further north and on US-41 it would be found a trifle north of the city of Menominee, Michigan. He sent me a government map of the harbor and city on which he marked the distances in feet from some of the streets of that city to the actual halfway point. With this information before me . . . a competent surveyor marked the halfway spot on the highway."

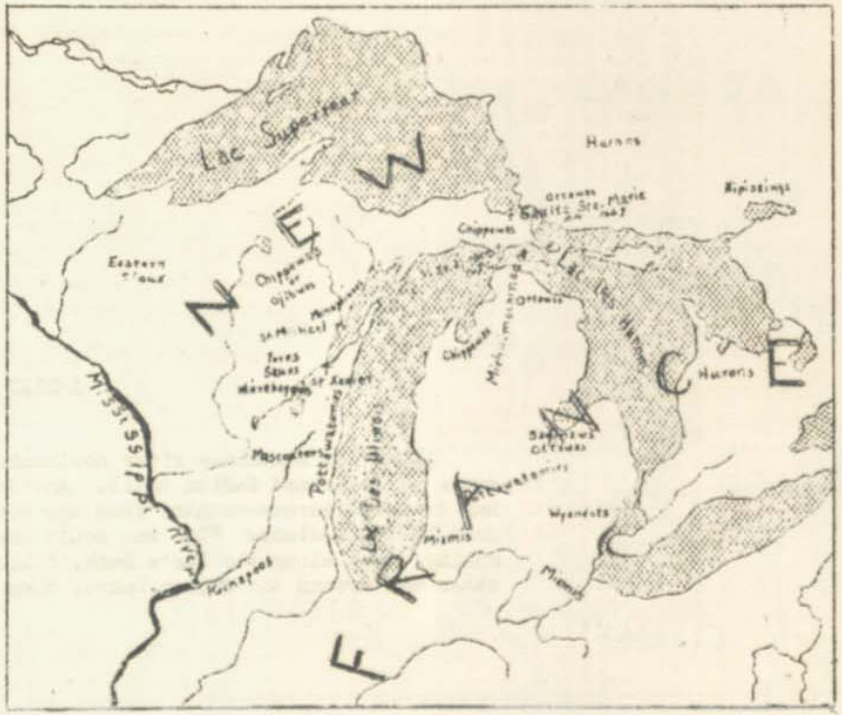
Michigan highway authorities were interested and co-operated with the marker project by setting a concrete base for the monument and landscaping the grounds about it, making a tiny wayside park. The marker was erected late in November, 1938. "It was, I believe," says Mr. Noyes, "the first marking of a halfway distance between the Equator and the North Pole."

On the Wisconsin side of the Menominee river, Frank E. Noyes has erected similar monuments for the actual and theoretical Half Way North lines, also, a Meridian Plate at the Stephenson Public Library, and markers commemorating the First Sawmill, the Peshtigo Fire, and Queen Marinette.



MENOMINEE COUNTY AS PART OF THE INDIAN COUNTRY

Some people think that the wilderness of North America was penetrated by Norsemen long before the voyage of Columbus to the Atlantic shore. Be that as it may, it is unlikely that the part now known as Menominee County was ever visited by white men before the coming of the French. For centuries it was an insignificant part of the INDIAN COUNTRY. Not until the arrival of early French explorers, missionaries, and trappers was the Indian Country mapped. In 1671 Saint Lusson at Sault Ste. Marie took possession for France "of all lands from the seas of the north and west to the South Sea."

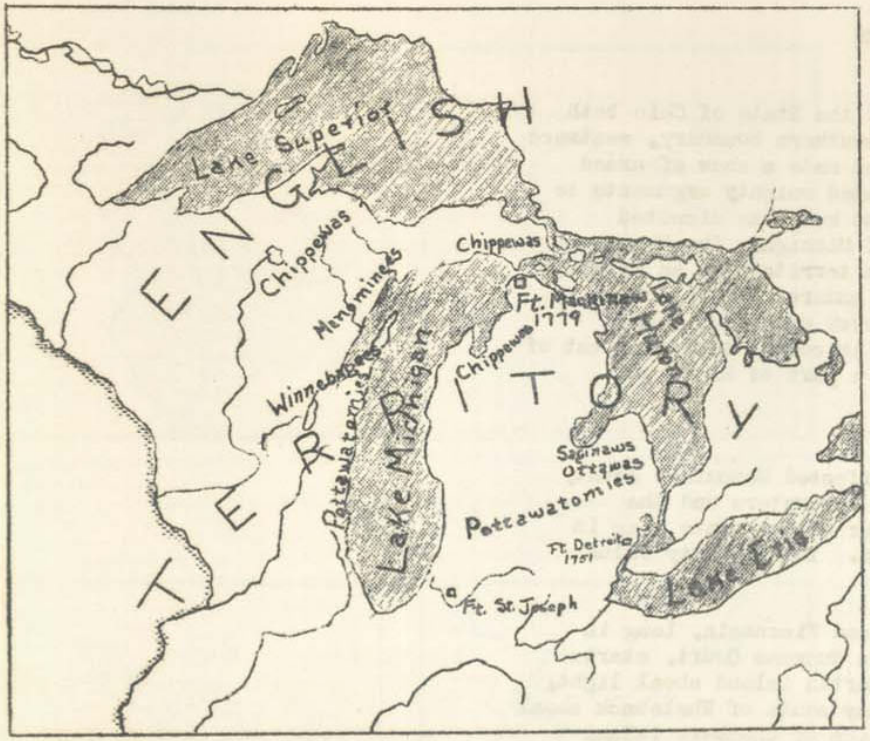


MENOMINEE COUNTY UNDER THE FRENCH FLAG

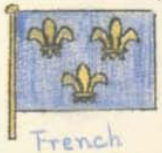
Jean Nicolet, who came in 1634, was probably the first Frenchman to skirt the Green Bay shore of Menominee County and enter the Menominee River. In 1640 Father LeJeune preached to the Menominee Indians. Father Claude Allouez visited the Menominees in 1669 and in the spring of 1670 opened the Mission of St. Michael on Mission Point on the Marinette side. In 1673 Marquette and Joliet, on their way from Mackinac to the Fox River Portage, visited the mouth of the Menominee River. Until 1763, the wilderness with its scattered missions, posts, and forts was under the French flag.

INDIAN TRAILS

Along the Menominee river northward from its mouth, on the Michigan side, ran a well-defined Indian trail. Another followed the bay shore to Little Bay de Noc. Across country from the river to the bay were two common routes used by the Indians. "One was south around the Chain o' Lakes to the big spring, then along the Hog's Back, following the ridge northeastward. The other was around the Shakey Lakes, then eastward."



MENOMINEE COUNTY UNDER THE ENGLISH FLAG



Far away from the land of the Menominees, the French and the English in America, both aided by Indian allies, waged the fierce French and Indian War for control of the Great Lakes region and the Ohio valley. The English won; and in 1763 what is now Menominee County, along with the rest of the territory, came under the English flag.

MENOMINEE COUNTY UNDER THE STAR-SPANGLED BANNER

In 1783 at the close of the Revolution, the western lands passed to the new nation, the United States of America. Menominee County land, along with the rest, came under the stars and stripes and was part of the Northwest Territory organized in 1787. After many territorial changes as shown on a later page, the states indicated above were finally made.

BOUNDARY DISPUTES

In 1835 the Territory of Michigan and the State of Ohio both claimed a strip of land along Michigan's southern boundary, westward from Toledo. The governments on both sides made a show of armed force, but no blood was shed. Both presented weighty arguments to Congress. In the end Ohio was permitted to keep the disputed ground; but to appease the irate people of Michigan, the Upper Peninsula was added to the former Michigan territory as an integral part of the new state of Michigan when it entered the Union January 26, 1837. Except for the controversy over Michigan's southern boundary, Menominee county lands in common with the rest of the upper peninsula might never have been a part of Michigan.

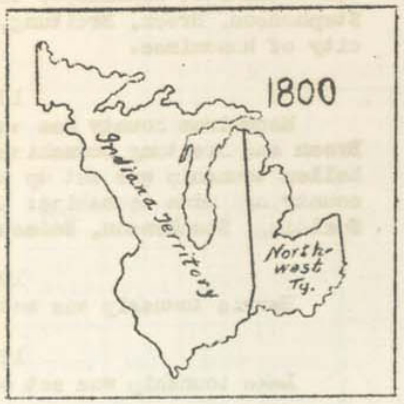
- - -

Other boundary disputes which have affected Menominee county are those regarding the division of Green Bay waters and the islands in the Menominee river. The matter of the state line in Green Bay is of keen interest to fishermen. The property value of the river islands is considerable.

"The boundary line between Michigan and Wisconsin, long in dispute and now fixed by the United States Supreme Court, starts from the middle of Lake Michigan to St. Martin Island shoal light, thence west to the center line of Green bay south of Whaleback shoal light, southerly to the approximate location of Chambers island light, to a third buoy in the center line of Green bay and thence westerly to the center of the harbor entrance of Menominee."
Menominee Herald-Leader 5/11/36

Disputes over island ownership ended when the Supreme Court ruled that Wisconsin should have all islands below Quinnesec Falls with the exception of Sugar island in the city of Menominee.


NORTHWEST
TERRITORY
1787


1800
Indiana Territory
North-
west
Ty.


1805
Indiana Territory
Michigan
Ty.
State
of
OHIO


1809
Illinois
Territory
Michigan
Ty.
Indiana
Ty.
State
of
OHIO


1816
Illinois Territory
Michigan
Ty.
State
of
INDIANA
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of
OHIO


1818
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1837
Wisconsin Territory
State
of
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OHIO


1848
Minnesota
Ty.
State
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WISCONSIN
State
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MICHIGAN
State
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ILLINOIS
State
of
INDIANA
State
of
OHIO

TOWNSHIPS IN MENOMINEE COUNTY

1863

By act of the state legislature Menominee county was organized, embracing all of its present land and some that has since been set off into Iron and Dickinson counties. It was divided lengthwise into Menominee and Cedarville townships.

1867

Provision was made for Ingallston township, but a township government there was not set up until 1873.

1873

The county had three townships: Menominee, Cedarville, and Ingallston.

