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The Delta of the Sand Hill River

Kenneth C. Haraldson

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THE DELTA OF THE SAND HILL RIVER

by

Kenneth C. Haraldson

B.A., State Teachers College, Valley City, North Dakota, 1940

A Thesis

Submitted to the Faculty

of the

Graduate School

of the

University of North Dakota

in partial fulfillment of the requirements

for the Degree of

Master of Arts

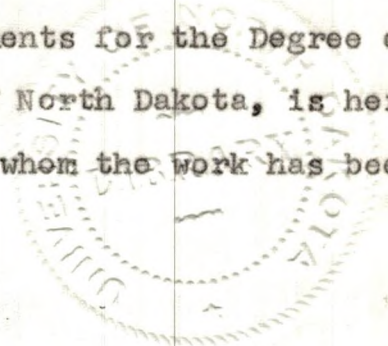
Grand Forks, North Dakota

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This thesis submitted by Kenneth C. Haraldson in partial fulfillment of the requirements for the Degree of Master of Arts in the University of North Dakota, is hereby approved by the Committee under whom the work has been done.



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CHAPTER I
INTRODUCTION

The delta of the Sand Hill River is located about one half mile south west of Fertile, Minnesota, and extends westward approximately three miles. The north south extent is approximately six miles. The area to be covered in this study is the section of most extensive dune development covering four square miles in area, and is to be found in sections 29, 30, 31, and 32 of Garfield township, situated on the south central border of Polk county, Minnesota.

As seen from trunk highway 32 leading into Fertile from the South the sand hills appear as a low lying wooded ridge about a half mile to the west of the road. The average motorist may not even notice them because of the frequent groves of trees that obscure the view.

This region was first brought to my attention shortly after I had moved to Fertile in 1948. It seemed a favorite place to go for family picnics or hikes, and had a different appeal to everyone during all seasons of the year. The fine white dune sand made an attractive place for youngsters to play. The variety of colors offered by the changing leaves of the oak, maple, aspens and sumac in the fall invited the color photographer to try his



Fig. Aerial view of the Sand Hill Delta. Much of the dune area of the delta is now covered with vegetation.



Fig. 2. A sand blowout.

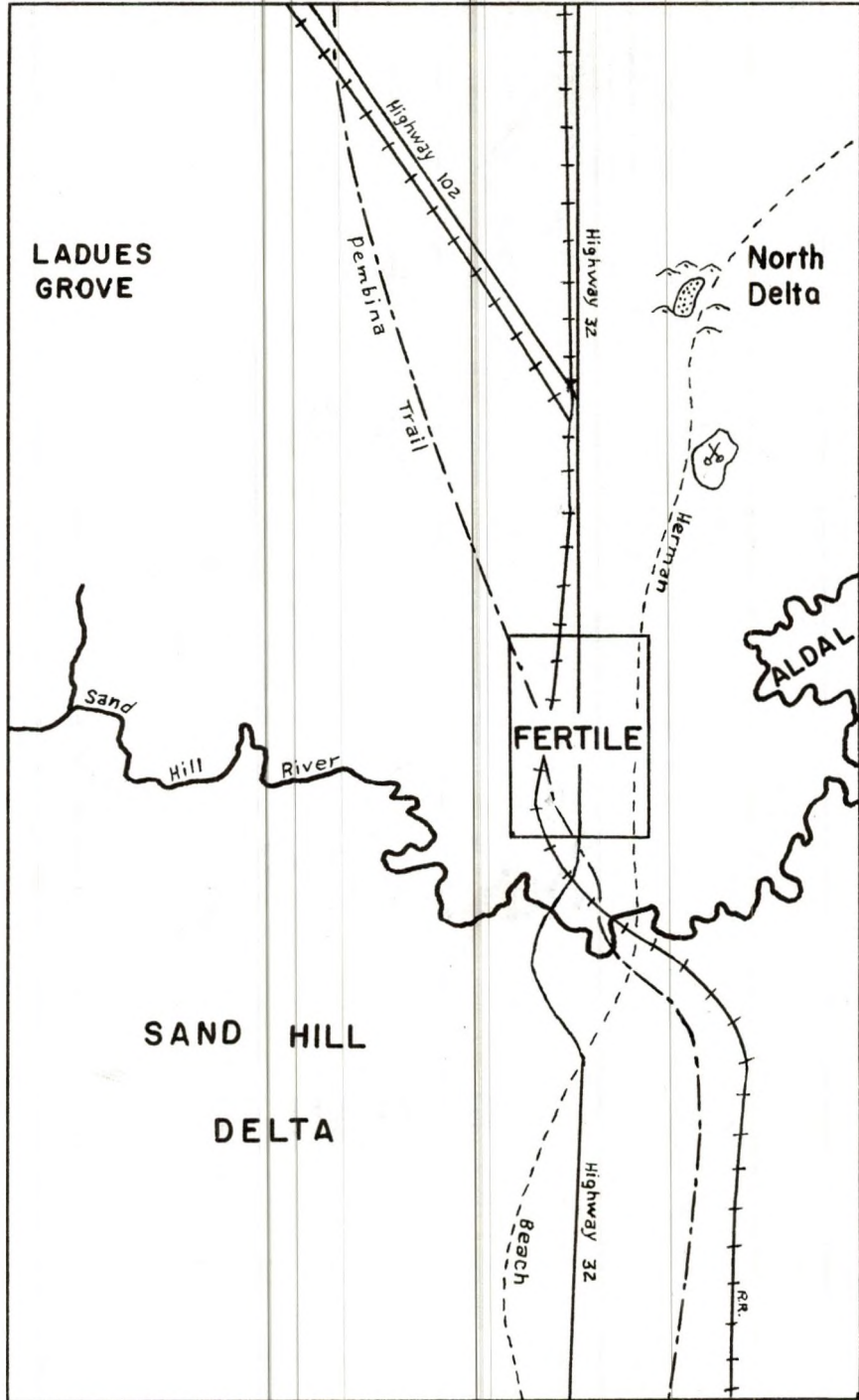
skill. The dunes made wonderful ski and toboggan slopes for everyone in the winter. Deer are plentiful and during the first few days of hunting season the sand hills is the first place the local hunters go for their deer, and they are usually successful. During the latter part of spring and in early summer the Sand Hill river is often more rewarding for the fisherman than near by lakes. Several prize winning northern pike have been taken from this relatively small stream by anglers who are persistent enough to fight the brush along its banks to find the deeper holes that hide the "big ones".

