The Changing Impact of Natural Disasters in Brookings County, South Dakota

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THE CHANGING IMPACT OF NATURAL DISASTERS
IN BROOKINGS COUNTY, SOUTH DAKOTA

BY
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A thesis submitted
in partial fulfillment of the requirements for the
degree Master of Science, Major in
Geography, South Dakota
State University
1982
THE CHANGING IMPACT OF NATURAL DISASTERS
IN BROOKINGS COUNTY, SOUTH DAKOTA

This thesis is approved as a creditable and independent investigation by a candidate for the degree, Master of Science, and is acceptable for meeting the thesis requirements for this degree. Acceptance of this thesis does not imply that the conclusions reached by the candidate are necessarily the conclusions of the major department.

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Several people need to be recognized for their part in making this long-awaited goal a reality: the Brookings School District for giving me the year off from teaching to further my own education; Dr. Charles F. Gritzner, whose concern for us "school marms" gave me the incentive I needed to go back to school; Dr. Edward P. Hogan, who helped put together an excellent program which will be of value as I return to my classroom next year; and Dr. Lee A. Opheim, who has always had "the utmost confidence" in me.

Special credit goes to the two most important people in my life, my husband Wayne and daughter Amy. Without their love, patience, and understanding, it never would have been possible.
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CHAPTER I

INTRODUCTION

When studying the geography of any area on earth, one is interested in more than just its location and its physical appearance. The total environment of that place plays a very important role in the lives of those who are living there. The purpose of this investigation is to look at a small, but very influential, segment of the environment of one geographic area.

Natural hazards. Man has been fascinated by them, terrorized by them, and killed by them. The earth and its environment expose humans to many forces over which they have no control. Earthquakes, volcanoes, hurricanes, tornadoes, avalanches, tidal waves, floods, droughts, blizzards, lightning, and hail are all extraordinary events which nature uses to remind people of its awesome power.

These hazards of nature became natural disasters only when they inflicted destruction upon human life and its property. The occurrence of hazardous events themselves, has not increased in quantity or intensity, but the number of disasters has risen dramatically. As the population of the world grew and its people intruded further onto
land formerly ruled by nature alone, the potential for disaster was magnified proportionately.

Earth, as man's home, is therefore a very formidable place in which to live at times. People, no matter where they reside, must adapt and adjust their lives to the setting in which they have chosen to dwell. Man cannot escape all of nature's ravages, but in order to survive he has learned to cope with their existence. Early man did not understand the causes behind these violent interferences in his life, so the "gods" were blamed for such spectacular performances. Even though these events are much better understood today, man has yet to bring them under his own control.

This study takes an in-depth look at the various kinds of natural disasters that have affected one small piece of the world and their changing impact over the last century. The site chosen for this research is Brookings County, located in east-central South Dakota. Though occupying only a minute speck of the earth's 196,940,400-square-mile surface, it has been the recipient of many violent acts of nature.

In order to begin the investigation, it was necessary to identify those hazards common to Brookings County. The county is extremely fortunate that it does not need to contend with the problems of hurricanes, volcanoes, tidal
waves, avalanches, or earthquakes.* The natural disasters which affect Brookings County tend to be directly related only to the weather, and though they may not seem as phenomenal as those previously mentioned, the consequences of their presence over the years have been no less dramatic.

Not every natural hazard has resulted in a disaster, so the next task in completing this study was to determine which incidents produced heavy damage and/or loss of life in the county. This was accomplished by obtaining dates of hazardous events in this part of South Dakota from Climatological Data South Dakota, Climatological Data National Summary, Storm Data, and historical accounts of the state and county.

With a composite list of dates as a guide, county newspapers were then explored to determine the extent of each disaster within the county, the amount of damage inflicted, and the steps taken to recover. In searching through miles of microfilm, several natural disasters were discovered that had not been recorded in any of the aforementioned sources. Therefore, this study makes no claim to have identified every single natural disaster which has occurred in Brookings County, but the author feels that

*A list of earth tremors which have been recorded in South Dakota can be found in Appendix A.
sufficient data was obtained to demonstrate that natural hazards did indeed produce more disasters as time passed during the last century.

Nature ruled supreme in this county until the latter part of the nineteenth century. As the people of the United States moved west in search of new land and new homes, they faced much suffering and hardship as the natural elements did their best to discourage them. Those who reached Brookings County and settled there, were caught in furious battles with nature right from the beginning. The passage of years saw these struggles return time after time, but their overall effect in the county changed considerably. As settlement within the county was such an important prerequisite to the occurrence of natural disasters, a detailed study of the population's distribution throughout its history is examined in chapter III.

