Manitowoc County, Wisconsin, is generally thought of as one of the more productive counties in Wisconsin. The farms of the county produce many bushels of barley, corn, oats, and potatoes, as well as tons of alfalfa, clover and other forage crops. Many tons of peas, sweet corn, beets and carrots are also produced. We are one of the major producers of dairy products.

As we think of the productive capacity of the farms we might attribute this to the rich soil that abounds here. Or we might attribute it to the favorable climate that this part of the state usually has. While these have great significance on the development that has taken place, there is another factor that must not be overlooked. It is people who must use to the best advantage the resources that abound in an area. Manitowoc is fortunate in having had come to its farms the kind of people who adapted themselves well to the work of converting the forest land of one hundred thirty years ago into crop land. These were the kind of people who were willing to work hard, to live the simple life, to be resourceful, and to apply themselves energetically to this goal. They were a thrifty people who were possessed of great determination, and the way that they went about this work indicated that they were also an ingenious people.

In this monograph we shall try to describe the land that the Indians inhabited in the early years of the 19th century, and which they quietly left when these lands came into possession of the U.S. government by means of a treaty with these tribes. We shall try to describe the conditions that prevailed when the early white settlers came in 1835 and the years following.

Of course, we do not have aerial photographs or pictures of any kind to show what Manitowoc county was like at that time. But we are not without some excellent source material that is helpful. One of the best references is a doctor's dissertation written by Dr. Robert W. Finley, presently in the Geography department of the University of Wisconsin, Madison. In 1951 he wrote a dissertation entitled "The Original Vegetation Cover of Wisconsin." As a basis for the research needed to write this treatise, Dr. Finley made use of the government surveys that were made between 1830 through about 1860, as well as such maps as Hoyt's Map of 1861 and the U.S. Geological Survey Map of 1882. This reference, while descriptive of the forest cover of all parts of Wisconsin, had many direct references to conditions in Manitowoc county. Other references were also consulted which are listed at the conclusion of the article.

The Government Surveys of 1834-35

In the period from 1830 through 1848 Wisconsin was a part of the Northwest Territory. The U.S. government began the work of surveying the land in this area, with the surveys begun in southern Wisconsin first. Since it was apparent that white settlers would seek land in the lake shore counties soon, the surveyors were sent to Manitowoc county in 1834 to begin this work. The work was completed in about two years. The first group of surveyors laid out township lines, with a township representing thirty six sections of land, with each section consisting of 640 acres. Obviously these townships were not like those that later were formed, which sometimes were based on political considerations.

The townships were surveyed on the basis of range and township lines. The corners of each of the townships were established and stakes driven into the ground to indicate these boundaries. After the townships were surveyed, another group of surveyors followed who surveyed the sections that composed a township. Surveyors were required to take note of the topography of the areas surveyed, the kind of trees that were growing at the corners of each section, their size, etc. If there were lakes, streams, swamps, prairies, groves, etc., these were to be noted. A team of surveyors usually worked from east to west across a township. Obviously, there was duplication of the reports that were submitted, but these duplications served as a check on the accuracy of the records supplied by the teams. These government surveys were bound into volumes which still are available for examination and study. They may be seen in the Office of the Commissioner of Public Lands, Madison, Wisconsin. Another set of these original surveys can be seen at Washington, D.C.

Forest Types in Wisconsin

There were at least three distinct forest types that prevailed in Wisconsin. The largest of these types was the mixed hardwood and coniferous forest types. Finley describes the boundary of this forest type thus: 47."It coincides with the zone where the forest ceases to be mixed or beyond which coniferous trees are no longer a significant part of the composition of the forest. This zone does not trend straight east or west but starts well to the north along the Minnesota boundary, dips far southward in Juneau and Adams County, bends sharply north again to northern Portage County, from whence it runs sinuously eastward to the northeast corner of Outagamie County and then bends abruptly eastward to meet Lake Michigan at the middle of the shoreline of Sheboygan County. It has been noted that this line follows remarkably closely to the July isotherm of 70°."

The mixed hardwood and coniferous forest types usually are made up of two varieties of trees, namely:

1. The beech, sugar maple, basswood, and oak mixed with coniferous trees.
2. The sugar maple, basswood and oak, mixed with coniferous trees.