The University of Minnesota has frequently sent field trips into the sand hills to study its plant and animal life. A habitat group of the Sand Hill Crane on exhibit in the Minnesota Museum of Natural History was a result of some of these excursions.

The Chamber of Commerce in the village of Fertile, the American Legion and various other civic and service groups have attempted to get the State of Minnesota to designate this area as a state park, however at this writing they have been unsuccessful in their attempts.

While taking a course at the University of North Dakota on the conservation of natural resources I came across a map labeling this region of sand dunes as a del-

ta of the Sand Hill River. I immediately recognized the similarity between this region and the delta of the Sheyenne River in North Dakota, and my interest was aroused to the point where I wanted to know more about its geological history. Through the information gained in the class on conservation I was further convinced that some better use should be made of the land than it is at the present time. I was encouraged to make this study the topic of my thesis, and have attempted to outline the geological history of the delta, the history of its early settlement, its present use, and its possible future development.



SCALE 1:95,000

FIGURE 3 GENERAL LOCATIONS



Fig. 4. - Aerial view of the beach ridges of
Glacial Lake Agassiz.



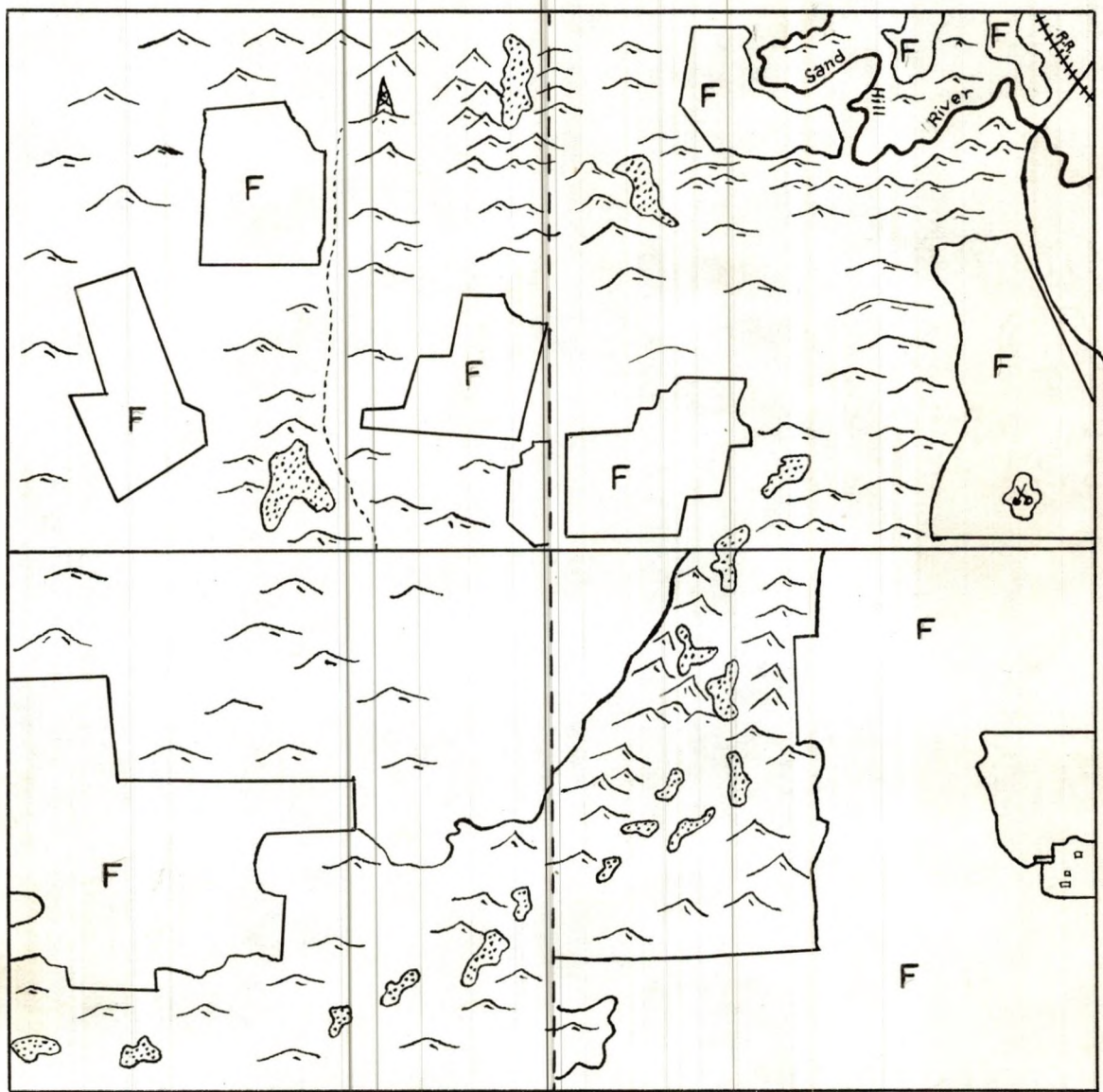
Fig. 5. Aerial view of part of the northernmost
delta of the Sand Hill region.