Those who selected to live in this geographic area of the world have had to endure blizzards, floods, tornadoes, hail, lightning, drought, grasshoppers, and prairie fires. Chapters IV through VII review the records of these disasters in Brookings County as they occurred during the last century. However, before looking into these disasters and their consequences, we should be more familiar with the stage upon which these acts were performed.
CHAPTER II

GEOGRAPHY OF BROOKINGS COUNTY

Brookings County, located along the east-central border of South Dakota, has had many political connections and boundary changes before being given its present dimensions in 1873. As part of a vast, new land, it was claimed at various times by the Indians, France, and Spain until it was sold to the United States in 1803 for about two and one-half cents an acre.\(^1\) By the time South Dakota became a state in 1899, the land in Brookings County had been under the government of eight different territorial divisions of the United States.\(^2\)

The first boundary line for Brookings County was drawn when Minnesota became a state on May 11, 1858.\(^3\) When the county was created on April 5, 1862, it was much larger and included the northern half of Moody and Lake Counties as well as two tiers of townships along the eastern end of Kingsbury County (Fig. 2). It was reduced to its current size on January 8, 1873.\(^4\)

Located in the middle latitudes far from any large bodies of water, Brookings County is a typical example of the humid-continental climate (Dfa), having four easily distinguishable seasons. The area is alternately influenced by
Fig. 1. Location of Brookings County

Fig. 2. Original Size of Brookings County
air masses from northern regions and from the Gulf of Mexico. Long cold winters are followed by moist, cool, sunny springs, summers which are hot and sunny, and dry, cool, sunny autumns. With about 2,700 hours of sunshine annually, the county certainly adds support to South Dakota's "Sunshine State" nickname.5

It is not unusual for the Brookings area to experience extreme variations in temperature with the thermometer reaching above 100°F in the summer and dropping below -20°F during the winter season. Temperatures above 100°F can be expected once a year in July, every three years in August, and every five years in June. Readings of -20°F normally occur twice a year in January and February, and once a year in December. Approximately once in three years a -30°F reading will be taken during the months of January or February. The temperature may fail to climb above 0°F twice a year in January and once a year in February or December.6

Brookings County precipitation comes in a variety of forms, from rain and hail to sleet and snow, with most of the moisture occurring in the form of rain. Average annual precipitation for this area is 20.59 inches, 80% of which falls during the 127-day growing season between April and September.7 Most of this rainfall comes during thunderstorms which are often accompanied by wind and/or hail.

Large amounts of rain occasionally occur in unusually short time periods. Annually an inch or more will fall
in one hour. Rainfall at a rate of two or more inches an hour can be expected only once in seven years. Once a year, two or more inches of rain will fall in the course of twenty-four hours, but rainfalls in excess of four inches in an equivalent time period are extremely rare and occur only once in each decade. 

Brookings County lies in an area which averages two hailstorms per year. In some years such storms occur with sufficient frequency as to be considered almost common and in others are non-existent. Although hail has been reported as early as May 1 and as late as September 10, most of it falls during the months of June and July.

Snowfall averages 24 inches annually. Recorded extremes vary from a low of 3.1 inches during the winter of 1930-31, to a high of 72.5 inches during the 1968-69 season. For 63 days of each year the ground is covered with one inch or more of snow.

Prevailing winds during summer average about ten miles per hour from the south, and during the winter months they average eleven to twelve miles per hour from the northwest. Winds of fifty miles per hour occur most often during summer thunderstorms and when a cold front or deep low pressure area passes through the area in the winter.

The county, then, is exposed to a wide variety of weather conditions during any given year, but the land which is subjected to these elements, is not nearly as diverse.
Brookings County is located in a land described by Lewis and Clark as "a vast and worthless desert, a plain useless and unfit for white men." At one time the government even planned camel routes across this "Great American Desert," but "the camel would not stand for the insult and therefore died."

However, people continued to move west and the promise of free land was a compelling factor in sustaining their determination to make a new home in this untamed region. First arrivals were greeted with a view described by early settler John Anundson as "a great prairie land which seemed to be animated like a gigantic ocean waving and beckoning to the pioneers of my day."

Upon further exploration, though, the county revealed a great deal more to offer than easy-to-cultivate land. Six of the county's twenty-three townships are drained by the waters of the Big Sioux River, first called Tehan-kas-an-data, which meant "thick-wooded river." Several creeks feed into the Big Sioux from the east, the most prominent being North Deer, Six Mile, Deer, and Medary. Lakes are also abundant. They include the southern tip of Lake Poinsett in the county's northwest corner, the Oakwood Lakes west of Bruce, Lake Hendricks and Oak Lake in the northeast corner, and Lake Campbell south of Brookings.

The 804 square miles of Brookings County lie entirely on the Coteau des Prairies, a flatiron-shaped plateau.
Fig. 3. Lake Oakwood

Fig. 4. Lake Campbell
region extending along the Minnesota-South Dakota border. Most of the county is flat to gently rolling, with elevations varying between 1,600 and 1,750 feet. The landscape in the northeastern corner, however, is a bit more rugged with steeply-sloping hills rising almost 2,000 feet above sea level (Fig. 5).

The area's most important natural resources are its deep, dark soil, the lakes, and the Big Sioux River. Much of the county is located on land composed of loess (wind-blown silt material) overlying glacial till (mixture of rock fragments deposited from the underside of a glacier during its retreat). The lakes and Big Sioux River provide the county with water, fish, and recreation, and they were also the only sites where the earliest settlers could obtain wood for fuel and building materials.

The combination of adequate rainfall, well-drained level land, and rich, fertile soil held the promise of a bright future for the early pioneers who had undergone much suffering to reach this new land. Though nature was not always sympathetic with the farmers, this area did not disappoint them. Their eternal optimism surmounted the uninvited gifts of nature, and this endurance was repaid well with excellent cereal crops and profitable markets for their livestock.