1877

Five new townships were planned, but one of them, Holmes, did not set up a township government until ten years later when in 1887-88 the people proceeded to perfect the organization. The county had seven townships: Menominee, Cedarville, Ingallston, Spalding, Stephenson, Breen, and Breitung.

1881

Nadeau township was set off. The county had eight townships: Menominee, Cedarville, Ingallston, Spalding, Stephenson, Breen, Breitung, and Nadeau.

1883

The city of Menominee received its charter and was set off from Menominee township, thereafter having its own government.

1885

The extreme northwestern part of Menominee county was set off with Iron county.

1890

Meyer township was organized, including 39-28 which the following year was set off with Breen township. The county had ten townships: Menominee, Cedarville, Ingallston, Spalding, Stephenson, Breen, Breitung, Nadeau, Holmes, Meyer; also, the city of Menominee.

1891

Menominee county was pared down to its present size. Breen and Breitung townships became part of Dickinson county. Mellen township was set up and Stephenson enlarged. The county had nine townships: Menominee, Cedarville, Ingallston, Spalding, Stephenson, Nadeau, Holmes, Meyer, and Mellen.

1902

Harris township was set off from Spalding.

1910

Lake township was set off from Stephenson.

1919

Faithorn township was set off from Holmes.

1920

Daggett township was set off from Stephenson; and late in 1920 Gourley township was set off from Cedarville.

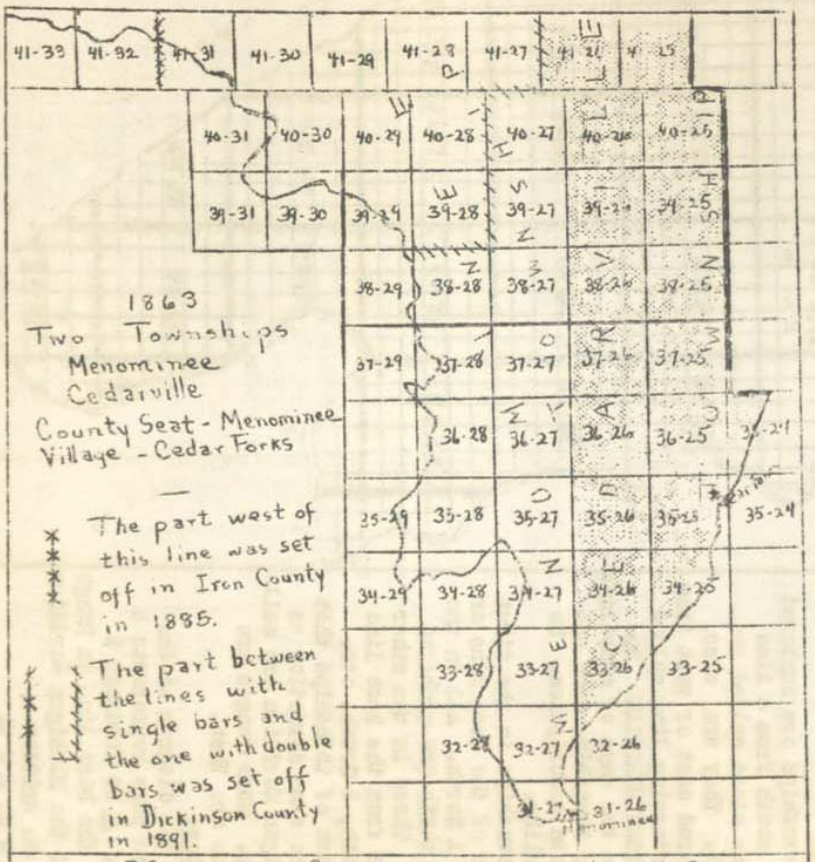
1940

Townships and their respective populations are as follows:

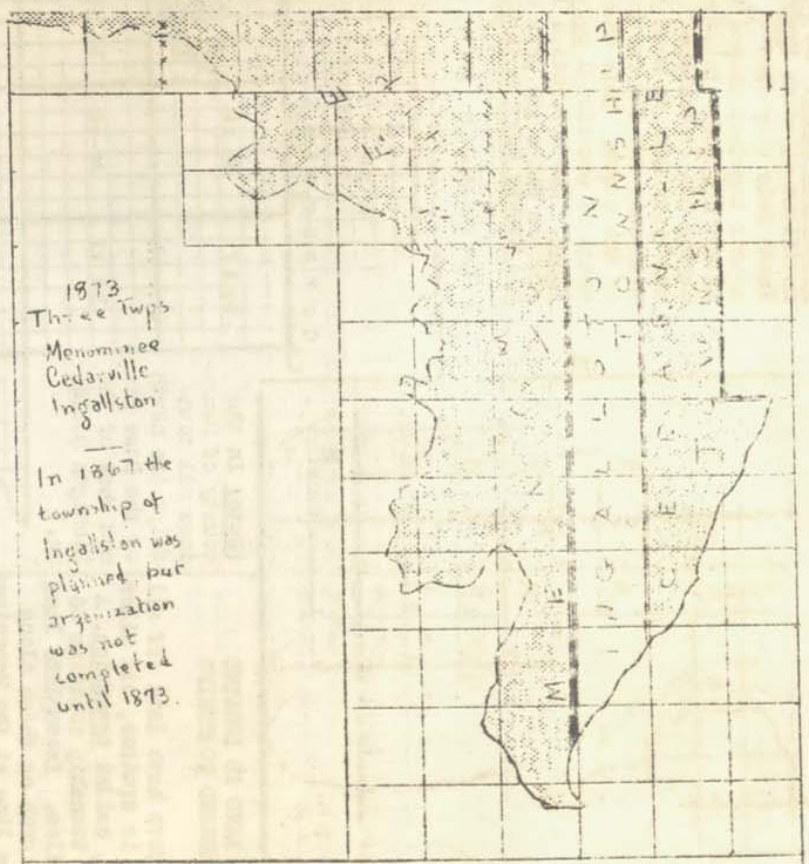
Cedarville	338	Holmes	627	Meyer	1,536
Daggett	923	Ingallston	948	Nadeau	1,680
Faithorn	339	Lake	738	Spalding	1,555
Gourley	336	Mellen	865	Stephenson	1,543
Harris	1,465	Menominee	1,760		14,653
		City of Menominee			10,230
		Total for Menominee Co.			24,883

CENSUS FIGURES (Menominee Co.)

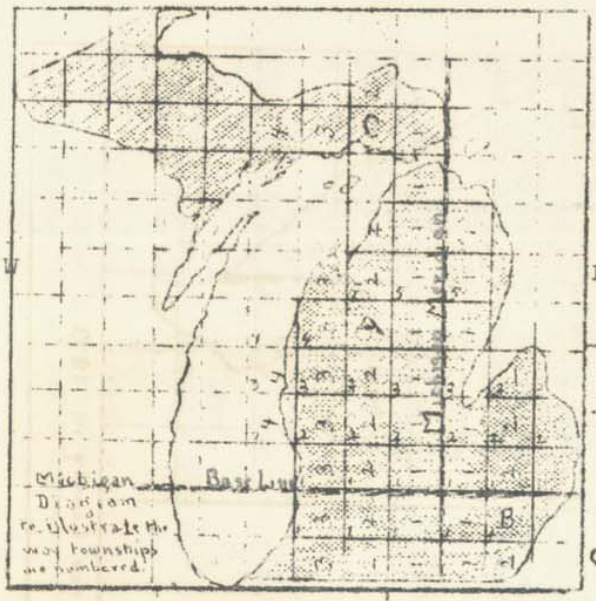
1864	496	1890	33,639	1920	23,778
1870	1,791	1900	27,046	1930	23,652
1880	11,987	1910	25,648	1940	24,883



Menominee County as Organized in 1863
(Menominee means "wild rice", named for Menominee Indians)



Menominee County in 1873



HOW LAND IS LOCATED BY NUMBERED TOWNSHIPS

Surveyors have laid off all Michigan in squares, six miles each way, called townships. A complete township contains 36 square miles. Incomplete land squares, such as those along the state line at the Menominee River, are called fractional townships.

All townships are numbered north or south from a line across the state called the BASE LINE. They are, also, all numbered east or west from another starting line called the MICHIGAN MERIDIAN. By using the two ways of numbering for every township, each one has its own description. No two are alike.

All townships in the first row north of the base line are numbered 1 North. All in the next row north are numbered 2 North. Those in the other direction from the base line are 1 South, 2 South, etc.

The rows of townships that run in the same direction as the Michigan Meridian are called ranges. Some ranges are East, some are West.

Examples:

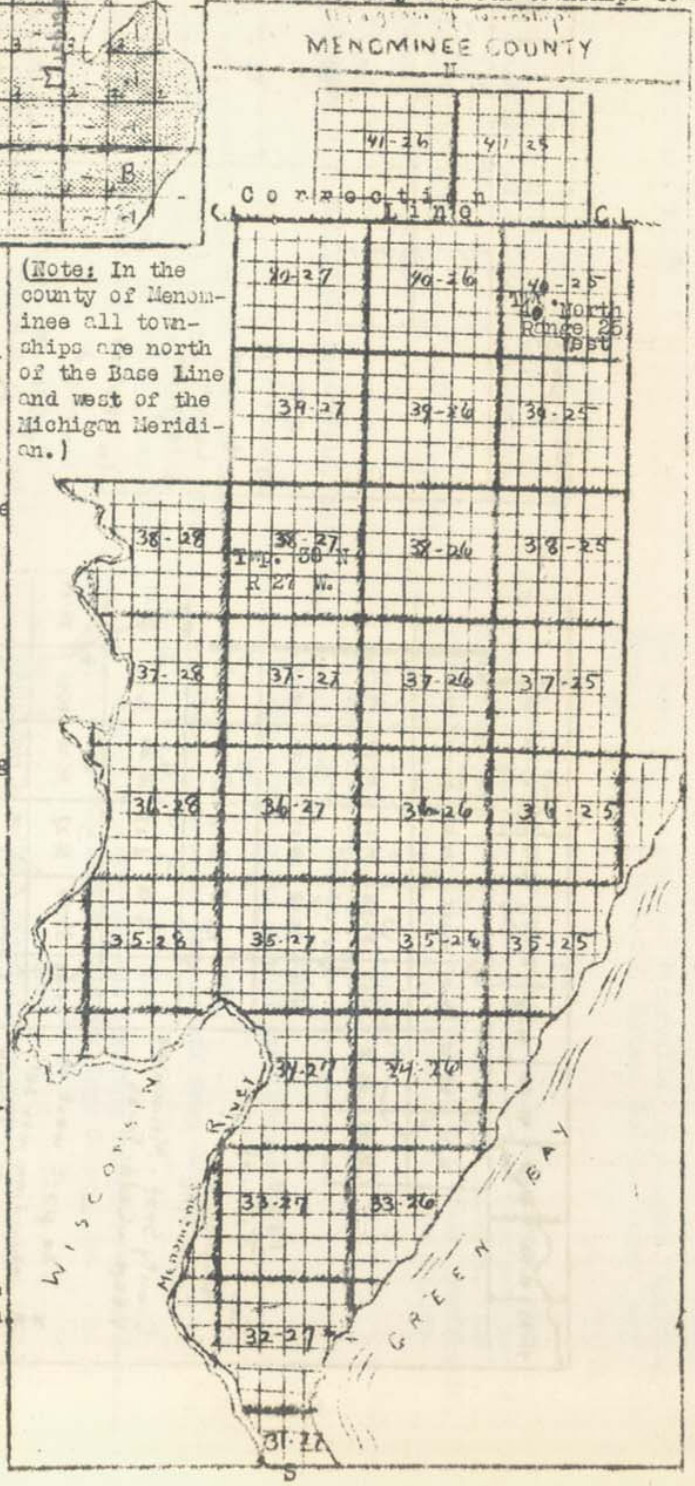
A in the diagram at the top of the page represents a township. A is Township 4 North of the base line in Range 2 West of the Michigan Meridian. This may be written --

Twp. 4 N, R 2 W.

B is Twp. 1 S, R 2 E.
C is T 3 N, R 2 W.

Correction Lines. As meridians approach the North Pole they are nearer together than at the Equator. In laying out townships surveyors have to make allowance for the curving surface of the earth. This they do by means of occasional correction lines. One correction line crosses the north part of Menominee County between townships 40-41.

(Note: In the county of Menominee all townships are north of the Base Line and west of the Michigan Meridian.)



HOW LAND IS LOCATED IN NUMBERED SECTIONS OF NUMBERED TOWNSHIPS

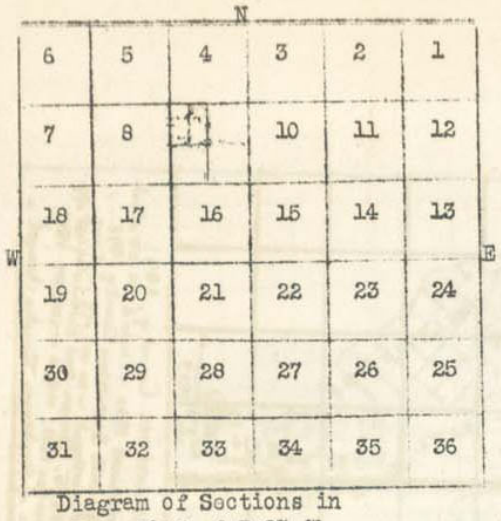


Diagram of Sections in Twp. 38 N of R 27 W.

In the diagrams on the preceding page, the method of numbering townships in Michigan is shown. The diagram at the left of this column represents one township drawn on an enlarged scale to show the 36 smaller squares, or sections, into which it is divided. A section has an area of one square mile. Each side is a mile long, so the distance around a section is four miles. There are 640 acres of land in one section.

The sections in a township are always numbered in the same manner, beginning at the northeast corner, as shown in the diagram representing the township described as Twp. 38 North, Range 27 West.

Fractional townships with some irregular boundaries will have some fractional sections.

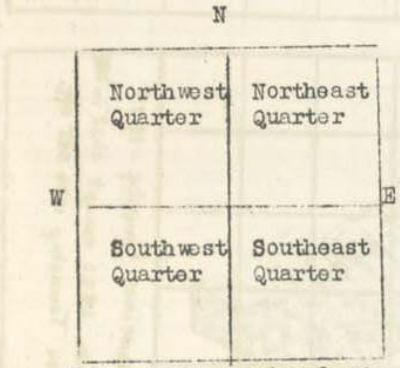


Diagram of Section 9 of Twp. 38 N of R 27 W.

A section may be thought of as having four quarter-sections, laid out as in the diagram of Sec. 9 at the left. Since a whole section contains 640 acres a quarter-section has 160 acres. If Mr. G owned the northwest quarter (or one-fourth) his land would be described thus: NW¼ of Sec. 9 of Twp. 38N of R27 W of the County of Menominee and State of Michigan.

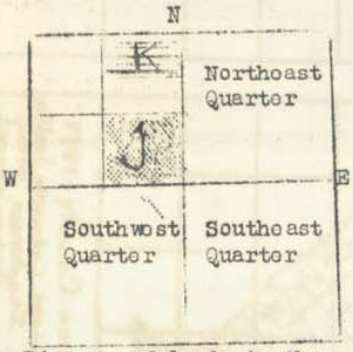


Diagram of lands in the Northwest Quarter of Sec. 9.

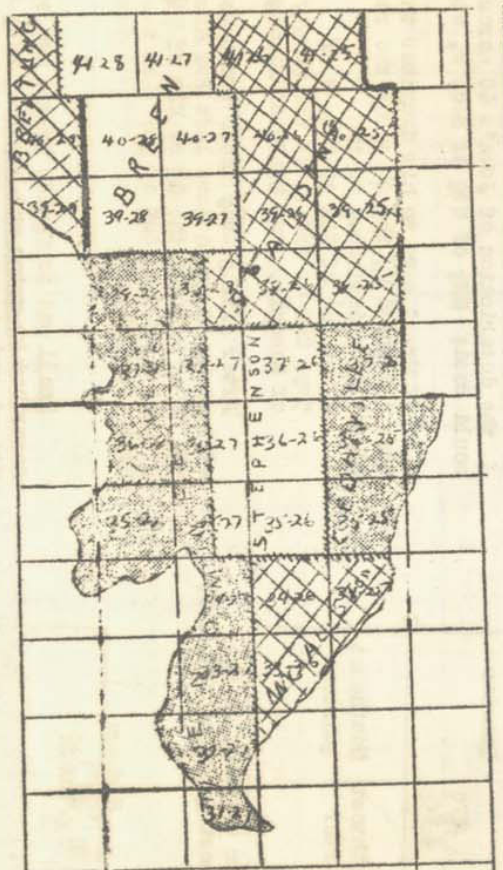
For describing smaller parcels of land each quarter-section is often marked off into quarters. Thus there may be a quarter of a quarter. The description begins with the smallest unit. If Mr. G who owned the Northwest Quarter of Sec. 9 gave to his son John the land initialed J, the description of John's 40 acres would read: SE¼ of NW¼ of Sec. 9, etc.

If Mr. G gave to his daughter the part initialed K, the 20 acres she received would be described as the N½ of NE¼ of NW¼ of Sec. 9 of Twp. 38N of R27 W, of the County of Monominee and State of Michigan.

After giving away these two parcels of land Mr. G would have left for himself the W½ of NW¼ and the S½ of NE¼ of NW¼ of Sec. 9 of Twp. 38N of R27 W in the State of Michigan.

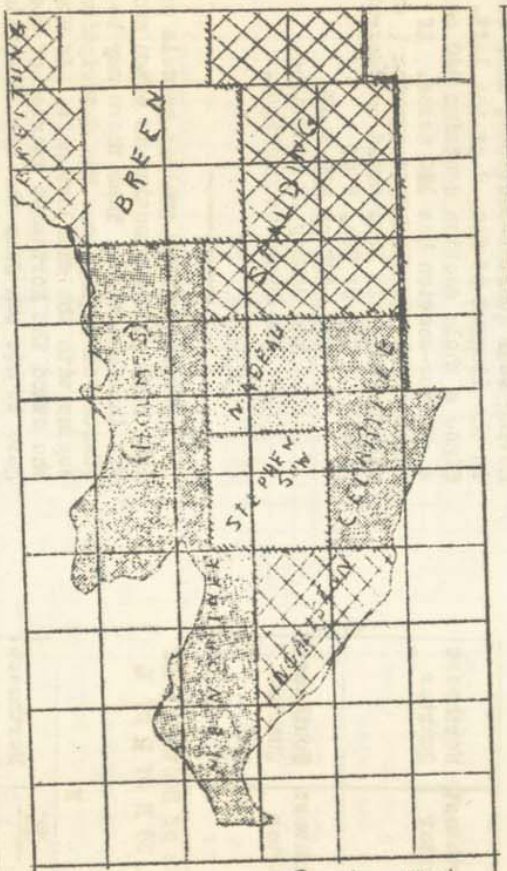
Diagram
M represents an irregular tract.

Small and irregular tracts are often described by metes and bounds, with the use of such terms as, river, highway, rods, and feet. Lots in villages are often described with reference to a registered plat.



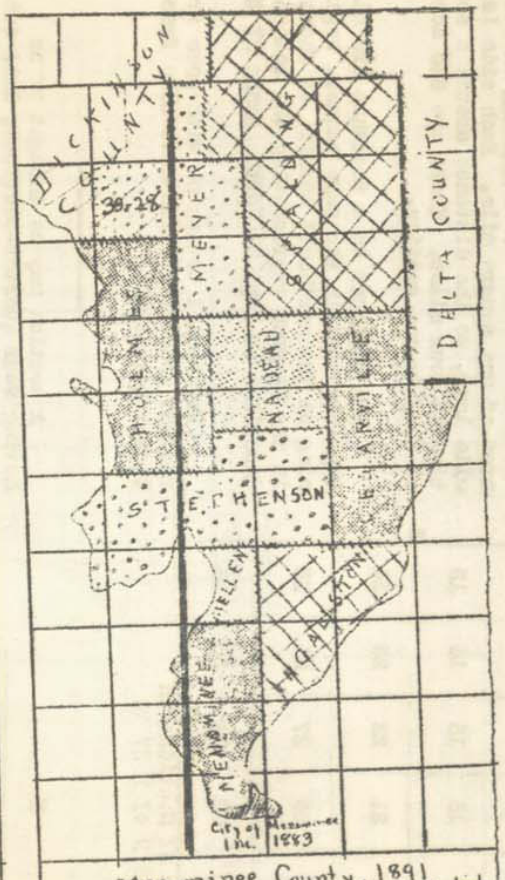
Menominee County - 1877

Townships: Menominee, Cedarville, Spalding, Ingallston, Stephenson, Breen, and Breitung. (Holmes planned but not completed as to organization until ten years later.)