CHAPTER II

GEOLOGICAL HISTORY

When glacial Lake Agassiz was at its highest point it left its mark by depositing a gravel ridge along its shores called Herman beach. This beach extends through sections 33, 28, 21 and 16 of Garfield township of Polk county as shown on the map on figure 1. This ridge is very marked where it passes through the eastern edge of the village of Fertile, Minnesota. Basements that are dug on the ridge expose the fine sand and gravel that has been deposited there through action of the wind and waves. This sand is in sharp contrast to the clay found when digging basements in other sections of the village.

The Sand Hill river was formed at about this period in geological history by the melting of the huge glacier that still covered the northern part of Minnesota. The leading edge of this glacier had carried with it an enormous amount of foreign matter, dirt, sand, boulders, and the like, that was embedded in the ice. Part of this load was deposited in morainic hills that run from the northwest side of Maple lake at an easterly angle through Erskine and McIntosh, Minnesota. The remainder of the material was carried down the Sand Hill river into Lake Agassiz where, upon entering the lake, it settled to the



- F Cultivated Land
- ⌋ Sand Hills
- ⋯ Sand Blow Outs
- ⊗ Gravel Pit
- ▲ Boy Scout Tower

Scale 1:21,000

FIGURE 6 SAND HILL DELTA

Highway 32

bottom, gradually building up a delta.¹ The mouth of the Sand Hill River must have been a few rods east of the point where highway 32 crosses the river in the northwest corner of section 28 (see figure 3).

Occasionally rivers would form on the surface of the ice sheet carrying silt with it towards the lake. Such must have been the case in the formation of the small delta, or sand dune area in the north part of section 16,² as there is no trace of an old river bed in that area, nor any possibility that the Sand Hill River could have at one time flowed that far north. The very limited area of dunes would also indicate that the river must have had a relatively short period of existence.

It is interesting to note that of all of the rivers and streams that emptied into Lake Agassiz, only five of them deposited deltas.³ There are three on the North Dakota side of the Red River. These are the Sheyenne, the Pembina and the Assinaboine Rivers. The two delta making rivers on the Minnesota side are the Buffalo, and the Sand Hill. The only apparent reason is that only in these

¹Warren Upham, The Glacial Lake Agassiz (Washington: U.S. Government Printing Office, 1895), p. 298.

²Ibid., p. 299.

³Ibid., p. 27.

particular cases was there enough material in the glacier to be carried off by these rivers to form deltas. All other streams flowed comparatively clear, though many streams are both larger and faster than are the delta-making streams.

At a point about a mile north of the village of Fertile in section 16 where the northernmost delta was formed the contour of the beaches left by Lake Agassiz bends sharply to the right and is nearly indistinguishable. The prominent Herman Beach divides into from three to five other beaches. This is accounted for by the fact that as the glacier melted and the earth was relieved of its great weight it slowly began to rise, thus keeping the original high level in the southern half of the lake, and gradually emptying the northern portion by making it so much shallower.⁴ This also aids in accounting for the delta being where it is, next to the highest of the Herman Beaches. If the Sand Hill River had flowed into the lake at a point farther north the delta would have been more evenly distributed over a larger area and perhaps would not even be noticeable today.

⁴Warren Upham, "Geography and Geology of Polk County, "Compendium of History and Biography of Polk County, Minnesota, ed. R.I. Holcombe, and William H. Bingham (Minneapolis: W.H. Bingham & Co., 1916), p. 14.



Fig. 7. A gravel pit being worked along Tintah Beach.



Fig. 8. Road crossing Tintah Beach. The road shows a slight rise as it crosses the beach. Note the trees growing along the foot of the beach where water is plentiful.

As it is, the delta sand can be identified in an area extending three miles west of its original mouth. This crosses three other very marked beaches as can be seen by traveling west from Fertile towards Beltrami. These are in order from upper Herman Beach, Lower Herman Beach, Norcross Beach and Tintah Beach.⁵ Each of these beaches contain extensive gravel deposits which have been developed by the county highway department or private individuals for use in road improvements.

At the foot of each of these beaches there is an area of wet soggy ground and a few swamps caused by seepage of water through the sand of the upper beach. The water follows along the older and more impervious layers of soil in the old lake bed until it emerges at the foot of the ridge as seepage, or in the form of springs.

Good water is easily found along the beach area and was one of the matters taken into account by the first settlers in this area. Water will rise in a dug well to within four to six feet of the surface. Artesian or flowing wells are rather common and good use is made of them by livestock raisers in the area. On the delta itself the wells are necessarily deeper because of the additional loose sand that is piled on top of the impervious layers of old lake bottom. Nowhere is there a problem of water

⁵Ibid.

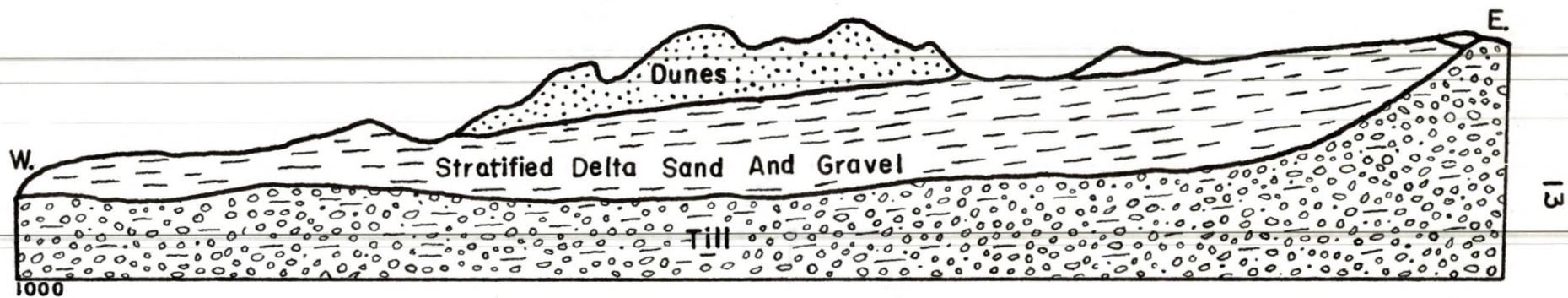


Figure 9 Section Across Delta Of The Sandhill River

Horizontal Scale, One Inch
Equals 1/2 Mile



Fig. 10. A sand blowout. Note how the creeping juniper (dark areas near the center of the picture) is gradually covering the bare sand and will prevent further blowing. Sand has been blowing from this large blowout over the upper lip of the dune where it is held by the vegetation, gradually building the dune higher.

supply for residents in the delta region.