For much of Brookings County history, agriculture has been the most important source of income and wealth.
Fig. 6. Land Between Volga and Bruce

Fig. 7. Land Between Aurora and Elkton
Fig. 8. Landscape Northeast of White
Before the railroad arrived, only enough crops were produced to make the county self-sufficient. After 1880, wheat and flax became the principal cash crops while oats were grown for livestock feed. The number of farms in the county more than doubled between 1880 and 1890. In 1880, 31% of county land was used for farming, and by 1910, this had increased dramatically to 93.6%. Farming was still the sole source of income for 63.5% of the residents in 1930.

Today the scene is quite different. With a tremendous increase in industrialization in recent years, the number of people who earn their living in agriculture has plunged to a new low of 9%. Even though most of the land is still in agricultural production, the county no longer derives even 20% of its income from farm products.

Farming was one of the earliest ways in which permanent settlement made modifications in the appearance of the landscape. Today the county is the home of over 24,000 people, and it has witnessed the arrival and departure of several generations, each of which left its imprint on the area.

A first concern for those starting life in this new land was that of shelter for themselves and their livestock. The early pioneers used what was readily available to make their new homes, which sometimes was nothing more than a hole dug into the side of a hill. Later, sod houses were built and wood from the lakes and river was utilized to make
their homes more sturdy. Today the county is dotted with thousands of fine homes and apartment complexes, farm buildings and businesses.

Advancement in travel accommodations, since the pioneers arrived in their "prairie schooners," has also had an effect on the land. At first, the new settlers had little to direct them from one place to another, other than old Indian trails. One of the earliest "roads" was nothing more than a deep furrow plowed by a team of oxen to guide the horse-drawn wagons from Canby, Minnesota, through the Lake Hendricks area, to Fountain and Medary. Settlers in the southern part of the county also had access to Nobles Trail, marked only by mounds of stone and sod, which entered the county in Elkton township, passed south of Lake Campbell, and left the county through Lake Sinai township (Fig. 9). Many fine roads criss-cross the county now and today's residents have access to U. S. Highway 14 which extends east-west through the county and Interstate 29 which reaches north-south. In addition, bus and plane travel is also available.

However, it was the appearance of the "Iron Horse" in 1879 that made the most sweeping transformation in the character of the land. Within a few years, the county was traversed by the Chicago & North Western, the Burlington, Cedar Rapids, & Northern, which later became the Rock Island, and the Dakota Central Railroads. The Sioux City and
Fig. 9. Early "Roads" in Brookings County

Laketon
Preston
Eureka
Argo
Oak Lake

Winsor
Oakwood
Sterling
Afton
Sherman

Bangor
Volga
Brookings
Aurora
Alton

Lake Sinai
Oslo
Medary
Trenton
Parnell

Elkton

0 5
miles
Fig. 10. Major Highways in Brookings County
Northern had also made plans to serve the county, but this proposal was never realized. The building of railways led to an influx of homesteaders and resulted in the creation (or demise) of several towns within the county. These settlements are discussed in Chapter III. As a mode of travel, a means of communication with the outside world, and the bearer of necessary supplies, the railroad became the backbone of existence in the area. Today, less than 50 miles of track remain in use as the railroad continues to abandon service in several areas of the county.

Science and technology have created further changes in land use within the county. Poles and towers now rise
above the ground carrying wires and cables which transport and transmit various forms of energy and communication. New factories have been constructed which produce medical products, electronic scoreboards, plastics, and several other items.

One of the most interesting changes in the appearance of the county, however, was generated by the settlement of the people within it. The following chapter examines the distribution of people residing in Brookings County during its history.
1"In The Year Of 1803 Brookings County Land Sold For Two and One-Half Cents An Acre," Volga Tribune, 22 August 1929, sec. IV, p. 30.


3"First Boundary Made," Brookings Register, 5 January 1971, p. 11A.


6Walter Spuhler, Climate of South Dakota (Brookings, S. D.: Agricultural Experiment Station, 1971), n.p.

7Ibid.

8Ibid.

9Ibid.

10Ibid.

11Ibid.


13Ibid.


15"Tehankasandata Name Changed," Brookings Register, 5 January 1971, p. 5A.


20Art Hovey, "Emphasis on farm income declining," Brookings Daily Register, 21 January 1982, p. 5.


Apparent that with a growing number of people making this county their home, the potential for damase-wielding water or to inflict greater destruction also increased. Therefore, a study of the population and its settlement within the county over the years was necessary.

Settlement

County settlement began when groups of families made their homes in the areas of Medary, Oakwood, and near Lake Hendricks during the late 1870s. As of March 1, 1877, there were the only land filings in the county. That summer, however, a great migration took place and by August 4 of that same year, all the land in Brookings County east of Harney had been taken.1 During the next several years, fourteen towns were established with eighteen additional post offices strategically scattered throughout the county. Though six of the towns were short-lived, they all played an integral part in the historical development of the county.

The needs of the earliest settlers were supplied by the four towns of Medary, Oakwood, Findlay, and Brookings.
CHAPTER III

BROOKINGS COUNTY SETTLEMENT

When beginning this investigation into the changing impact of natural disasters in Brookings County, it became apparent that with a growing number of people making this county their home, the potential for damage-wielding weather to inflict greater destruction also increased. Therefore, a study of the population and its settlement within the county over the years was necessary.