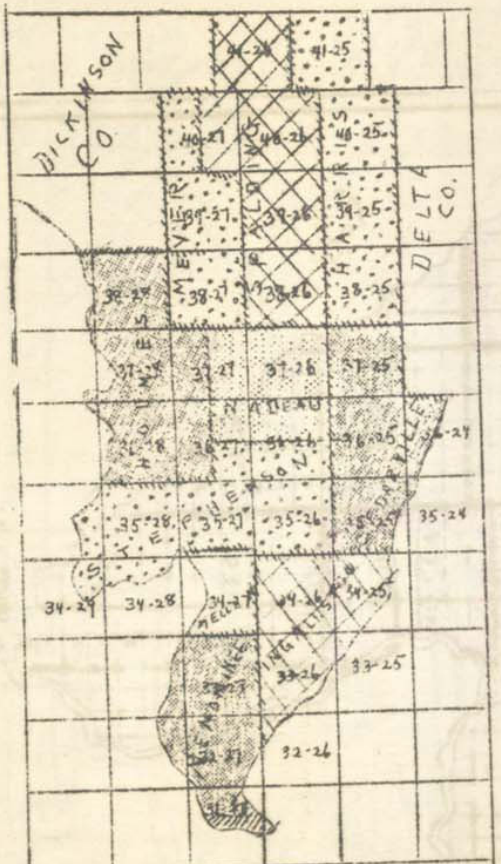
Menominee County - 1881

Same as 1877 except that in 1891 Nadeau Township was set off.



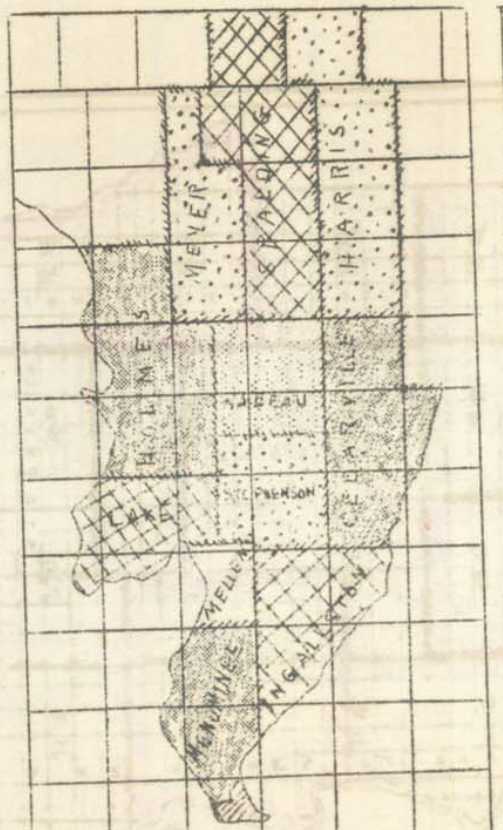
Menominee County, 1891

Mayer organized 1890, included 39-28 which was set off with Dickinson County 1891. The extreme northwest was set off in Iron County in 1885. Breen and Breitung set off with Dickinson 1891. Mellen organized 1891. Boundaries of Stephenson Township changed -



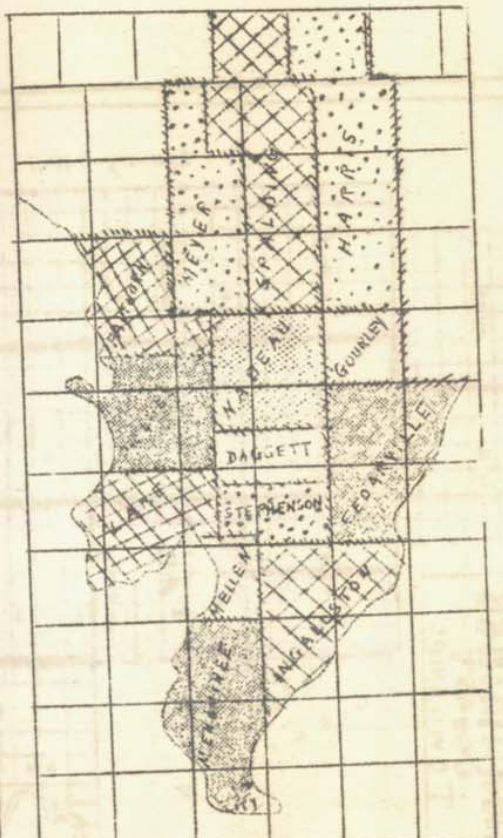
Menominee County - 1902

Harris Township was set off from Spalding 12/19/02.



Menominee County - 1910

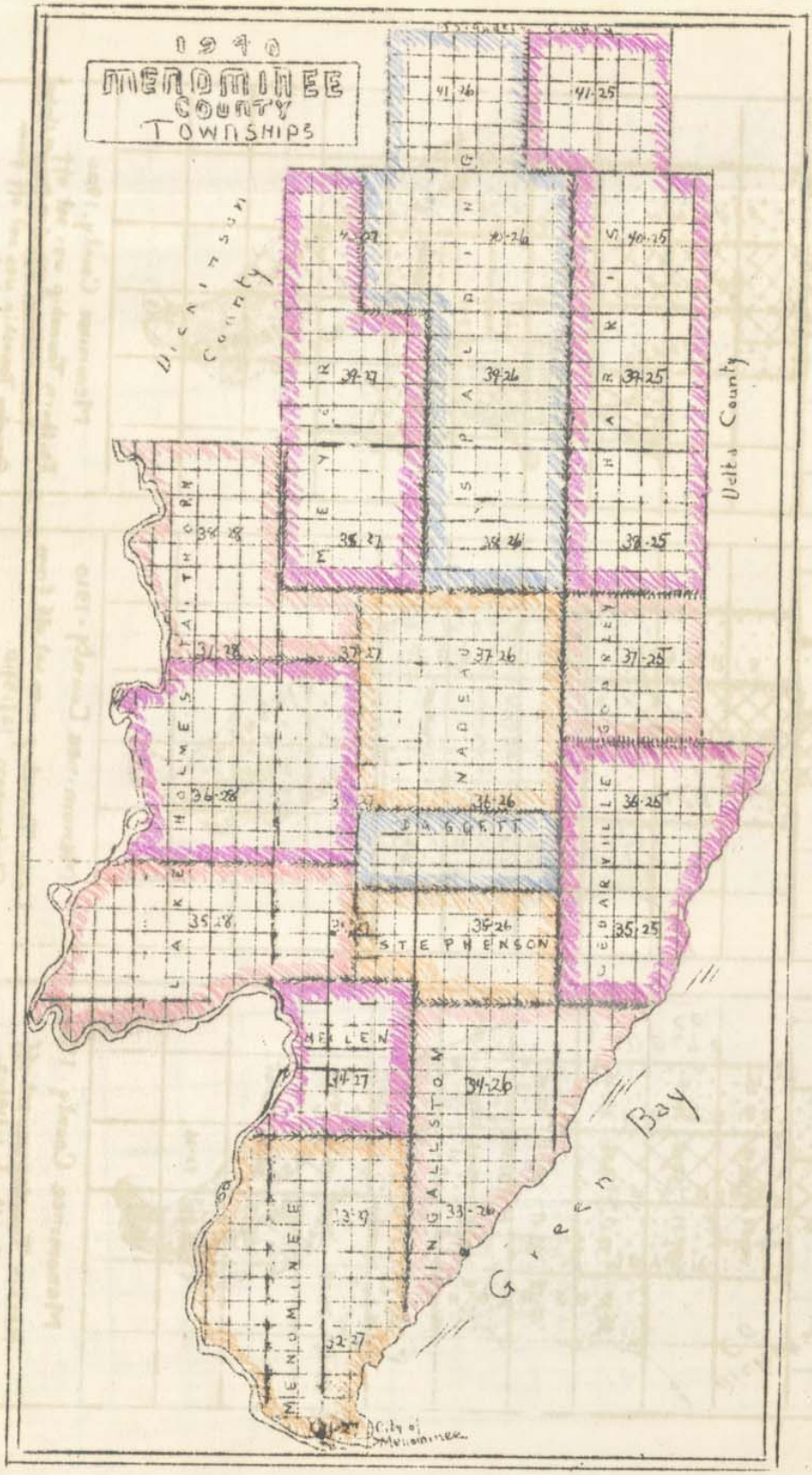
Lake Township was set off from Stephenson 12/15/10.