As the lake receded and the sand of the delta dried, it was shifted and blown by the prevailing westerly winds into high dunes. These dunes now form three distinct sand ridges separated by more or less level ground. Successive generations of farmers living in the dune area have attempted to break the grassy level ground and put into cultivated crops, but with little or no success generally. The soil is too light and is subject to blowing during the early spring and late fall. Small fields of rye, oats, clover and corn are planted there. The corn is planted in a small field sheltered on three sides by groves of trees. Even at best it yields only a poor amount of corn for fodder or silage.

Perhaps the most complete study recorded of this region was made by Warren Upham in his book "The Glacial Lake Agassiz". His study was made in 1881. He noted then that large parts of the Sand Hills were barren dunes; however he prophesied that some day, when destructive prairie fires could be controlled, the trees would come back and cover the dunes. He noted many clusters of burr oak, aspen, green ash, blackberry and frost grapes growing there.⁶

⁶Warren Upham, The Glacial Lake Agassiz (Washington: U.S. Government Printing Office, 1895), p. 604.

His predictions have definitely come true. Today there are only isolated dunes that have large blowouts exposed on their westerly side, and even these are rapidly being covered over by creeping cedar and juniper which effectively prevent further wind erosion.

The delta slopes gently to the westward with a drop of from 25 to 30 feet per mile for its three mile extent. The eastern edge is 1130 feet above sea level and the western slope below the Tintah Beach is about 1000 feet above sea level. Individual dunes rise from 25 to 75 feet higher than the surrounding land as noted by Upham.⁷ These dunes have very likely grown considerably since then. Sand from the blowouts has drifted over the eastern lip of the dunes where it is held by vegetation. This process tends continually to build the mound higher.

The delta lies wholly south of the present course of the Sand Hill River. One can see from the air that the river bed has changed many times by the number of oxbows that remain as remnants of the old channel. Any other river bed outside of the present immediate valley has been covered over with blowing sand.

Another indication that the river is as far north as it has ever been is the hard yellow clay exposed along its right banks. The left bank of the river is composed of silt and gravel.

⁷Ibid., p. 28.

Fig. 11. Water worn boulder. The round even shape of this granite boulder was caused by its being rolled along the bed of a stream. It was found near the northernmost delta area where no stream now exists.



One of these large clay deposits is utilized by the Red River Valley Brick Company for making brick and tile. This is located immediately west of Fertile not far from the river. More will be said of the brickyard in the following chapters.

The sand in the delta is devoid of any rocks larger than small pebbles. It is typical of the silt that would be carried down by any river and slowly settle to the bottom on reaching still water. The first rocks to be found along the upper banks of the river are along the north side about two and one half miles west of Fertile. Here large granite boulders have been dug from the ditches and along the fence row for about half a mile. On a few of these scratches made by the glacier can be noticed showing that they had been carried here by the ice sheet.⁸ One of these boulders is shown in figure 11.

East of the village of Fertile the land is gently rolling morainic hills. The soils are classified as loam.

⁸The Fargo Forum, May 4, 1958, p. C-6

CHAPTER III

EARLY SETTLEMENT OF FERTILE AND THE AREA OF THE SAND HILLS

Many different early explorers undoubtedly crossed this region without leaving any permanent mark of their being here. Early settlers speak of ruins of a log cabin that marked a site of an old Hudson Bay trading post¹ located just east of Gredvigs mill near where highway 32 crosses the Sand Hill River.

The first trails to Pembina and Fort Gary followed the Red River a few miles East of its course on the Minnesota side. As travel increased, the difficulties of this route became more apparent. It was only useable during the early spring before the frost left the ground, or in late fall after the ground had frozen, and then there was the constant danger of being caught in one of the vicious prairie blizzards that often swept the plains. The Sand Hill River loses its course completely about twelve miles west of Fertile and empties into what was known as the Beltrami Swamp. It reforms its course about three miles northeast of Nielsville and continues on in a

¹Interview with Norman Nelson, son of the first settler in Fertile, Minnesota, June 24, 1958.

well marked channel to the Red River. Many stories are told of early travelers getting stuck with their carts and wagons in this bog, and having to unload and carry their sacks of cargo on their backs to free the carts, only to mire down again after going only a few rods further down the trail.

East Grand Forks was an early important stopping point along the trail to Pembina or Fort Gary. Later Crookston and Fishers Landing was settled and became a sort of terminal for many travelers and traders. To avoid the Beltrami Swamp a new route was discovered that led straight east from Crookston to the gravelly beaches of old Lake Agassiz and then turned south following these beaches until they would join other trails branching off toward Mendota. This ridge route was called the Crow Wing Trail, and crossed the Sand Hill River at the place where the old highway bridge is located near Gredvigs mill. No map was made of this route until 1865. Later on it became known as the Pembina Trail by common usage rather than any official designation.²

The most common mode of transportation used on the

²R.I. Holcombe, and William H. Bingham (ed.), Compendium of History and Biography of Polk County, Minnesota (Minneapolis: W.H. Bingham & Co., 1916) p. 49.

trail was the Red River Cart. These were large two wheeled vehicles pulled either by a single ox, or by a pony. The wheels were made entirely of wood and were about five feet in diameter and three inches thick at the rim. Grease for the axles was an oddity and the squeaks made by the wooden wheel rubbing against the dry wood of the axle could be heard for miles. The normal load for such a cart was five hundred pounds. The total cost was ten dollars in American money, or two pounds sterling if purchased in Fort Gary. If pulled by a pony, fifty miles could be made in a day; an ox would go about twenty miles in the same time.³

Several of these carts would band together for company in making the long tiresome journey. Ten such carts were called a brigade, and were often in charge of as few as three men. Five or six brigades made up a train. A leader of horseback would act as a scout and wagon master. He would often ride up and down the train, spurring on the slower members to keep them in line with the show of authority that would nearly do credit to our current television western thrillers.⁴

³Ibid., p. 46

⁴Ibid.