Settlement

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The needs of the earliest settlers were supplied by the four towns of Medary, Oakwood, Fountain, and Renshaw.
Fig. 12. BROOKINGS COUNTY TOWNS - PAST & PRESENT

- FORMER TOWNSITE
- PRESENT TOWN
----- ABANDONED RAILROAD

FORMER TOWNSITE: Oakwood, Renshaw, Volga, Sinai
PRESENT TOWNS: Bruce, White, Bushnell, Mckain, Brookings, Aurora, Elkton
ABANDONED RAILROAD: Formed part of the proposed railroad network connecting Brookings with other towns.
The original townsite of Medary located in the south central part of the county, was named after the son of Governor Medary of Minnesota. It was established in June 1857, by the Dakota Land Company of St. Paul in hopes of making it the capital of the proposed Dakota Territory. Their plans, however, were set back when these "trespassers" were driven out by the Sioux Indians led by Chief Smutty Bear in the spring of 1858.

In 1860, Medary was the home of the only non-Indian
resident of Brookings County, Francois La Paire, a hunter of French Canadian ancestry. Five years later, Charles Stearns reached Medary and found no one living there. Mr. Stearns had heard rumors indicating plans of the Chicago & North Western Railroad to extend through this area, and he intended to take advantage of the business opportunities and inflated land prices which would result when this occurred.

He brought his family here on July 7, 1871, making them the first permanent settlers in the county. Stearns joined two other men, H. N. Urmy and John Bippus, to plat the Medary townsite that same year. Medary served as the county seat until the railroad town of Brookings was formed seven miles north in 1879, at which time most of the buildings were moved there.

On May 18, 1873, Byron E. Pay and his family settled on the east shore of Tetonkaha Lakes, making theirs the first homestead in Oakwood township. They called their claim "Oakwood Farm," the name later adopted by the lakes and the township. A post office was established on November 21, 1874, and by 1877 the lakes, described as "an oasis in an otherwise prairie country," had attracted seven more families. Oakwood Village was laid out by the Downing brothers who built the first store. Several additional businesses, including a flour mill, were added in 1879, making Oakwood the "most flourishing settlement of the time." When a
branch of the Chicago & North Western Railroad was built north toward Watertown, however, Oakwood was neglected, and the town of Bruce, located along the track to the east, was promoted instead. Many of Oakwood's buildings were moved to Bruce and others gradually disappeared.¹⁰

Fountain, named after the springs which flowed from the hillside, began its short life when the first building was erected on April 2, 1878, by J. O. Walker.¹¹ Hopes were high that the railroad would pass through the town's limits since it was less than five miles east of the geographic center of Brookings County. A post office was established
on July 30, 1878, along with a few more buildings including George Hopp's newspaper office which printed the *Brookings County Press*. The village's future was cut short, however, when the railroad reached Brookings in 1879. In order to reap the benefits offered by railroad proximity, most of the town's buildings and businesses were moved to Brookings, and "the village on the hill, in all the silvery sweetness of her diamond beauty, faded away like the stars of the morning." Renshaw was established in 1878 by speculators from Chatfield, Minnesota. It was located where the creek from Oakwood meets the Big Sioux River, three and one-half miles north and one-half mile east of Volga. During its brief existence, it acquired a post office and saw construction of a school, a grist mill, and a blacksmith shop. The railroad's advancement through the county, though, led to the dissolution of this village when the town of Volga was created to the south.

Though the arrival of the railroad led to the demise of the four previously described villages, four new towns were created along its line: Aurora, Volga, Brookings, and Elkton. Aurora, named for the Roman goddess of dawn, was the first town platted in Brookings County which still exists today. The townsite, laid out on four adjacent 40-acre tracts of land donated by four settlers in September 1879,
was also the first in the county to have regular rail service by the Chicago & North Western Railroad. With a tentative promise by the railroad not to build another town between Aurora and the Big Sioux River, the village grew rapidly. During the next few years it took pride in a wide variety of businesses and industries, including a hotel, hardware store, sorghum mill, cheese factory, and shirt factory. This prospering little town was almost destroyed by fires twice, but the people refused to see it die and rebuilt both times.

When the railroad added Brookings to its line about seven miles west, Aurora's growth stagnated and eventually the population declined. The Brookings County Press credited Aurora with approximately 400 people from 1885 to 1889, but only about half this number lived there from 1900 to 1970. The most recent census, taken in 1980, reveals that the population has once again grown, more than doubling since the count ten years earlier.

In September 1879, Volga, once called "Bandy Town," was founded and platted by Colonel Arthur Jacoby of the Chicago & North Western Railroad. Four men each offered forty acres to form a townsitf when they heard that the railroad had plans to come through this area. From November 1879 to May 1880, Volga was the terminus of the road which accounted for rapid development of business establishments though the population was somewhat temporary in
nature. Today it is one of only two towns in the county which has continued to gain population since its inception.

About the same time that Volga was becoming an enterprising young town, plans were being made to add Brookings to the county map. Land between Fountain and Medary was offered to the railroad by several men who hoped that the line would establish a town there. Their wish was granted, and Brookings was started on October 3, 1879.

After only a month of development, Brookings found itself in a bitter contest against Aurora and Volga to replace Medary as the county seat. When the ballots were counted, Brookings had been chosen by two thirds of the voters to succeed Medary in that function. With the town laid out, regular rail service, and the county seat located there, Brookings was on its way. Several buildings and businesses were moved in from Fountain and Medary, including Hopp's newspaper office.