Menominee County, 1920

Faithorn Township was set off from Holmes 8/21/19; Daggett 4/17/20

Gourley Township was set off from Cedarville 12/17/20


1940
MENOMINEE
COUNTY
TOWNSHIPS
Dickinson County
Delta County
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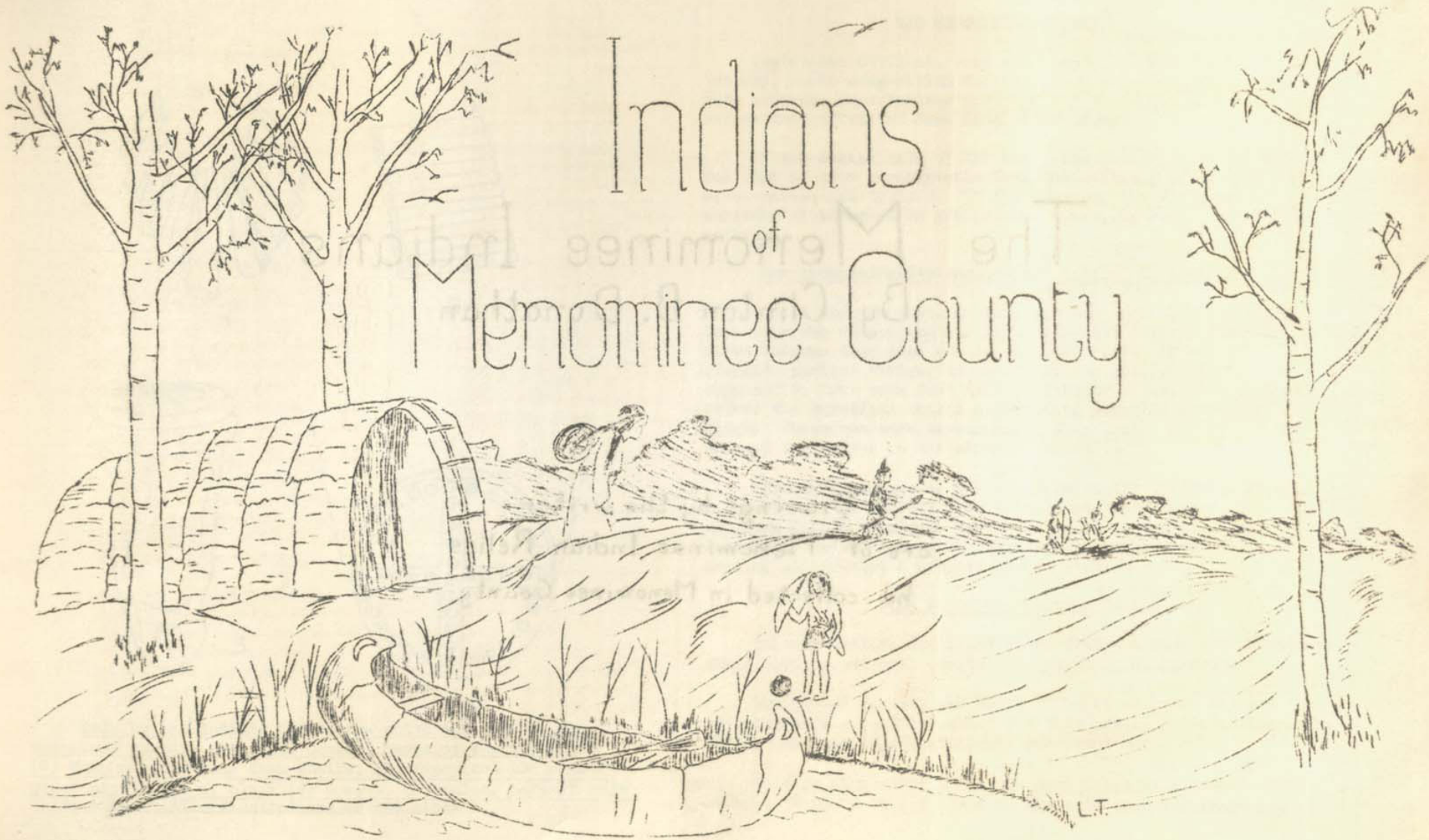
33-26
32-27
TAINTER
LIMES
LAKE
BAGLEY
STEPHENSON
CLIFFORD
MENEKAUNEE
MELLEN
GALLISTON
MENOMINEE
City of Menominee
Green Bay

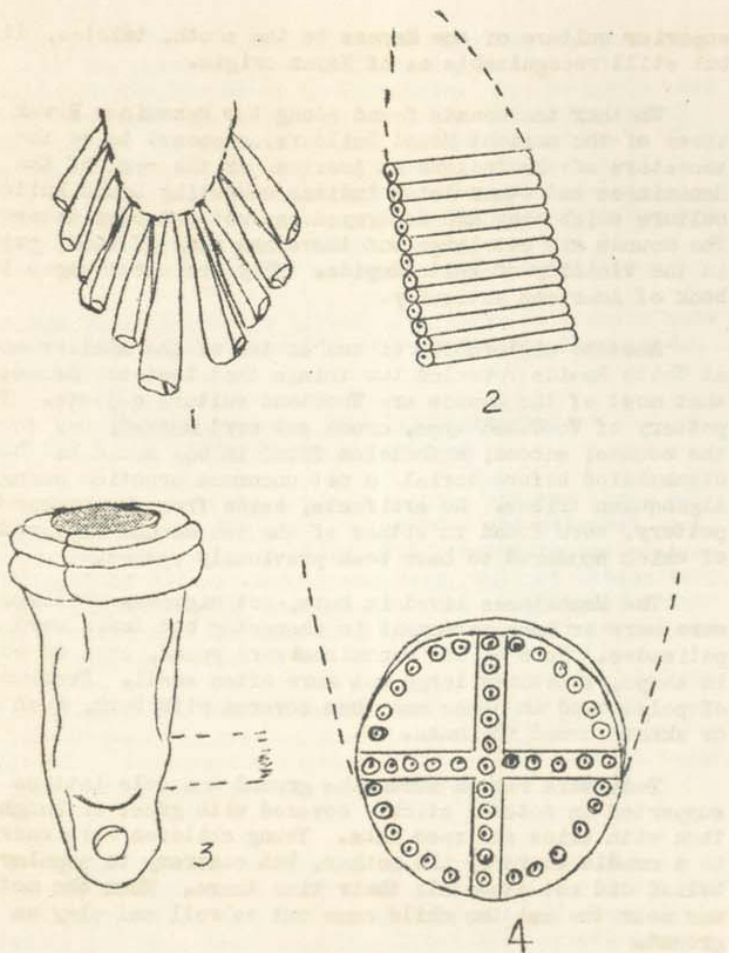
Indians of Menominee County



The Menominee Indians

By Clinton B. Dunathan

Drawings by the writer
are of Menominee Indian Relics
he collected in Menominee County



Made by the Indians before the white men came to the Menominee country were: (1) Conical beads of sheet copper; (2) Wampum beads made from shells; (3) Pipe (not the ornate peace pipe) made of clay; (4) Gorget, or amulet, made of soft white stone. All illustrations actual size.

THE MENOMINEE INDIANS

Implements of flint, bone and copper, broken pieces of pottery, their composition defying the passing centuries, are mute evidence that Indians occupied the Menominee area long before the arrival of Jean Nicolet in 1634.

Of the social life of the Menominee Indians when the white men came we know considerable from the writings of pioneer missionaries and traders. Of the changes, the fluctuating currents of invasion in prehistoric times, we know practically nothing.

How Archaeologists Account for Indians in America

Out of the dim past, so long ago the Indians themselves have no myths concerning it, archaeologists believe that the first Indians came down out of the Northwest. By way of Alaska's partial bridge, ancestors of the American Indian are supposed to have come from Asia to conquer a continent centuries before the Egyptians toiled at building pyramids for their kings. These men were barbarians. They hunted and fished and dressed themselves in the skins of animals.

Through thousands of years, occasionally disturbed by a new influx of barbarians from Asia, these ancestors of the American Indian developed distinct racial characteristics, learned the advantages of agriculture to supplement their hunting and created a complex social life.

The Menominee Culture Center

Culture centers developed where fish and game were abundant, where climate and soil invited the planting of gardens.

The ground beneath the City of Menominee bears witness that this was once a culture center for this area. Pottery fragments, flint, bone and copper artifacts are found here.

Golfers find arrow points in sand traps at Riverside golf course. Workers on a project at Riverside uncover fragments

of cooking pots. Workmen excavating for dwellings carelessly toss out crumbled bones - all evidence of early Indian occupation.

The Menominees Were Woodland Indians

The several tribes of the American Indian present varying forms of culture - some being quite similar, while others show all degrees of variation. Anthropologists recognize nine culture groups, classified according to customs and habits.

The Menominees belonged to the Algonquian group in the Eastern Woodland area - a broad belt extending from the Great Lakes to the Atlantic Ocean. The Woodland tribes had pottery, practiced agriculture, and had complex social, political and ceremonial organizations with general similarities in costume, folklore, and certain religious concepts and art.

In the Central Algonquian group were the Menominee, Ojibway, Pottawatomi, Sauk, Fox, Ottawa, Kickapoo, and other tribes characterized by intense clan organization, highly developed religious concepts and ceremonies.

The Menominees and other tribes in this group had as their most distinctive religious concept the Midewiwin (Grand Medicine Society), a semi-secret ritualistic order with four degrees, the purpose of which seems to have been the preparation of the spirit for its entrance into "the life after death", as well as its more practical aspect - the treatment of injuries and disease.

More than elsewhere in the Woodland area, the Menominees and other tribes in the group mentioned made use of wild rice as a food - a grain of great economic importance along the southern border of the Great Lakes and down the St. Lawrence.

Mounds Along the Menominee River

The ancestors of the Menominees touched the fringe of a trailing cloak of civilization - the ancient Mound Builders. The culture of the Mound Builders was acquired from the superior culture of the Mayans to the south, twisted, distorted, but still recognizable as of Mayan origin.

Whether the mounds found along the Menominee River are those of the ancient Mound Builders, supposed to be the ancestors of the Indians in America, or the work of the Menominees and other later Indians emulating Mound Builder culture which they had destroyed has not yet been determined. The mounds are not large but there are many of them, principally in the vicinity of White Rapids. They are uncut pages in the book of American antiquity.

Amateur exploration of one or two of the smaller mounds at White Rapids revealed two things that lead to the assumption that most of the mounds are Woodland culture objects. First, pottery of Woodland type, crude and cord marked, was found in the mounds; second, a skeleton found in one mound had been dismembered before burial, a not uncommon practice among Algonquian tribes. No artifacts, aside from the broken pottery, were found in either of the two mounds explored, one of which appeared to have been previously opened.

The Menominees lived in huts, not wigwams. Villages were more or less permanent in character but there were no palisades. Huts of the Menominees were round, oval or oblong in shape, sometimes large but more often small. Framework of poles tied in place and then covered with bark, rush mats or skins formed the huts.