In some parts of Wisconsin there are predominately oak forests with several varieties of the oak making up these areas.

Then there are forest areas which are
named the “boreal forest type.” The coniferous variety of trees predominate in these areas. In southern Wisconsin there are large areas of grassland and spotted areas of forest.

**Forest Types in Manitowoc County**

Manitowoc county forests were among the most interesting of the forest types in Wisconsin. It seems that three of the forest types described above converged into this county. In the northeast corner of the county there was evidence of the boreal type of forest. The mixed hardwood and coniferous forest consisting of beech, sugar maple, basswood and oak, as well as the white and red pine made up the major part of the forest growth of Manitowoc county. As was indicated in an earlier paragraph, the boundary line in which the beech trees were not present in the forest began at a point at the northwest corner of the county and proceeded southward to a point on the southern boundary of the county about fifteen miles to the east of Lake Michigan. To the west of this line all of the trees in the mixed hardwood-coniferous forest types were present except the beech.

Some have wondered why the beech should abound in a narrow strip along Lake Michigan in Manitowoc county, and extending northward into Michigan, and thence eastward to the Atlantic coast. Beech can be found in all of the states east of the Mississippi River, following a line to the south through eastern Indiana, and running southward to a point on the Gulf of Mexico about where the Mississippi River flows into the Gulf of Mexico. While there still is some speculation about this point, it is generally believed that it is a combination of temperature and rainfall that governs the growth of this hardwood species. The beech shows a preference for heavy soils of good humus content. It seems that the beech cannot grow where temperatures are extreme.

In the northeast corner of the county coniferous trees predominated, especially the hemlock and white pine, with such trees as the beech, sugar maple and yellow birch also present. Since soil and rainfall conditions were favorable for the growth of dense stands of hemlock, this was the part of the county where tanneries once were built. The wood of hemlock split very easily so it was not a popular building material. Only the bark of this tree was useful. It was the product that was useful in tanning hides. Hemlock trees are shallow rooted, and suffer from heat and drought conditions. Temperature seems to be more of a deterrent to growth of hemlock than is soil type; however, one usually finds these trees in areas where the water table is quite near the surface. The hemlock trees require a cool summer temperature.

Pine trees usually grow in highly concentrated stands only where soil is of sandy character. Of all the forest communities none is more clearly related to soil type than the pines. Pines are tolerant of a lack of humus, but are intolerant of deep shade.

Forests of cedar abounded in the swamplly areas. These, then, composed the boreal forest of the county. It is only in an area near Lake Superior where this type of forest also is predominant. Otherwise it is more common in Canada and the cooler areas to the north.

In a monograph the length of this one, one must write in general terms as to what the government surveyors found. Obviously, within the three areas described that abounded in Manitowoc county, there were variations of forest type. The topography of the land was perhaps the significant factor that caused variation from the prevailing type. Glacial action has not been stressed in this monograph. However, it has had a significant influence on Manitowoc county, and together with such factors as soil, temperature, and rainfall, accounts for the variations in forest vegetation.

The “History of Manitowoc County” Contains Descriptions of Forests

Falge's History of Manitowoc County (Volume One) is a fertile source of information as to what the settlers saw as they came to settle here. As one reads the descriptions that are given, one finds that they are remarkably similar to the descriptions that Finley gives in his dissertation. It would appear that Falge and those who collaborated with him had consulted the same surveys of early Manitowoc which Finley had studied so intently. A “Forest Resources of Wisconsin” booklet, published by the Wisconsin Conservation Department, also agrees in almost every detail with these references.