Brookings was destined to continue as an important cog in the wheel of county progress when the Dakota Territorial Legislature established an agricultural college there in 1881. Today, Brookings is the hub of that wheel, having grown from a population of 1,518 in 1890 to 14,951 in 1980. The city itself has also expanded with the procurement of many new businesses and industries and the spreading campus at South Dakota State University which now serves the educational needs of over 7,000 students.
In September 1879, when other towns had been started by the Chicago & North Western Railroad, Elkton was not included in the plans. That fall, settlers in the area bought land from the first resident of Elkton township, Jacob Schnellar, and offered it to the railroad. Ivanhoe, its former name, was nothing more than a station between Verdi, Minnesota, and Aurora until the following summer. Then, on June 16, 1880, a post office was established in this southeastern community of Brookings County.

When the name was officially changed to Elkton on July 21, 1882, it was the only town in the county being
served by two railroads, the Chicago & North Western and the Burlington, Cedar Rapids, & Northern which was built north-westward through the area.\textsuperscript{23}

By 1887, Elkton had an increasing population, a school, several churches, and many small businesses. The town was able to maintain the second largest populace in the county through 1950. Today it is no longer served by the Burlington, Cedar Rapids, & Northern, but the latest census indicates good growth once again.

In subsequent years, the laying of additional track in Brookings County brought the towns of Bruce, Bushnell, White, Sinai, Ahnberg, and McKain into existence.

In September 1883, Bruce, first called Lee, became the only town in Brookings County platted on the Watertown branch of the Chicago & North Western Railroad. It is located about fourteen miles from the county seat at Brookings and about ten miles north of Volga. In addition to the depot, several other businesses set up flourishing shops which led to the demise of nearby Oakwood Village.\textsuperscript{24} Though Bruce showed a steady decline in population after 1940, the 1980 census reports that it is once again on the rise.

Bushnell, named after the man who owned the land upon which it was located, had its beginning in 1884 when the Burlington, Cedar Rapids, & Northern Railroad extended its line to Watertown. It was still described as a "thriving little hamlet" in an 1899 edition of the Brookings
Weekly Register, although a disastrous fire had destroyed most of the town's business section on the morning of April 19, 1897. With the county seat only nine miles away, and the abandonment of the railroad in the 1960s, Bushnell never showed any appreciable growth, but, as of 1980, there are still 76 people who call it home.

As the Burlington, Cedar Rapids, & Northern pushed further north toward Watertown, the village of White, named after the man who owned the land, was brought into existence. Many businesses moved in from nearby areas as they realized the advantage of locating in White. Between 1890 and 1900, the town showed exceptional growth and even though
the railroad no longer serves this area, it has maintained a relatively stable population.

It was more than two decades later when Brookings County witnessed the birth of another town. After 1900, rumors of a railroad being built from Sioux Falls to Watertown were heard. Pioneer farmers in the southwestern part of the county met several times to discuss ways of attracting the line to their area. Finally, enough funds were raised to pay for the right-of-way through Lake Sinai township, and in 1907, the town of Sinai was formed along the Dakota Central Railroad.26

This community, composed primarily of Norwegians, grew into a thriving little market place for the farmers of Lake Sinai township, but never gained much prominence within the county. John Eastby suggests three reasons for Sinai's limited growth: (1) Sinai was started at about the same time that immigration into the state slowed; (2) The advent of the mass-produced auto followed soon after the construction of Sinai's railroad, making road travel more convenient than train; and (3) Their market was limited by the proximity of two larger towns, Brookings, and Madison in Lake County.27

Since 1930, the town has shown a steady decline in population. With the railroad, affectionately known as the "Galloping Goose," being abandoned during the summer of
1980, the future of this small village does not look very promising.

Como, the former name of Ahnberg, was also started in 1907. It was established by the Dakota Central Railroad on a plat 425 x 800 feet, five miles north of Sinai. With the building of a depot and several small businesses, the community seemed capable of prospering, but like several others, it disappeared under the shadow of larger towns located nearby.28

The last town platted in Brookings County was McKain. It began its brief existence on August 5, 1922, in Alton township eight miles east and one and one-half miles south of Brookings. It was the site of an old country store
and an elevator near the Rock Island Line (former Burlington, Cedar Rapids, & Northern), but the town soon vanished. 29

**Population**

Beginning with a population of 163, 18 whites and 145 Indians, in 1870, 30 the county has now become the home for over 24,000 people. The largest increase occurred between 1870 and 1890, and it has shown fairly consistent growth ever since. The only period in which it slowed
noticeably was from 1920 to 1930, and its only population decrease is found in the 1940 census.