The first settlers along the Sand Hill River came in 1871. They were Levi Steenerson, Ole Estenson, Peter O. Setermoe, Ole Jevning, Tollif Ose, Knute Steenerson and Henry Simon.⁵ They squatted on land of the lower Sand Hill River north of Neilsville because of the plentiful supply of timber along the river banks necessary to build their homes. The land had not been surveyed and they later had to pay a preemption fee to establish title to their land.

The first settlers in the immediate area of Fertile⁶ came in 1879. Knute Nelson, Lars A. Bolstad and Einar Nelson were part of a covered wagon train made up largely of people from different parts of southern Minnesota. They had no exact goal in mind, but were going in the general vicinity of Park River, North Dakota to look for suitable land to homestead. Their trip was made more interesting because, included in their train, were several persons who had been to California during the gold rush and were now back looking for good land to settle on. These men entertained each night around the campfire with stories of their travels to California.

One evening in May, 1879 as the group was resting

⁵Ibid., p. 63

⁶Personal papers of Knute Nelson, obtained from his son, Norman Nelson, Fertile, Minnesota.

for the night near the present location of the creamery in Beltrami, they were discussing what type of land they would like to have to establish as their claim. They were overheard by a land locator who was among the party who said, that he had seen just the kind of land they were describing. It was only a few miles to the east of where they were camped at that time, and he offered to take them there and show it to them the next day. He said there were several sparkling lakes not too far to the east of their land, and thick good stands of poplar groves to supply timber for construction of their homes. The Sand Hill River was spring fed and would supply a steady supply of good water for them and their livestock. The prairie grasses stood belly high on their cattle to testify as to the fertility of the virgin soil. The little group agreed to follow him the next day and try their luck in this seemingly ideal place. They spent the next two days locating claim markers, then hurried off to Crookston to file on their claims.

Knute Nelson, being the only single man in the group, was elected to stay there the next winter to prevent anyone from jumping their claim. The others returned to their former homes to return the next spring with their families.

Each spring thereafter more and more settlers arrived until most of the land was taken. This can be best illustrated by the story of Inar Burslie, who after two previous trips to sell horses in the Fertile area, decided to take

some land and settle down in the year 1896. The only open unclaimed land lay on the delta of the Sand Hill River. Inar Burslie filed on this land and started to raise hogs and corn. After building his herd of pigs up to number fifty-five, cholera hit them and all but one died. This financial disaster forced him to move to town to find work to support his family of thirteen children, "One crop," according to his son Larry, "that was a success in the Sand Hills."⁷

The first store to serve this area was opened by a Frenchman named La Due, in a place known as La Dues Grove, about a mile and a half northwest of the present village of Fertile, between sections 7 and 18 in Garfield township. A post office was also incorporated with the store. This area was wooded and rather swampy and did not attract settlers. Most of the people lived east and south of La Dues Grove.

Knute Nelson built a store at about the southeast corner of section 16, Garfield township, and was joined by Dr. Arne Nelson, who operated a drug store in connection with his medical practice. A photographer's studio also occupied this site. The little cluster of buildings became known as Aldal. Since this location was closer and

⁷Interview with Larry Burslie, June 23, 1958.



Fig. 12. Flour Mill erected by Sohler and Kankle, 1882



Fig. 13. Old Mill dam site. This is near the location where the Pembina Trail crossed the Sand Hill River.

and more accessible to many of the settlers a petition was passed around and a post office was soon established as a part of Knute Nelson's store. During the winter the mail had to be delivered to Beltrami and Rindahl communities on skis. The salary of the postmaster constituted the gross receipts of the post office.

The first bridge across the river was built in 1881 by Anders O. Morvig at his own expense.

A flour mill was erected by Sohler and Kankel near the crossing of the Pembina Trail utilizing the water power of the Sand Hill River. This mill was built in 1882. The mill attracted other business establishments including a small hotel built by Fritz Barholz, and two blacksmith shops. La Due moved his store and post office to the mill site also. La Due gave the name Fertile to this location, naming it after his old home in Fertile, Iowa. It seemed that this would be the permanent location for the new town.

Otto Kankel also built and operated a second flour mill directly west of Fertile. This got to be known simply as "the West Mill." The location for the mill was chosen because of a natural drop in the river that could be exploited by building a dam over it that would back up a larger amount of water on the wide river flats directly behind it. This mill was in operation until 1945 when the dam was breached by a spring flood and it was deemed im-

practical to put it back into operation.

The coming of the railroad caused both concern and excitement in the newly settled area. There was a big race on between James J. Hill's Minneapolis to Winnipeg branch line, and the Great Northern Railroad. If the Great Northern won out, Fertile would be an inland town destined for a slow but certain death in the future, as its route ran half way between Fertile and Winger, with Rindahl the main station serving this area. If the Northern Pacific should come in first, Rindahl would eventually be the forgotten village.

As the original route of the Northern Pacific was planned, it would go east of the Pembina Trail crossing and make Aldal a main stopping point. Otto Kankel sensed that this would be a big handicap, if not ruin to the little cluster of business places near his mill and made plans to save them. He made friends with the engineers and construction foreman of the Northern Pacific, and arranged a big party in their honor at his home.⁸ This apparently did the trick, as the route was changed and a high trestle was constructed across the Sand Hill River valley just east of his mill.

The Great Northern ran into trouble as it neared the vicinity of Maple Lake. Peat bogs were encountered

⁸Interview with Hjalmer Erickson, June 18, 1958.