Beds were raised above the ground - a pole lattice supported on notched sticks, covered with grass or boughs, then with skins and reed mats. Young children were carried in a cradle board by the mother, but contrary to popular belief did not spend all their time there. When the mother was near the hut the child came out to roll and play on the ground.

Menominee men were not great warriors, in fact they were more sedentary than the men of some Woodland tribes. They helped with the rice harvesting, took part in the maple sugar making, fished, hunted and only occasionally went to war.

Geographically, the Menominees occupied an area that extended from the northern part of Green Bay south to the Winnebagoes on the Fox River in Wisconsin. To the north were the Chippewas (Ojibways) and a minor tribe the early French explorers called the Noquets, pushed by the Menominees to the extreme north end of Green Bay. All of the tribes lived peaceably together for the most part - and had a common enemy in the Iroquois, a tribe occupying lands now in Pennsylvania and New York, but at times extending a sphere of influence north to Hudson Bay and west to the Mississippi.

In the whole Menominee tribal area there were never more than 4000 Indians. Early explorers reported the Menominees as not being numerous.

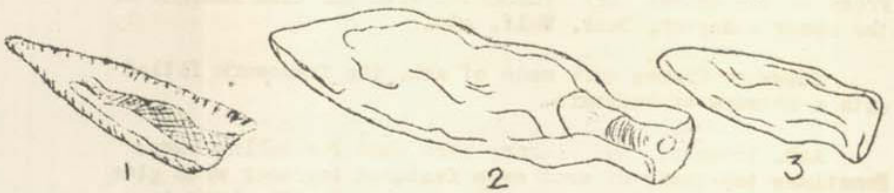
Weapons, Canoes, and Other Articles Made by the Menominees

Weapons were bows and arrows, spears, and two kinds of bludgeons, one a rock fastened in rawhide and attached to a club, and the other a heavy short club similar to the policeman's "billy" of today. Copper was used, but not extensively, for arrow points, knives, and spears. The chipping of flint for arrow points and the work with copper was left largely to men skilled in that line.

Use of wood and bone in making articles for hunting, war, and household use was greater than is generally believed. Such articles disintegrate rapidly with age and few are found, while flint and copper artifacts withstood the passing centuries.

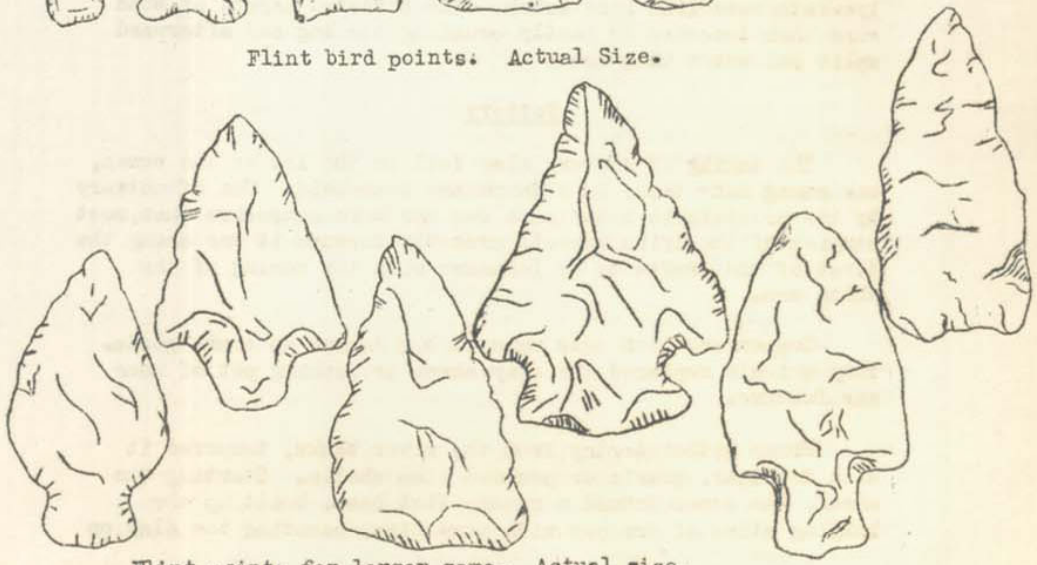
Likewise, contrary to popular opinion, the Menominees had more dugout canoes, made from the fire-hollowed trunks of butternut trees, than they had birch bark canoes. Dugouts were easier to make, less fragile. Birch bark canoes were valuable in travel, were treasured for scalp hunting expeditions and the use of hunting parties who had to go long distances.

To make birch bark canoes the pliable bark was stitched to a cedar framework and the seams coated with pine pitch.



Flint, and more rarely copper and bone, were used for making arrow points. Pictured above, actual size, are: (1) Conical copper arrow point; (2) Copper knife; (3) Flat copper point.

Flint bird points. Actual Size.



Flint points for larger game. Actual size.

Prows of the canoes were ornamented with the clan insigne of the owner - Beaver, Bear, Wolf, etc.

Snowshoe frames were made of ash, the framework filled with a network of buckskin.

Ash, ironwood, and hickory were used for making bows. Sometimes two kinds of wood were fastened together with glue made of deer hoofs. The same glue was used with sinew to fasten arrow points to the shaft.

Both arrow shafts and bows were ornamented and painted. Quivers were made of tanned buckskin, ornamented with copper or shell beads or colored porcupine quills; and sometimes the tough skins of deer and bear, with the hair on formed the quivers.

Menominee women were expert at making mats of rushes and basswood splints or bark fiber. The mats were tough and strong, often brightly colored. Basswood was steeped in a lye-bath made from wood ashes. The softened layers of wood were then loosened by gently pounding the log and afterward split and woven into mats.

Pottery

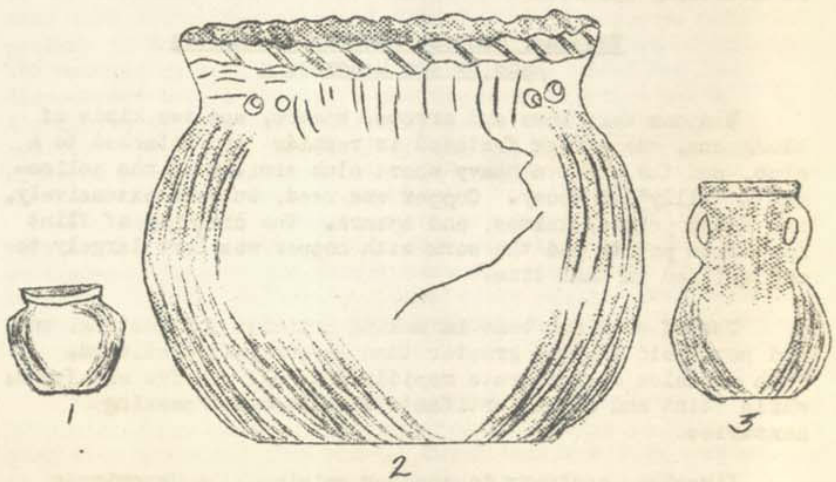
The making of pottery also fell to the lot of the women, one among many tasks in a Menominee household. Use of pottery by the prehistoric Menominees was far more extensive than most studies of the tribe reveal, probably because it was among the first of the crafts to be forsaken with the coming of the white men.

Copper and iron pots were in big demand as trade goods. They quickly replaced the clay akeek or cooking pot of home manufacture.

Women gathered clay from the river banks, tempered it with feldspar, quartz or pounded clam shells. Starting the akeek, the women formed a round, flat base, built up the bulging sides of the pot with more clay, pounding the clay on the outside with a wooden paddle wrapped with cedar bark fiber, while a rounded stone was held on the inside.

Akeeks were large, 12 to 18 inches through the "belly". The potter's wheel was unknown.

Rims of the pots were slightly narrowed and the outside was often decorated in conventional designs by scraping and punching the clay while it was wet. Holes were punched through the pot an inch or more below the rim through which cords were looped to form a handle.



The Menominees, like other Indians of Algonquian stock, made crude vessels of pottery. Only fragments of these vessels have been found in Menominee County. Pictured above, about 1/6th. actual size are: (1 & 3) Pots used in burial ceremonies; and (2) Large cooking pot, or akeek.

Ceremonial Pottery

Akeek making was one of the most significant aspects of Menominee culture. Farther north less cultured tribes made no pottery. Farther south, pottery was more refined in quality and more symmetrical.

While most of the Menominee pottery was rough in texture and coarse in composition, some smaller pots used for ceremonial purposes were fine and hard and evidenced workmanship approaching that of the Mound Builders.

Ceremonial pots were principally used to hold food placed on the graves - sustenance for the spirit of the departed on its journey to the hereafter.