<table>
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<td>4,965</td>
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<tr>
<td>1890</td>
<td>10,132</td>
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<tr>
<td>1900</td>
<td>12,561</td>
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<tr>
<td>1910</td>
<td>14,178</td>
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<tr>
<td>1920</td>
<td>16,119</td>
</tr>
<tr>
<td>1930</td>
<td>16,837</td>
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<tr>
<td>1940</td>
<td>16,560</td>
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<tr>
<td>1950</td>
<td>17,851</td>
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<tr>
<td>1960</td>
<td>20,046</td>
</tr>
<tr>
<td>1970</td>
<td>22,158</td>
</tr>
<tr>
<td>1980</td>
<td>24,332</td>
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</table>

Fig. 19. Brookings County Population (Source: U. S. Bureau of the Census)

Though the number of people in Brookings County has continued to grow, their location within the county has shifted considerably in the last 90 years. Based on data from the U. S. Bureau of the Census, figures 20 through 31 present a historical view of the settlement patterns in the county during each census, 1890-1980. The sequence of maps shows how the county has changed from a predominantly rural population to one in which most of the residents live in the city of Brookings and in outlying towns. Below each map is a brief description of the distribution of people within the county at the time of that particular census.
Fig. 20. BROOKINGS COUNTY TOWNSHIPS

LAKETON  PRESTON  EUREKA  ARGO  OAK  

LAKE  

WINSOR  OAKWOOD  STERLING  AFTON  SHERMAN  

RICHLAND  

BANGOR  VOLGA  BROOKINGS  AURORA  ALTON  

LAKE SINAI  OSLO  MEDARY  TRENTON  PARNELL  ELKTON  

0  5 miles
### Fig. 21. BROOKINGS COUNTY POPULATION (BY TOWNSHIP), 1890-1980

Excluding towns

<table>
<thead>
<tr>
<th></th>
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<td>385</td>
<td>400</td>
<td>399</td>
<td>339</td>
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<td>283</td>
<td>308</td>
<td>365</td>
<td>425</td>
<td>390</td>
<td>424</td>
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<td>314</td>
<td>332</td>
<td>429</td>
<td>505</td>
<td>517</td>
<td>389</td>
<td>265</td>
<td>213</td>
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<td>213</td>
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<td>388</td>
<td>407</td>
<td>442</td>
<td>383</td>
<td>377</td>
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<td>386</td>
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<td>367</td>
<td>384</td>
<td>320</td>
<td>316</td>
<td>258</td>
</tr>
</tbody>
</table>

Source: U.S. Bureau of the Census
Fig. 22.
BROOKINGS COUNTY POPULATION - 1890

Total Population: 10,132
% Rural: 77%
% Urban: 23%

Rural Population: 7,848
Urban Population:
Aurora
Brookings  1,518
Bruce
Bushnell
Elkton  331
Sinai
Volga  298
White  137
Total: 2,284
Fig. 23.
BROOKINGS COUNTY POPULATION - 1900

Total Population: 12,561
% Rural: 69%
% Urban: 31%

Population Density: 16/sq. mi.
Rural Population: 8787

Urban Population:
Aurora
Brookings 2346
Bruce
Bushnell
Elkton 578
Sinai
Volga 396
White 454
Total 3774
Fig. 24.

BROOKINGS COUNTY POPULATION - 1910

Total Population: 14,178
% Rural: 62%
% Urban: 38%

Population Density: 18/sq. mi.

Rural Population: 8931

Urban Population:
- Aurora: 236
- Brookings: 2971
- Bruce: 262
- Bushnell
- Elkton: 742
- Sinai
- Volga: 568
- White: 468

Total: 5247
Fig. 25.
BROOKINGS COUNTY POPULATION - 1920

Total Population: 16,119
% Rural: 55%
% Urban: 45%
Population Density: 20/sq. mi.
Rural Population: 8975
Urban Population:
- Aurora 246
- Brookings 3924
- Bruce 342
- Bushnell 350
- Elkton 872
- Sinai 216
- Volga 600
- White 594
Total: 7144
Fig. 26.

BROOKINGS COUNTY POPULATION - 1930

Total Population: 16,837
% Rural: 56%
% Urban: 44%

Population Density: 21/sq. mi.

Rural Population: 9589

Urban Population:
- Aurora 166
- Brookings 4376
- Bruce 371
- Bushnell 134
- Elkton 856
- Sinai 217
- Volga 604
- White 532

Total: 7257
Total Population: 16,560
% Rural: 50%
% Urban: 50%
Population Density: 20/sq. mi.
Rural Population: 8309
Urban Population:
  Aurora 225
  Brookings 5346
  Bruce 394
  Bushnell 134
  Elkton 779
  Sinai 182
  Volga 632
  White 552
Total: 8251
Fig. 28.

BROOKINGS COUNTY POPULATION - 1950

Total Population: 17,851
% Rural: 42%
% Urban: 58%


Rural Population: 7543

Urban Population:
- Aurora: 202
- Brookings: 7764
- Bruce: 305
- Bushnell: 96
- Elkton: 657
- Sinai: 181
- Volga: 578
- White: 525

Total: 10,308
**Fig. 29.**

**BROOKINGS COUNTY POPULATION - 1960**

<table>
<thead>
<tr>
<th>Town</th>
<th>Population</th>
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</thead>
<tbody>
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<tr>
<td>Brookings</td>
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<tr>
<td>Bruce</td>
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<tr>
<td>Bushnell</td>
<td>92</td>
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<td>Elkton</td>
<td>621</td>
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<td>Sinai</td>
<td>166</td>
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<td>Volga</td>
<td>780</td>
</tr>
<tr>
<td>White</td>
<td>417</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>13,138</strong></td>
</tr>
</tbody>
</table>

- **Total Population:** 20,046
- **% Rural:** 34%
- **% Urban:** 66%
- **Population Density:** 25/sq. mi.
- **Rural Population:** 6908
- **Urban Population:**
  - Aurora: 232
  - Brookings: 10,558
  - Bruce: 272
  - Bushnell: 92
  - Elkton: 621
  - Sinai: 166
  - Volga: 780
  - White: 417
- **Total:** 13,138
Fig. 30.
BROOKINGS COUNTY POPULATION - 1970

Total Population: 22,158
% Rural: 26%
% Urban: 73%
Rural Population: 5834
Urban Population:
Aurora 237
Brookings 13,717
Bruce 217
Bushnell 65
Elkton 541
Sinai 147
Volga 982
White 416
Total: 16,324
Fig. 31.