Fig. 14. Railroad bridge crossing the Sand Hill River. The embankment on the far right of the picture was one anchor of the dam used to power the old flour mill.

that made the making of a firm roadbed a slow and finally an impossible task. It was finally abandoned. The grade for the tracks can still be seen running through several fields between Rindahl and the point where work was stopped just northwest of Maple Lake. Fertile was to gain a dominant position from this mishap.

The completion of the railroad through Fertile in 1888 also spelled doom for Aldal. Knute Nelson and Dr. Arne Nelson decided to move their business establishments to the new townsite. Since the railroad passed over the valley of the Sand Hill River, the station and elevators could not be built there, but, they reasoned, the flat land to the north side of the river valley would be an ideal location for the village. Accordingly they moved their buildings into what is now the present village of Fertile. Dr. Arne Nelson's original building is still standing at this writing, and is owned by Obert Knutson. It is in use as a cafe and beer parlor. La Due moved his store and post office for the third time to a location just south of the present school building in Fertile. The group of buildings around the old mill became known as "Old Fertile" as the new Fertile took shape on the higher level ground.

The railroad trestle has been washed out at least twice by cloudbursts along the upper course of the river,

once in 1889 and again in 1909. The bridge has been shortened by the building up of grade approaches at either end, however, the bridge is still a wooden structure as is shown in figure 14.

Ole Tyssen was the first homesteader on the original site of the village of Fertile. As the village grew James Hanson formed the Fertile Development Association and proceeded to lay out the town into city blocks. He planted elm trees evenly on each side of the streets where the future boulevards would be. He also was shrewd enough to donate land for a church at the end of a street effectively blocking future development association. Fertile can be grateful to this far sighted gentleman for his forethought in laying out the town and beautifying it. His planning has resulted in unity and order to the city's growth and added a great deal of beauty to its appearance.

Many other fine men have contributed to the growth and development of the village of Fertile, however, the main purpose of this study is not to record a complete history of the town, but only to show the pattern of development in so far as it will effect the area of the Sand Hill River delta.

CHAPTER IV

PRESENT LAND USE OF THE SAND HILL DELTA

Currently all of the land in the Sand Hills is privately owned. There are twelve different property owners represented in the four main sections of this study, thus the average size of their holdings would be about 160 acres. The same ratio of ownership would hold true in the surrounding sections of the neighboring townships.

There are only two farmsteads located within these four sections. Three other owners are located in farms adjoining this land. In two other instances, the owners live in town. One piece of property is held in an estate. The remaining four tracts of land are in the names of sons or daughters of other landowners within this four sections of land.

About 75% of the land is used for grazing of cattle and sheep. 10% is under cultivation, and the remainder lies idle, although at times livestock is allowed to roam at will over a part of this area which is unfenced and which may be considered open range.

The cattle form the chief means of support for the owners of this land.¹ The open park-like spaces between the trees provide excellent pasture. The river in many cases assures a steady supply of water. The springs seeping in towards the river will leave open water holes even in the coldest months of the winter. Cattle find protection from the cold winds in the little valleys between the dunes, and among the trees.

The main danger is overgrazing. It is always tempting for the cattleman to try to keep more livestock on the land than it can justly support. If the grass should be grazed down to a point where it will not grow back, there is the danger of new sand blowouts starting that will take years to put back into grass. This danger of overgrazing is even greater where sheep are permitted to overgraze a pasture. Most of the livestock owners have to put up hay on other land and haul it in to keep their animals through the winter months.

Although Oscar Haugen has been very successful in raising sheep in the Sand Hills, there are some drawbacks that seem to work against the sheep raiser. The prairie needles, sand burrs and the sand itself works into the

¹Interview with Cyrus Sannes, trucker for the Fertile Shipping Association. June 26, 1958.

Fig. 15. Field of wheat in the delta area. Note how the light soil has been blowing and filling the ditch in the foreground. The trees left standing in the background serve as natural shelterbelts to decrease the effect of wind erosion.



wool and produces an inferior grade.

Among the most commonly grown cultivated crops are rye, sweet clover, corn, alfalfa, millet and oats. As can be readily seen, these are nearly all feed crops for livestock, and not used as a cash crop. The fields are small and they are usually planted in the lower elevations on the river flats, or in sheltered fields between the trees where the danger of blowing is not as great.

The tilling of the soil is kept to a bare minimum. Corn is planted directly after plowing so the furrows protect the young plants from being cut off by blowing sand until it is large enough to fend for itself. The rough plowing also helps to hold the topsoil better than if it had been dragged smooth. Other crops are stubbled in after disking also to prevent wind erosion. Yields are not great and vary from year to year depending on moisture conditions. Above average rainfall is needed to produce a fair crop, below average rainfall means a crop failure.

The Sand Hills are a favorite place for the hunter and trapper. Nearly anytime a person chances to go through this area he can see deer. Muskrats and a few beaver make their homes in the river and are taken in season by local trappers. Mink provide additional income for a few families living there. Upland game, although not plentiful, can be found, especially grouse and other

birds that like the protection of underbrush.

The river has yielded satisfactory results for the local fisherman for many years. The first settlers say that catfish was one of their main staples in their diet. Variety depended upon the ingenuity of the cook in inventing new ways of preparing it. In later years northern pike have come up the river in the spring and then as the water goes down, stay in the deep holes where the ambitious fisherman can seek them out. In 1956 the drainage ditch from the foot of Tintah Beach to the place where the Sand Hill River re-enters its channel west of Beltrami was dug and several concrete dams were built across it to prevent too rapid run off of the water. These dams prevent the spring run of fish to reach the upper portions of the river and has harmed fishing a great deal.