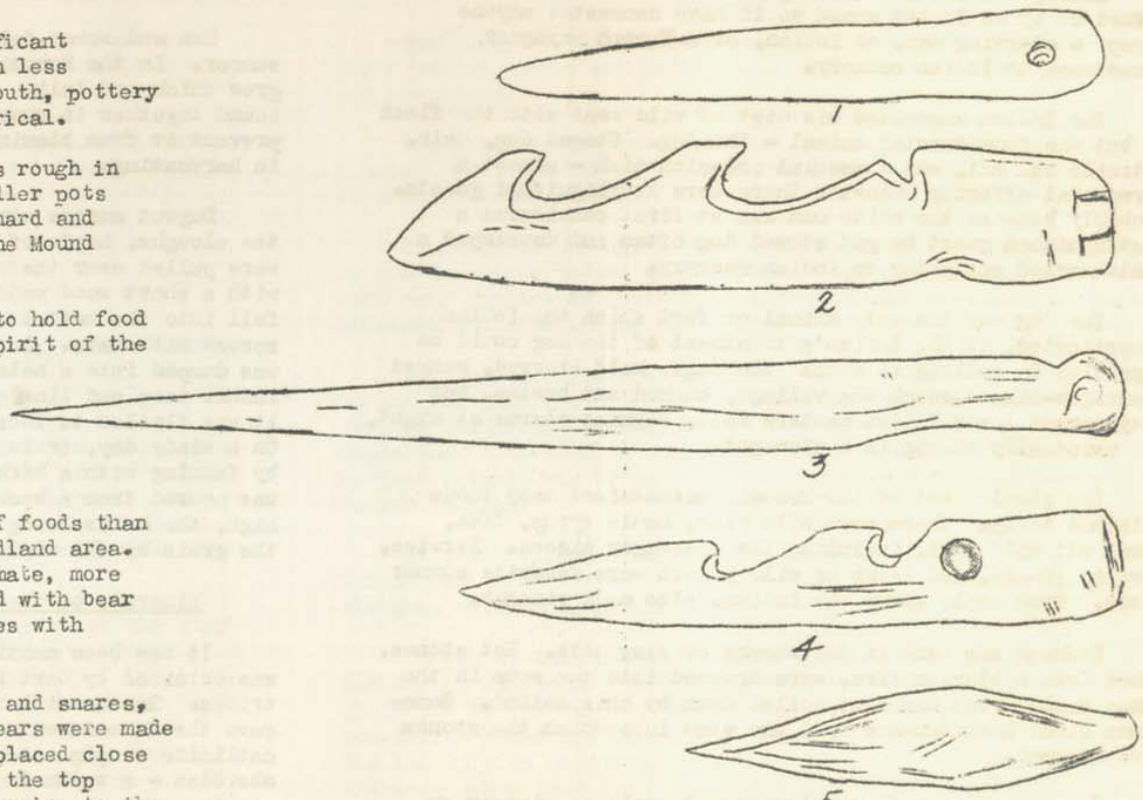
Food Used by the Menominees

The Menominees had a greater variety of foods than the Indians of most other tribes in the Woodland area. Nature favored them with a more equable climate, more abundant fish and game. Forests were filled with bear and deer, moose and elk; the rivers and lakes with sturgeon, whitefish, and trout.

Game was taken with arrows, deadfalls, and snares, fish by spearing and trapping in weirs. Spears were made of bone and copper; the weirs, of branches placed close together along a framework of larger poles, the top forming a crude bridge. Spawning sturgeon coming to the traps were clubbed or speared.

In winter fish were speared through the ice. Fishermen often used tight-rolled birch bark torches to aid the spearing. The Menominee River and Green Bay supplied fish in abundance.

Fish were smoked on racks over slow fires, or dried in the sun on bark slabs.



Bone was used widely in making harpoons with which to take fish; for daggers, awls, and needles. Pictured above, actual size are:
(1) Bone awl; (2 & 4) Harpoons; (3) Dagger;
(5) Needle for lacing leather.

Eating was a utilitarian pursuit and some of the messes cooked up by an Indian woman would have nauseated anyone except a starving man, an Indian, or a French voyageur accustomed to Indian cookery.

The Indian augmented his diet of wild meat with the flesh of but one domesticated animal - the dog. Stewed dog, hair, entrails and all, was a special occasion dish - almost a ceremonial offering whenever there were distinguished guests. Probably because the white man was at first considered a distinguished guest he got stewed dog often and developed a wholehearted antipathy to Indian cookery.

The dog was the only animal or fowl which the Indian domesticated, if the Indian's treatment of the dog could be dignified by calling it such. The dogs, half starved, ranged scavenger-like through the village, kicked and beaten, but they served their Indian masters well, barking alarms at night, and eventually ending in a stew pot.

The staple diet of the Menominees contained many foods relished today. There were wild rice, maple syrup, fish, game, and wild fowl, including the passenger pigeon. Berries, cowslip greens, and leeks or wild onions were favorite summer foods. From maple syrup the Indians also made vinegar.

Cooking was done in the akeeks or clay pots. Hot stones, raked from a blazing fire, were dropped into the soup in the pot. Maple syrup was also boiled down by this method. Sometimes birch bark buckets held the stew into which the stones were dropped.

The messes were flavored with wild onions, vinegar or maple syrup. Salt was an article of barter with Eastern tribes and to the Menominee was a luxury. Bones of deer and bear were cracked to let out the marrow and dropped into the pot, along with berries, wild rice, and whatever else was handy. Bear paws were favorite tid-bits for flavoring stews.

Food Crops of the Menominees

Corn was cultivated to some extent but never achieved importance in the Menominee's diet, principally because wild rice was so abundant.

Men and women joined in harvesting the rice in late summer. In the Menominee River delta marshland wild rice grew thick and tall. Bunches of the stalks were often bound together in summer before the grain ripened, to prevent it from blowing down in high winds and as an aid in harvesting.

Dugout canoes were poled among the sloughs, heads of the rice stalks were pulled over the boat and beaten with a short wood paddle. The grain fell into the bottom of the canoe, spread with mats. On shore the grain was dumped into a hole about six inches deep and lined with mats. Then it was flailed to loosen the hulls. On a windy day, or in a draft created by fanning with a bark tray, the rice was poured from a bucket held shoulder high, the hulls being separated from the grain by the wind.

Minerals of the Menominees

It has been mentioned that salt was obtained by barter with Eastern tribes. Barter with northern tribes gave the Menominees copper, while from Minnesota came catlinite or pipe stone, and from the Rocky Mountains came obsidian - a volcanic glass used in making knives and arrow points.

Pipe Ceremonial

The Menominees took great pains to decorate their ceremonial pipes. Catlinite or pipestone, workable when first quarried, hardened after exposure to the air. Carved and inlaid with metals, the pipes were sometimes four inches deep. Pipe stems were decorated with eagle (Thunderbird) feathers if the owner was of the Thunderbird clan, with bear claws if

of the Bear clan, etc. Tobacco was cultivated.

In council the Thunderbird chief filled the ceremonial pipe, passed it to the man at his right, who lit it, took a few whiffs and then handed it to the chief again.

The chief then puffed smoke to the four cardinal points of the compass in recognition of the beneficent Thunderbird spirits and passed the pipe to the councilman at his left. Each man took a puff and handed the pipe on to the man at his left. When the pipe reached the last man in the circle he knocked the fire from it and returned it to the chief.

The pipe was recognized as the symbol of peace and conciliation - to smoke with a man was a pledge of friendship.

Thunderbird and Bear Clans

The Menominees, as well as the majority of the Algonquian tribes, were divided tino two main clans - Thunderbird and Bear. On the Thunderbird side of the tribe were minor clans - Hawk, Pigeon, Eagle, and others. On the Bear side of the tribal fence were other minor clans - Buffalo, Wolf, Elk, Deer, Snake, and Fish.

A picture of the animal, fowl or fish for which the clan was named was a coat of arms signifying the clan's origin.

The Thunderbird unit signified the Sky or Upper People; the Bear unit, the Earth or Lower People. Villages were divided by one lane, on the south side lived the Thunderers, to the north, the Bears. Intermarrying between the two divisions was frowned upon, in some instances absolutely forbidden.

To the Thunderers the Good Mystery had given fire and a knowledge of agriculture and spiritual powers; to the Bears, he had given great ability in war and the hunt. The chief of the Thunderers stayed at home during a war, the Bear clan chief led the warriors in battle and enforced laws in the village.

Traditions

Symbolism of the division is striking - a bird clan, upper people, peace and religion; a beast clan, lower people, war and force.

Menominee tradition places the joining of the clans into a tribe at the mouth of the Menominee River where the City of Menominee now stands.

Creation of the earth was accomplished by the Good Mystery, so the Menominee legend goes. There were no men. But there were many Manitos (spirits), both good and bad, some living underground, some in the air.

The Golden Eagle was the Invisible Thunder, who could soar in the air high above the earthbound spirits. To compensate for his earthbound existence the bear was made an Indian. The Eagle then descended to become an Indian also. Each then adopted animals and birds into their clans, and they also became Indians.

At first without food or fire, the Good Mystery aided the Menominees in obtaining it; made wild rice grow in the river sloughs; corn, squash, and beans were given them.

It was at this stage of development that Manabush (or Manabozho, Manibosho, in other Algonquian tribes) entered the picture. He was half spirit, half man, and upon his adventures Longfellow based his "Hiawatha". He was a good spirit, whom the bad spirits sought to destroy. He aided the Indians - stole an ember from the secret fire of the underground spirits.

Manabush whirls gaily through all Algonquian legend. Retelling of his mythological adventures whiled away the hours around Indian campfires from the Mississippi to the Atlantic.

Midewiwin Drums

In the religious ceremonial of the Midewiwin (Grand Medicine Society) the Menominees, like other Algonquian tribes,

reached their most complex social culture. Into it went their aspirations for a life after death, and effort to propitiate the many evil spirits that peopled the night and ground beneath their feet.

Men and women accepted into the secret society had great power with the tribe, for they were believed to be able to confer with the spirits. The use of the drum and chanting was an integral part of the ceremony. Even today there is among the older Indians in this part of the country the "Drum Worship" ceremony - faint echo of the powerful midewiwin of the past.

To the Jossakeed, the physician, the soothsayer, the magician, went the task of lightening the Menominees' physical and mental burdens. He did it with concoctions of herbs and charms, crude surgery for physical ills, accompanied by chanting, drum beating and the rattling of acorns in a dried gourd to exorcise the evil spirits. The Jossakeed was less influential than the members of the midewiwin.

Warlike Pursuits

While wars of major importance were usually under way at least once a decade, pitched battles with one tribe standing up against another were uncommon. Instead, scalp hunting parties made forays into enemy country, keeping watch for enemy parties who were intent on the same business. For a party to return without losing any scalps and with several of the enemies' constituted a great victory.

The scalp represented the means by which one could control the spirit life of the man who once wore it. To lose one's scalp meant slavery to the enemy in the hereafter. Scalps captured by the warriors were placed on a grave post and the whole tribe joined in dancing the spirit it represented "into the ground" to become the slave of the man buried there.

Thus came the Indian method of fighting, anything to get a scalp without risking one. Whole villages were seldom attacked, but parties that went into the forest faced death and loss of valued scalps. Indian attacks were made just before daybreak when sleep was soundest and sentries nodded.

The war chief could invite men of the tribe to a war dance but he could not command them to fight. Those who participated in the dance and struck the war post were volunteers - they would follow the chief on the warpath.

Games and Gambling

Early voyageurs found the Menominees joyous, well-fed, and talkative. They liked to play and gamble. Shouting at a rousing game of baggetaway was just as loud as at a modern-day football game.