An Early Settler Describes the Land On Which He Settled

Falge relates the following account of an early settler’s impressions of Manitowoc County. We quote: 2 “It is beyond the gift of language when one tries to describe the forest wilderness — its solitude, vast repose, and deep contentment. Dense, untouched forests carpeted with ferns, flowers, plants, notably the “Indian Apple,” shrubs of many hues, and inhabited by gaily feathered birds; stretches of rolling glades, calm shades in which the pioneer might build his cabin and live the simple life un molested near to nature. It was a glorious picture of 'affluent forest grandeur.' The trees were large, among them the tall pine towered toward the light; many were of the hardwood variety; the beech and the maple were common. Here was the sugar bush, wooden troughs to receive the sap were to be seen at the base of many a noble maple. The leafy wilderness produced a canopy overhead, and as a consequence a solemn shade beneath. Not woods so thick and dark that you could not see into them, but woods that admitted the breezes and the sunlight. Much of the woods, even contiguous to the village, was as yet surprisingly untouched by the hand of man. Save here and there a small clearing, all was still in the primeval glory. They had never before had their secrets revealed. Of living things there was much in evidence. The bluejay was my first acquaintance with the denizens of the woods. The gaudy woodpecker tapping the hollow tree was common, no other bird more so, except the pigeon, which at times filled the woods with clouds that hid a quarter of the heavens and broke down the branches of the trees, when they roosted, as if a whirlwind had passed. Almost every foot of the twig strew path some living creature was to be seen coming into view or darting to cover. But there lurked yet other denizens in these woods such as the black bear, the wolf, the lynx, the wildcat, the fox, and the deer. Then too, the Indian had not yet departed from this part of the state. However, the one overpowering feature of the wilderness was its solitude; nothing equalled its overawing majesty.” While the name of this pioneer settler is not given in Falge’s book, it seems that he was of Bavarian descent, and that he might have settled somewhere in the town of Newton.

Another Settler Describes Land On Which He Settled

In the “Letters and Diary of the Johannes F. Diederiche Family,” a summary of which was given in the September 1968 newsletter of the Manitowoc County Historical Society, there is contained this description of the eighty acres of land on which he settled in the early 1850’s. We quote: 3 “I have fine rolling land, sloping toward the morning sun, with trees slender and tall, such as oaks of three varieties, sugar maple, beech, elm, ash, and walnut trees. There are also some plum trees. Indeed, if I could do as I wished, I would forthwith give you a
present of 15-20,000 dollars; for Pfliepe, who is a carpenter, tells me that if any one would pay me $30,000 for my lumber laid down in Elberfeld (in Germany), he would have a splendid bargain. You may ask, what do I do with it? In the fire with the soundest, finest trees, 3-4 feet in diameter. In the fire with it if we do not happen to need it for fence or some other purpose.” The Diederiches also settled some ten miles to the south of the city of Manitowoc.

The Early Settlers, Remarkable People

As one reads the writings of the pioneer settlers of Manitowoc county one is impressed with their determination and perseverance, their willingness to work hard, to make sacrifices, and to endure privations so that they could make a living from the soil of the county. They were an ingenious lot as they sought to conquer the forest and convert it into crop land.

The persistent and determined application of these people to this one purpose can be seen from the “Letters of Johannes F. Diederiche” who writes, “I dare not lose an hour for clearing the land and preparing it for seeding. The more land that I have for planting and seeding, the more I will have at harvest time. I must have potatoes to plant; wheat, oats and corn to sow, and must have some to live on until harvest time. Whatever, therefore, is not absolutely necessary, must be deferred and missed. Hence, I dare not think of cows and oxen, necessary and profitable as these would be. But I am sure that if I clear and plant six to eight of my eighty acres by summer, I will easily get $4-500 dollars from the same. Then I could pay for the land, and have some $300 to $400 left. I am heartily tried of roving about and long for rest. If it is the Lord’s will, then I will die here, and I hope such will be His will.”

Converting Forest to Crop Land

How, then, did these settlers go about converting the forest land into crop land? In the beginning it very likely was nearly all hand work. Notice that the Diederich family did not have oxen, nor did it seem that they felt that these would have priority in their purchases. However, men in all ages of history have always been resourceful and have looked for easier and more efficient ways of doing a job. That meant that they would use beasts of burden in due time, and certain tools designed to aid them in the work that needed doing.

While Johannes F. Diederiche spoke of putting in a crop during the first spring that he was here, obviously he did not attempt to remove any stumps or stones that happened to be in the clearing where the crops were planted. It is likely that the seed was sown in open areas around the stumps. Since the forest floor had little in the way of grass on it, it is likely that crude harrows were sufficient to prepare the soil for a crop. However, this way of planting was only temporary, and so the early settler likely was thinking in terms of removal of stumps and stones, and to the better use of the land which had been cleared.