The river is an important source of minnows of the type used for bait in all of the resorts in Minnesota. This has been a matter of concern of the sportsmens clubs in Fertile because commercial bait fishermen have been systematically seining for minnows and have had little concern for the small game fish they also catch in their nets. Streams and ponds in the eastern and southern part of the state have been stripped of minnows by these fishermen and they have been forced to go farther and farther for their source of supply. A good solution to this problem might be to plant minnows in lakes and ponds by



Fig. 16. Red River Valley Brick Company, Fertile, Minnesota. Note the bank of clay on the far right. This marks the farthest northern extent of the Sand Hill Delta. The light material in the foreground is faulty brick that is dumped there for fill.

the bait selling firms where they can raise their own minnows. This has proved practical and is being done in ponds near Maple Lake by a few such firms.

The Fertile Brick and Tile Company was started by George Kronschnabel in 1898, using clay found in the north bank of the river just west of Fertile. Many of the local business buildings in Fertile were made from this brick. The clay deposits are not very large and the plant has not been operating too steadily in the last few years. Most of the brick made today is used as inside brick, or fill in construction work, and not for outside, or face brick. This was true of the brick used in the construction of the latest addition to the Fertile School in 1954.

The Sand Hills area is a favorite place for the nature lover. It is rich in plant and animal life for the botanist and zoologist. The University of Minnesota has repeatedly sent field trips into the area where they have identified plants and small animals that can be found in no other place in the State.

The Boy Scouts of Fertile find the Sand Hills an ideal place for their overnight hikes and camping trips. They have erected a tower made of logs on top of what is probably the highest dune, which gives them an unobstructed view for miles in every direction. On top of this dune they discovered a concrete marker that once held a leg of a tower erected by a survey party of the Geological Sur-



Fig. 17. Boy Scout observation tower. This was built on the highest dune in the Sand Hills. Crude as it maybe it is a great source of satisfaction and pleasure to the boys who built it.

vey that bears the date 1906. (See figure 18.) In a protected valley, below this dune they have started to improve a campsite that they hope to develop into a place suitable for holding camporees, where they can be hosts to scouts from other parts of their district.

Hjalmer Erickson owns about 240 acres of land in section 32 comprised mainly of a large sand dune ridge. When asked what use he made of his land he stated simply that he just enjoyed hiking in it occasionally and getting closer to nature. His feelings are shared by a great many people in Fertile. During the spring or the fall especially, many people will spend a Sunday afternoon hiking over this rough ground drinking in the beauties of nature, and enjoying the changing colors displayed by the many different varieties of trees and plants, and listening to the soft sounds made by many of God's small creatures. One comes away feeling tired, yet refreshed and inspired. The problems of the world of man's makings seem a little less important and easier to face once again.

The sand in the dunes themselves is of a light tan color with a fine even granular texture about the same as one finds in ash receptacles found in most public buildings. At one time a sample was sent into the University of Minnesota to explore the possibilities of its being used for some commercial purpose. It was found to be usable for the making of glass, however, other conditions



Fig. 18. Geological Survey Marker, 1906.

such as low-cost fuel, labor, and distance to industrial centers, have caused it to remain unused.

There are a few small gravel deposits in the delta area, but none large enough to be exploited by more than local farmers. Much larger and better gravel pits are located all along the glacial beaches near by so these smaller deposits are unprofitable to develop.

As has already been noted in Chapter Three the Sand Hill River has been used for water power to operate two different flour mills. Neither is in operation at the present, nor is there much of a possibility of their being reopened in the future. Other sources of power are more convenient and the cost factor involved in installing a dam does not justify it being done.

The village of Fertile makes use of the river as an outlet for its sewage system. The sewage is untreated, but the pollution resulting from this practice is negligible at the present time. If the village should grow, or more use should be made of the downstream water, a filtration or treating plant of some sort would have to be added. This has been discussed at different times by the village council.

The burr oak and aspen are the dominant trees that grow in the Sand Hills. The oaks are for the most part stunted and crooked. Some fence posts have been made from these trees by the local farmers, but not in quantity

for sale. This is also true of wood cut for fuel. The best stands of trees that could be cut for lumber are about eight miles east of the delta. A small saw mill was erected at Rindahl this past winter, in 1957, that did custom sawing for farmers in the area. The principal wood cut was basswood and elm. The lumber was used for hog houses, machine sheds, and similar outbuildings on the farms. The owners of the mill planned to add a planer to their equipment the following year if there was sufficient demand for finished lumber.

A crude rifle range was established in the Sand Hills about the time of World War II. It has not been kept in repair and is only used now by hunters to zero in their rifles before the start of deer season.

CHAPTER V

POSSIBLE USE AND DEVELOPMENT OF THE SAND HILLS

The Sand Hills are considered by most local residents to be almost useless land. The fact that none of it is county-owned through delinquent taxes will, to some extent, prove that untrue. Although its primary use is for grazing land, and perhaps will be for a long time to come, the purpose here is to suggest other developments that may sometime in the future prove useful and practical. As in the story of the early settlement of this area, the better land was claimed first, and as it was taken and used, late comers were forced to take the poorer land and find ways and means to make a living from it. This, in a sense, has been the story of the development of our whole country. As land becomes more and more scarce people will find means, perhaps through advanced scientific methods, to use land that was heretofore judged to be useless, or nearly so. Such may be the case with this sandy region under study. Most of such ideas are suppositions and, tho intriguing, are not going to be developed here, but left for soils specialists to ponder over.

Probably the most practical use to which this area can be put lies in the field of recreation and conservation.

There is a definite need of places where people can go and escape from the worries of the world and compose their minds for a time before facing another working day with its regimented patterns of thought and action. The lakes and parks that we have now are overcrowded. What will they be like in another hundred years when transportation will be such that everyone will be on the move looking for a place to relax in relative peace and quiet? If places of natural beauty and interest are not set aside now, their cost will be prohibitive in the future. Beauty spots will have been changed by man, or they will be developed by private interests to the exclusion of the great majority of American citizens. Public beaches on Minnesota's fine lakes are hard to find, and once found are so crowded on week-ends and holidays that one feels he might just as well have stayed home, or simply have gone to his city park. Itasca State Park is the largest and finest of its kind in Minnesota. It is far from our centers of population, yet this overcrowding can be plainly seen even now on any pleasant week-end from the Park's opening to its closing day.