BROOKINGS COUNTY POPULATION - 1980

Total Population: 24,332
% Rural: 25%
% Urban: 75%
Population Density: 30/sq. mi.
Rural Population: 6085
Urban Population:
Aurora: 507
Brookings: 14,951
Bruce: 254
Bushnell: 76
Elkton: 632
Sinai: 129
Volga: 1,221
White: 474
Total: 18,244
Since Brookings is the only town in the county which satisfies the Census Bureau's definition of "urban", this term has been expanded to include all eight towns in the county for this study. "Rural", then, applies to the remaining people who do not reside within any of these communities.

The numbers and percentages of rural and urban population for the years 1890-1910 may be a little misleading because some of the towns did not have an official count during this time, but instead were included as part of the township census. However, it is interesting to note the reversal in percentages of rural and urban population from 1890 (77% rural; 23% urban) to 1980 (25% rural; 75% urban).

A careful examination of the statistics for each census reveals other notable changes which have also taken place. The county showed good growth in every census until 1940. All of the townships showed a loss of population during the 1930s, but five of the county's eight towns showed an increase. A total of 1,262 people left the farm, but the county's overall population decreased by only 277, indicating that many may have just moved into town, rather than leaving the county.

Between 1950 and 1970 only the towns of Brookings and Volga underwent considerable growth while the remaining communities declined or remained about the same. The census of 1980, however, shows a fascinating change in this
pattern. Brookings, which had shown a 29% increase in population during 1970, grew by only 8.9% in the 1980 count. The other towns, though, experienced a significant gain during the last ten years in the number of people living in them:

- Aurora: 113%
- Volga: 24%
- Bruce: 17%
- Bushnell: 16%
- Elkton: 16%
- White: 13%

Sinai was the only town in the county which continued to lose residents.

This same pattern held true for the townships during 1950-1970. Nearly all of them had been losing population, but in 1980, 10 of the 23 showed a gain. The most dramatic example was that of Medary township, located south of Brookings, which increased its population by 84% in the latest count.

There are several factors which are probably responsible for this turn around in the population's choice of residential sites. Though cropland is still a valuable resource in the county, a poor economy has made it impossible for many to earn a living off the land. The city of Brookings, on the other hand, has continued to grow and prosper because of the university and an increase in industrialization. Therefore, Brookings is where the jobs are, but many people do not care to live in the "city" for a
Fig. 32. Abandoned Farms in Brookings County
variety of reasons. They choose to live in one of the nearby "bedroom" communities instead, and then drive to Brookings for employment. The desire to live outside the city of Brookings has also lured a large number to several housing development projects south of Brookings and in Medary township.

Though settlement within Brookings County has changed considerably during its history, the violent and sometimes destructive forces of nature have not. It was necessary for people who selected this area as their home to be quite adaptable and make adjustments to a wide variety of natural hazards. Winter storms, which have caused a great deal of hardship and suffering throughout the county's development, is the subject of the ensuing chapter.
ENDNOTES

1Brookings Register, 15 August 1954, Early Government Section, p. 6.

2"County Post Offices, 1871-1920," Brookings County Historical Museum, Volga, S. D. (Map.)

3"Which Came First--Medary, Flandreau, or Sioux Falls?" Brookings Register, 15 August 1954, Early Settlement Section, p. 1.


7Donald Dean Parker, Pioneering the Upper Big Sioux Valley (Brookings, S. D.: Donald Dean Parker, 1967), p. 191.

8Parker, Early Residents, p. iii.


10Ibid.

11Lisa Klinkel, "At Fountain Cemetery, the prairie perseveres," Brookings Daily Register, 29 June 1979, F, p. 3.

12Parker, Pioneering the Upper Big Sioux, p. 183.


16 Ibid.
17 Volga Tribune, 22 August 1929, p. 9.
19 Parker, Pioneering the Upper Big Sioux, p. 200.
20 "Ag college becomes largest university," Brookings Daily Register, 29 June 1979, D, p. 4.
23 Ibid.
27 Ibid.
30 Robert F. Kerr, "Early History of Brookings County," Briggs Library Archives, South Dakota State University, Brookings, S. D., 1897, p. 35. (Handwritten.)
CHAPTER IV

WOEFUL WINTER WEATHER

When contemplating winter in South Dakota, one might picture the southern sun filtering through diamond crystals in the air above a snow-covered countryside enveloped in brisk, cool temperatures. Then again, one could just as easily imagine an impenetrable wall of snow driven by trenchant arctic winds leaving frigid temperatures in their wake. Both portrayals aptly characterize South Dakota winters. However, episodes of the latter description have created much adversity for the people who have made this area their home.