Since several years would be needed before sufficient decay would set in so that the work of removing stumps with some ease might proceed, the first years would make possible the removal only of such impediments as were absolutely necessary. To remove them at all meant that the stump virtually had to be dug out of the ground. Since trees were large (reference earlier was to trees that were three to four feet in diameter) the roots might extend from the trunk of the tree a distance of nearly twenty feet in every direction. Obviously the removal of a stump would require much digging and chopping off of roots with an ax or a grub ax.

Stump Pullers are Used

The time came when many farmers had “stump pullers” of various kinds. One of these is pictured here. There were other kinds with one of the more com-
A stump puller. (On display at Chilton Farm Museum) (Photo by Ruhl Kluczinski)

A stump puller was moved to another part of the field where a stump needed to be pulled.

Obviously stump pulling was slow and hard work. After the stump had been pulled out of the ground, the soil around the roots needed to be removed. There was a hole to be filled and this soil was used for this purpose. A grub hoe was a convenient tool to use in removing soil from around the roots. Obviously removing the soil had the added advantage of diminishing the weight of the stump that needed to be moved.

Stones Another Impediment

Fortunately the farmer who could say that his work was completed when the work of removing stumps was completed. Often there were stones that needed to be removed also. Harrowing, planting and harvesting could be done more efficiently and with greater ease if these impediments were removed. Of course, the stones varied in size. Many were small enough so that they could be handled with ease with the hands. However, these many times were so numerous that it was a very time consuming job to rid the soil of all of them. Furthermore, there were so many of them in the soil that the work of removing stones had to be done after each plowing. The stones were usually hauled to a corner of the field where there was a "stone pile." Or they might have been made into a stone fence.

Some stones, of course, were large, and the ingenuity of the farmer was tested as he attempted to remove these impediments to efficient use of machinery. After a large stone weighing six or seven hundred pounds or more, had been removed from the ground, the work of moving it to the stone pile or the fence still needed to be done. Many farmers used a "stone boat" for this purpose. This was little more than two wooden "logs", perhaps about six inches in thickness, which served something like runners on a sled. Then wood planks were fastened across the top of these logs. This means of conveyance had the advantage of being only about six inches or so high, so a heavy stone could be rolled onto this sled-like conveyance.

Horses or oxen, of course, pulled the stone-boat. It made possible a more convenient way of moving stumps and stones.

Explosives Used to Remove Stumps and Stones

The time finally came when explosives were used in the clearing of land of stumps and stones. Dynamite was the common explosive. The use of dynamite, of course, was surrounded with much danger and the farmer using these had to be trained in its use. Dynamite usually came in sticks which were perhaps about an inch in diameter and about six inches long. Two sticks of dynamite represented a pound of explosive. The size of the stump, of course, determined the amount of explosive that needed to be used. The amount used might vary from about a pound to perhaps five pounds. If the farmer would use too little of the explosive it would have the effect of not breaking up the stump sufficiently so that it could be removed from the ground. Too much explosive was wasteful, and since money was scarce, extravagant use of dynamite was avoided. It also resulted in sending roots, etc., far from the place, for all these roots and stones had to be picked up and removed.

To prepare for the removal of a stump with dynamite the farmer used a soil auger of some type. The auger dug a hole under a stump which was two inches or so in diameter. The hole was about 18 inches to three feet deep. Usually it was dug at an angle so that it would be as near to the heart of the tree as possible. The dynamite sticks were then placed into the hole. A small stick was used to