Making a State Park of the Sand Hills has been proposed by different civic groups in Fertile, however, no action has ever been taken. This may be because of

a wrong approach, or apathy on the part of State officials, nevertheless it should not be a forgotten cause. The other delta of glacial Lake Agassiz in Minnesota is included in the Buffalo River State Park. The Sand Hill Delta has as much, if not more to offer the public and therefore should be allowed to take its place in our State park system also. North Dakota has, to some extent developed the recreational areas in its deltas. A large 4H camp is located on the Sheyenne delta and occasional publicity is given to it through articles published in the newspapers and magazines of that state.¹ The Turtle River area is a favorite picnic site west of Grand Forks. These are a few examples of what can be done with a little effort by interested groups of citizens if they recognize the need and possibilities for developing such natural areas.

The Sand Hill River, although not a large stream, has a steady flow the year around. It is spring fed and its waters are pure and cold. There are several locations where, with a little effort, a dam could be placed across the river that would back up water to make a fine place to swim. This project has been discussed at length by the American Legion and Lions Clubs of Fertile, but they

¹The Fargo Forum, June 5, 1955, p. B-8

lack the necessary funds to make it an accomplished fact. Public liability in such a case has made them timid about going ahead with any project that may not be developed in the proper manner. The sandy nature of the banks would insure a fine beach for any such swimming pool. Access roads, bathing houses and proper supervision are other problems to be settled and are not easily accomplished through a small civic group.

As has been mentioned earlier in this study, the Sand Hills are often used for picnics by local people. There are many sheltered grassy valleys that make ideal natural picnic locations. Since periodic prairie fires have been prevented, the trees have grown to a considerable height, but this has come about in the last thirty five years, according to local people.² In the future they should continue to grow and make an even more attractive place to have an outing.

As more of our land yields to cultivation the remaining natural growth is of more interest to nature lovers than before. The oddities in the Sand Hills that are the subject of study by the University of Minnesota would also be interesting material for conducted nature hikes in a state park.

²Interview with Norman Nelson, June 24, 1958.

Wildlife in this region is already plentiful and varied. With the protection and supervision that would come with a park system it could be increased. Instead of being the private hunting grounds for the few, it would furnish entertainment and enlightenment for a great many.

The village of Gary, Minnesota, twelve miles south of Fertile, has conducted an interesting project that may have some bearing on this study. One mile northwest of Gary an area of light sandy soil was blowing so badly that the citizens of that community decided to try to stop it. Every strong northwest wind brought clouds of dust into the stores and homes of the people living there. In 1942 the city bought a quarter section of the land nearest them that was the source of the drifting sand. With the aid of 4H clubs, boy scouts, and interested townspeople, they planted evergreens by hand over a portion of their quarter section. Each year thereafter additional trees were planted until it is estimated that about one hundred thousand trees are now growing. Evergreens do very well on the light soil. Once they have established a good root system little or no care is required to keep them up. Gary plans to establish a park at that place along highway 32. Some picnic tables and benches have al-



Fig. 19. The Gary Pines.

ready been placed beside this beautiful stand of trees. (See figure 19.) They also plan to make a water hole for deer and other game by using a bull dozer and digging down to the water table, which is only four or five feet below the surface. The State Game and Fish department has at times wanted to take over the project, but the village council of Gary has decided that they want to do the job themselves. They have been very successful so far, and fear that it may be neglected if turned over to other authorities. According to village council regulations the trees cannot be cut until they are mature, then it may be logged off and must be replanted as soon as possible.³

The market for evergreen trees for Christmas sale has grown greatly in the last few years. This is one crop that would be successful in the Sand Hills and would pay dividends in many ways other than the money obtained from their sale. The prevention of further blowing of sand, as shelter for wildlife, and additional beauty of the landscape, are but a few of the additional benefits from such a plan.

A golf course was once located in the Sand Hills near Fertile. It has not been kept in operation.

³Interview with Tommy Anderson, member of the village council of Gary, Minnesota, June 18, 1958.

Lack of a sufficient number of people to maintain a club was the reason for its abandonment. The natural location seems to be ideal if at a later date one could be started. Water for sprinkling could easily be obtained from the river. Natural obstacles and sand traps already exist in abundance!

Some thought has already been given to establishing a riding academy or saddle club with bridle paths through the rough dune section.⁴ Here again the natural location leaves nothing to be desired for such a venture. The biggest handicap is distance to centers of population large enough to support such a scheme. A private operation might make a success of such a venture with an extensive advertising campaign to aid in establishing a reputation. A ski tow was thought of to attract winter sports enthusiasts and insure an all year round income. Several dunes would lend themselves very nicely for such an enterprise. The boy scouts occasionally go on ski hikes and enjoy going down these slopes in the winter, but the distance from a good road, even though it would be only slightly over a mile, discourages many others from taking part.

⁴Interview with Norman Bakken, September 23, 1957.

A steak house with the latest modern equipment has been built just on the south edge of Fertile that takes advantage of the beautiful view to the southwest overlooking a part of the Sand Hill Delta. The owner has contemplated adding a motel near this same location.

A new improved highway going north and south through Fertile will be completed in 1958. This highway lies on the most direct route between Winnepeg and Minneapolis and St. Paul. The increase in the flow of traffic should bring renewed interest in the scenic beauty that lies so close at hand. The principal reason for not developing this area seems to be lack of interest and capital. This may some day be obtained as more people become acquainted with its possibilities. Many of our citizens look at nature's wonders, but too few see or appreciate them until it is too late. The solution must lie in a better educated population who will be far-sighted enough to recognize and preserve for posterity the things we take for granted today. An example is the Sand Hills Delta of Minnesota.

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