In baggetaway or lacrosse, goal posts were set up at each end of the field. There were two teams and each player carried a racquet in which there was a loose, baggy criss-cross of rawhide at each end. Object of the game was to catch the ball with the racquet, to run with it or throw toward the goal. There were few rules, and many cracked skulls and bruised shins were counted when the game ended.

The ring game was also popular. In this game an ornamented rawhide ring was rolled along the ground, the players running beside it and attempting to thrust a slender pole about five feet long through the ring. The pole seldom went completely through, and markings on the pole in relation to the ring indicated the player's score.

Gambling was associated with all the games. When the betting got heavy, a warrior might lose his wife, his best shirt, and his treasured copper knife in one wager.

Both men and women gambled with dice made of plum stones blackened and marked with various figures, or with marked pebbles. The dice were shaken in a basket and tossed out on a mat.

Tribal Life

Women were unrepresented in tribal councils, yet the women and children gathered in the background at all general meetings to listen. A woman's word was law in her own hut, and although she belonged to her husband, the lodge and its contents were recognized as her property.

Polygamy was not uncommon. The number of wives usually increased with a man's age, for custom dictated that if his brother or near relative died, he must marry the widow. The custom was not without its economic value. Large households meant more persons to work for their support. Then, also, a man might marry his wife's unattached sister or sisters. Communal lodges, with two or more families living under one roof, were frequently established.

At adolescence boys took to fasting and seclusion to determine in dreams what they should adopt as their good medicine. In his fasting dreams the youth received manifestations from the good spirits of the powers to be conferred upon him. These dreams he held sacred. He did not talk of them in his lifetime as a usual thing, yet in old age might speak of them to a favorite grandson so that the youth might have greater knowledge in his fasting.

For music the Indian had songs, or rather chants, the stimulation of the drum and rattle for dancing, and plaintively sweet notes of a five-holed reed flageolet. The chants were largely narratives of war exploits. The reed whistle was sounded in love making and the music it made pleased the white men who heard its melancholy notes.

Courtship was usually brief. Wives were not purchased among the Menominees and first marriages were at an early age. Wedding ceremonies were not elaborate. Older women of the family instructed the bride in methods of pleasing a husband. She was given new clothing for the wedding ceremony, which consisted of little more than feasting, and then went to the lodge of her mother-in-law to live with her husband. As long as the mother-in law lived she ruled the lodge, and the bride took her orders from the older woman.

While moral laws were far from strict, genuine affection was manifested within the family. A man would defend his family with his life, and women devoted their entire lives in service to their husbands.

Picture Writing and Language

Picture writing was the only form of writing the Menominees possessed. The pictures, their relation to each other, and the use of symbolized figures often conveyed involved messages. The figures were painted on buckskin and rolls of birch bark.

But the Menominee language is dead, clay akeeks are broken, and the drum of the midewiwin sounds faintly.

White Men Visit the Region of the Menominees

In 1634 Jean Nicolet stopped over night with the Menominees at the mouth of the Menominee River. He was hospitably received but passed them by without particular notice - he was looking for "The People of the Sea" at Green Bay in the belief they would lead him to a Northwest Passage to China. At Green Bay the Menominees who had accompanied him and the Winnebagoes of that place, were frightened at Nicolet's discharge of two pistols into the air - a sound of firearms destined to echo through war and bloodshed for many years. But Nicolet's mission was one of peace and he received friendship in return.

Nicolet described the Menominees as speaking dialect difficult for him to understand, yet identified by him as Algonquian. In his account of his travels, Nicolet said: "They were lighter complexioned than other Indians, and expert at hunting and fishing."

In the fall of 1669 Father Claude Allouez visited the Menominees briefly on his way to establish a Jesuit Mission at Green Bay and the following spring returned to found the Mission of St. Michael at Mission Point included in the present site of Marinette. In 1671 Allouez who was zealous in the three -fold business of soul saving, commerce, and conquest addressed representatives of the Menominees and other tribes, assembled at Sault Ste. Marie by Saint Lusson, when

he proclaimed the sovereignty of France over the Great Lakes region.

In his address Allouez said: "When he (Louis XIV, King of France) attacks he is more terrible than the thunder; the earth trembles; the air and the sea are set on fire by the discharges of his cannon; while he has been seen with his squadrons, all covered with blood of his foes, of whom he has slain so many with his sword that he does not count their scalps, but the rivers of blood which he sets flowing."

Louis Joliet and Father Jacques Marquette visited the Indians at the mouth of the Menominee River near the end of May, 1673, on their voyage westward from St. Ignace to find the Mississippi River. The Menominees urged them to remain and told them of water serpents and whirlpools to the west. Marquette and Joliet went on, Marquette never to return again to upper Michigan until his body was brought to its resting place at St. Ignace.

LaSalle's ill-fated Griffin, the first sailing vessel on the Upper Lakes, passed Menominee shores on its voyage through Green Bay in 1679. There is no record to tell whether any of the Menominee Indians happened to observe its passage.

Charlevoix came at a later time. In his chart of the Lakes of Canada, accompanying his "Histoire et Description Generale de la Novelle France" he placed the village "des Malonines" on the north bank of the Menominee River, where the city of Menominee now stands.

Charlevoix agreed with Nicolet that the Menominees were more refined in appearance than other Indians of Algonquian stock. He said: "They are among the finest and handsomest we met. They were straight, of medium size, well-built, complexions fair for savages, eyes large and laughing."

White Men Affected the Menominees' Way of Life

In 1763 Chawanau was recognized head chief of the Menominees in a certificate given him by Governor Haldemand of Canada. He was the head of the Bear Clan. Chawanau died in 1821.

From the time of Chawanau (The Southerner) events transpired rapidly for the Menominees.

First exploited by the French, the Menominees traded fine furs for baubles, watered whisky and a few objects of material value - kettles, blankets, axes and guns. In 1763 the Northwest passed into control of the British, and the Menominees were then exploited by the British until the United States took actual possession.

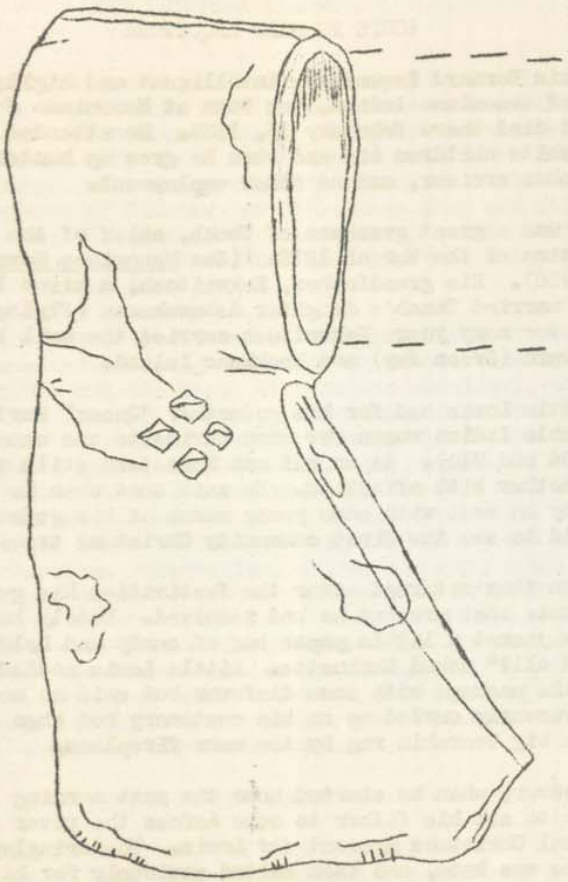
Like other Algonquian tribes, the Menominees were ground between the millstones of French, British, and United States conquest until they lost that which they valued the least, yet meant the most to them - their lands and homes. The French and British took their furs and debauched them with whisky. Lastly the United States finished the cycle of conquest by taking their lands.

After the War of 1812 the United States began the contradictory policy of teaching the Menominee how to till the land - and taking the land away from him as rapidly as possible. The Menominees, after refusing to be moved westward across the Mississippi River, were in 1854 finally settled on their present reservation at Keshena in an area ill-suited to agriculture.

"The Menominees are a brave and patient people, the firm friends of the government and rely with abiding confidence on its justice and magnanimity," wrote A. G. Ellis, Indian agent, in 1847.

There were 2,500 persons in the tribe, Ellis reported, of these 300 "Christians and farmers" subsisted on farms and 2,200 by hunting and fishing. In that year (1847) only 62 families had log houses. The remainder lived in huts, hunted and fished along the shores of Green Bay.

"They fish in all seasons of the year, but especially in winter, when large quantities of trout and sturgeon beyond their own consumption are taken," Ellis said, "When the Menominees shall leave the shore of Green Bay the sturgeon fisheries will cease - none but the Indian being



Pictured above in actual size is an iron trade ax, one of seven found at an Indian village site. The Indians traded furs for these axes, which they found far superior to their flint implements.

able to endure the cold and fatigue of taking them."

In its effort to aid the Menominees, scattered from Green Bay to Escanaba, the federal government paid the 2,500 persons $20,000 and goods valued at $3,000 in annuities in 1856.

"Firm friends of the government" they might be, but the Menominees were also hunters and fishermen and the "Great White Father" is still trying to get the Indian behind a plow. Many of the Menominees refused to go to the reservation in Wisconsin and as late as 1909 they were sufficiently numerous to gather 600 strong for a pow-wow at White Rapids on the Menominee River.

Indian Treaties Concerning Menominee Lands

The United States gained title to Menominee lands by the following treaties:

1817 - Treaty of peace, necessary since Menominees were allies of the British in the War of 1812.

1821 - Menominees ceded a half-interest in their holdings to the Oneida Indians of New York state, urged by the federal government which sought a place for the Oneidas farther west. Dissatisfied with the treaty the Menominees opposed efforts of the government to settle the New York Indians on their land.

1831 - Menominees ceded practically all of their lands to the federal government, and a tract west of Green Bay was established for the Oneidas.

1838 - The Oneidas released to the federal government any claim they held to Menominee lands.