Stones need to be removed before crops can be planted (Photo by Keith Henley)
tamp the dynamite down. This was an operation that was surrounded with danger, for a sharp blow might discharge the explosive. An important part of the operation was the preparation of the fuse. At one end of the fuse a “cap” was fastened. This was a copper device shaped in such a way that it fit over the end of the fuse. At the bottom of the cap was a small amount of some explosive device. This end of the fuse was placed in the dynamite. This had to be done carefully for if the dynamite was not securely fastened to the fuse, it would not explode. After the dynamite was placed under the stump, the fuse should extend about six inches above the top of the hole. Then soil would be tamped around the fuse. The fuse was then lighted with a match. When the fuse began to “sizzle” it was time for the farmer to run to get away from the area where pieces of stump or stones would be thrown by the explosive. Perhaps this might be from 150 to 200 feet away. Hopefully, the farmer expected that the stump would be forced out of the ground so that the pieces might be easily picked up and moved to the place where they were to be burned or a fence made of them. Often horses or oxen were needed to pull roots from the ground which had not been disturbed sufficiently. While removal of stumps and stones with explosives was a much faster way of clearing land, it is clear that there was an element of great danger involved. Improper placement of the dynamite so that an explosion would not occur added to the danger involved in the operation.

Preparation of a Field for Planting

When a field had been cleared of stumps and stones the farmer was ready to begin plowing the field. A “breaking plow” was often used in a field that had never been plowed before. (The plow that is pictured here is an ordinary plow used before tractors furnished the motive power.) Breaking plows were much heavier in construction than ordinary plows. Perhaps three horses or two yoke of oxen needed to be hitched to a breaking plow. To handle such a plow, of course, was hard work. The work of plowing was made more arduous, of course, if there were impediments such as roots or stones in the ground. These would have the tendency of throwing the plow out of the ground. It would then be necessary to stop, remove the impediment, pull the plow backward, and then begin the furrow over again. The preparation of a field for the first planting was slow and hard work. Even with modern power machinery, it is not easy to prepare a field for planting the first crop.

However, mere plowing of a field is usually not enough. The field needs to be harrowed and the ground smoothed so that holes left when stumps were pulled are filled. The smoother the soil surface the better the seeding and harvesting machinery will operate.

Problems of Drainage
Need to be Resolved

Often when a farmer had prepared his field for planting, he noticed that there were drainage problems that needed to be resolved. Growing crops cannot thrive when water remains on a field following a heavy rain. A pot hole in a field, for example, can have the effect of having a crop “drown out.” In the early days a system of surface ditches was the only way that water could be removed. These were made with plows and “scrapers.” Often the problem was made more complex if ridges needed to be surmounted. Sometimes there were no streams nearby to which the water might be drained.

The use of tile drainage systems and power machinery has helped greatly to solve the problem of rapid and effective removal of water following a rain storm. Perhaps the absence of such methods of drainage may have been a blessing in the early years, for farmers then were not tempted to make use of land which would better be left out of production.

Some Uses to Which Trees were Put

The farmer, of course, looked for uses to which forest products could be put.

A stone fence. (Photo by Keith Henley)

Obviously, the logs were used to construct the farm buildings that were needed. We have already remarked that the stumps and trees were used to build fences.

The ingenuity of the settlers was tested as they endeavored to improve the roads over which they needed to haul the products of the field as they took them to the markets in the nearby villages or cities. Usually the roads were old Indian trails. They were adequate at a time when only a man on horseback traveled over them. However, when wagons and sleighs made use of the roads it was another problem. Wagons which were heavily loaded often became bogged down in the mud, and travel often became treacherous.
or even impossible.

To improve the road surface farmers used logs which came from the forest. The logs were put side by side. Usually it was in the swampy places where such attempts at improvement of the roads were made. Over the logs they hauled ground, and the soil was then tamped down and smoothed over. The resulting road bed was known as a "corduroy road." These roads were passable in wet weather but gave the wagon rider a terrific jousting. Some roads were covered with wide boards about two or three inches thick. These were called "plank roads."

Using field stones to build a silo – 1912

and cheese factories were built, and dairy farming began. With the introduction of dairy farming there was need for larger barns and silos.

The stones of the field which earlier had only been an impediment suddenly became useful. These were used in the construction of stone walls which became the basement of the barns. Silos were also constructed out of them. In the picture is shown a silo under construction. It is apparent that most of the construction work was hand labor, which included lifting of the stones up to the "staging", and mortar was carried up on a ladder to the place where the mason was working. Obviously, this was hard work. As one drives on the country roads one can still see stone basement barns and occasionally stone silos. Often these stone silos were from twenty to thirty feet in height, and their diameter was from ten to sixteen feet or so. Such building construction represented a constructive use to which stones were put.

Another use to which stones were put was in road construction. An improved highway in the early days was usually an earth road bed that had been graded in such a way so that the water would run off after a rain. In spring and fall these highways often became mere mud holes and frequently became impassable even with horses and oxen. With the coming of the automobile there was a demand for better roads. What was wanted was a hard-surfaced road bed. One of the first all-weather road beds was the "macadam" road. Hard stones such as granite or flint were hauled to a place where there was a stone crusher. These stones were crushed into various sizes which ranged from pieces as fine as a quarter inch or less, to those an inch or so in size. The road bed was graded, and the larger pieces of crushed rock then placed at the bottom of the road bed. Each succeeding layer of rock was smaller until finally the top layer of rock was of the small sizes which were an eighth inch or less in size. Some kind of "binder" was then poured over the road bed and a road roller was used to press the various particles down firmly. The road bed in the early days was usually only about eight feet or so in width. Many a load of stone was removed from the farmer's fields and was put to good use in the improvement of highways in the period after 1910. However, when the day came when concrete and asphalt began to be used for road construction, the day of the macadam road ceased.

Land Clearing Today

Farmers still engage in the work of clearing land today. However, the work involved hardly compares with the kind of labor that was required of the early settlers. Usually the forests today have trees that are not nearly as large in size. A tree trunk that is 24 inches in diameter is a large one today. Thus the problem of land clearing becomes minimal by virtue of the fact that the stumps are smaller. Farmers today have power equipment to use, which, of course, expedites the work of clearing land with bull dozers used where once stump pullers and dynamite were used. Plows and harrows are designed to do the work of soil surface preparation better and more efficiently, and tractors furnish the motive power so that these machines can be propelled.

Stones Are Put to Good Use Too

As for the stones, many of these were used in building construction. Most of the farm buildings in the early days were made of logs. These log buildings were set on a stone foundation. Until perhaps the 1880's, the log barns were adequate to meet the needs of farmers for housing of cattle, horses, etc. Herds of cattle usually were small, with a limit of perhaps a dozen head of cattle or less. Thus not much space was needed for storage of forage. Farmers relied on cash crops as a source of income from the farm. These cash crops were such products as oats, barley, corn, etc., which were taken to the city to be sold. However, these crops were soil depleting, and soon crop yields began to decrease. It was in the 1880's that crop diversification began to be practiced. It was then also that creameries

Progress in Farming Methods Benefits All

Progress in farming methods and techniques has benefited all of us, be we rural or city residents. There is need today for food for a population that doubles in numbers every two generations or so. There are ways of food preservation and preparation that permits the use of almost every kind of plant and these become available to people all over the world. Because of the more efficient ways of operating farms, food costs have decreased. Thus, all of us have benefited because of the progress that has been made.

Ours is a Great Heritage

In 1835 twenty men came to Manitowoc to begin the work of cutting down the forest and engaging in lumbering. The forest was so desolate looking that fifteen
of these men left the very day that they looked upon this forbidding sight. That immigrants from various ethnic groups from northern Europe would come to Manitowoc county to engage in the work of converting forest land into crop land is still worthy of our admiration and thanks. These immigrants came to a place where work of the hardest kind was required of them. It was either work or perish for them. Much was required of them in the way of sacrifice. They were satisfied with little in the way of comforts. They were content to live the simple life. It is because these pioneer settlers were willing to apply themselves so intently and diligently in the work of converting the forbidding forest land into crop land that we have a better life today.

We do well to respect and appreciate the heritage that these pioneer settlers have given to us. We enjoy the good life that we have today only because so many of our ancestors were willing to endure sacrifice without complaining. Perhaps as they worked they dreamed of the time when theirs would be a better and easier life. Few of them ever realized these dreams in even a small way. We do well to preserve the memory of those who have served us so well. With realization of the great effort that was put forth to convert forests into crop land, these pioneers grow in stature. To us they should appear as giants. What have we to complain about as we think of their way of life in comparison to ours?

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