In fact, South Dakota has had the distinction of being called the "Blizzard State," a designation it has never quite lived down. An 1899 issue of the Brookings Weekly Register attempted to refute this dubious "honor" by claiming:

... the atmosphere here in Brookings County is dry and devoid of any humidity during the winter ... it never penetrates and chills as does the damp atmosphere of the Atlantic states or those bordering on the great lakes. ... The winters are cold, it is true, but the air is dry, pure and full of invigoration and with every respiration one feels that he is drinking from the mythical spring of perpetual youth."
Brookings County, however, has certainly been held in the grip of its share of South Dakota blizzards.

There are many different versions offered to explain the derivation of the term "blizzard." One account gives credit to the Germans of Dakota who called such winds "blitzartig," meaning "lightning-like."² A more interesting story, though is found in an old diary in which Welshman Billy Jenkins is recognized as the one who coined the word. He used the term to describe the "intense, powdery, cold, blinding, long-period, death-dealing snowstorms" of 1867.³ Though used somewhat indiscriminately today, the word "blizzard" has now been more narrowly defined as those conditions when heavy snow is falling, winds exceed 35 miles per hour, and temperature readings are 20°F or lower.⁴

The first recorded blizzard in South Dakota was also the season's latest. According to John J. Audubon, who was visiting the state when the storm hit on May 5, 1843, thousands of young buffalo calves lost their lives.⁵ However, it was the devastating snowstorms of 1880-81 and January 1888 that gave credence to the "Blizzard State" nickname. As those blizzards have been used most frequently to compare the severity of subsequent winter storms, their tale of adversity should be reviewed first.

The "Winter of the Big Snow," 1880-81, was ushered in prematurely by the historic blizzard of October 14-17, 1880. The storm hit without warning, catching most of the
new homesteaders completely unprepared for an involuntary three-day imprisonment.

Many of the settlers had just arrived and were living in temporary shelters dug into the sides of hills. Though they were literally "buried alive" when the heavy snows came, their youthfulness and strong, healthy bodies helped them survive this unpleasant welcome to Dakota Territory. When the blizzard finally relinquished its hold, four feet of snow had fallen and the wind had blown it into drifts towering as high as 25 feet.6

In describing the one-half mile walk from his house to the Elkton depot during the storm, J. W. Russell wrote, "I could see nothing but snow seemingly as fine as flour and the wind drove it through my clothing till I was as wet as melted snow could make me."7

Inga Isolany, from Lake Sinai township, was a young child at the time of this blizzard and recalls spending most of her time in bed to keep warm. Their only fuel was hay, but they were unable to reach the haystack. Therefore, her mother burned twisted hay from the mattresses to heat food for their meals.8

Mathias J. Houg and his wife, also from the Lake Sinai area, were living in a makeshift home on the side of a ravine when the storm made its assault. When they were finally able to emerge from their "cave" not a stick of wood was left, as every piece of furniture had been used for
fuel. Plenty of food and fuel was available across the ravine, but twenty feet of deep snow prevented them from reaching it.9

In Sherman township, three families had arrived at the A. Lentz home just ahead of the blizzard. The seventeen people were forced to move to his sod barn after the sod house collapsed. When the barn also yielded to the persistent fury, the group waited out the remainder of the storm inside a straw stack.10

Fig. 33. "After the Blizzard," by Harvey Dunn

After this tempestuous weather finally departed, the settlers began the chore of digging out. Since they were caught off guard by the storm, few had appropriate tools
for excavating so they improvised by using butcher knives or whatever else was handy. At the C. C. Dyball sod house northwest of Volga, digging a series of ten or twelve steps was necessary to ascend to what was then the level surface.11

The town of Brookings was described as "a picture of desolation . . . snowbanks from 2–20 feet high were the only scenery." In declaring it the worst storm ever, the newspaper expressed this thought: "We would as soon think of hearing of a blizzard at the equator as of seeing one in Dakota in October."12

Though most people were inside their homes when the storm struck, the sheep belonging to Mr. Preston, living at Oakwood, were not so fortunate. They had just been shipped in that fall and there had not been time to build a shelter for them. The storm drove them to the lakeside where 400 perished.13

If there had ever been any doubts about the unyielding ferocity of a South Dakota blizzard, they were certainly dispelled that week. The October 28, 1880, Brookings County Press stated:

We have long desired to see a real genuine blizzard, but this one is enough, we are more than satisfied that Dakota can and does take the lead first, last, and all the time.14

Though most accounts of this unexpected snowstorm report no loss of human life, Barbara Meyer claims that Magnus
Anderson died when he lost his way between Volga and Brookings during the storm.\textsuperscript{15}

The settlers were granted a short reprieve after this history-making blizzard, but winter was far from over. January 1881 marked the beginning of three more months of cold and snow. Allen Matteson, an early pioneer, remembered "67 days that it really snowed hard," and "only three days the wind didn't blow." His wagon stood between the house and stable but he was unable to see it from January 1 until April.\textsuperscript{16}

The first month of 1881 offered a short breathing spell between blizzards, but

during . . . February they came so close together as to be almost continuous . . . never more than one-half day of good weather between storms during the month.\textsuperscript{17}

To make matters worse,

During much of the time the mercury manifested a distinct attachment for the lower part of the thermometer, much to the discomfort of the prairie dwellers.\textsuperscript{18}

By the time the sun had gathered enough power to melt the snow in April, nearly twelve feet of the white plague had fallen.\textsuperscript{19}

The tremendous amount of snow made it impossible to keep the railroads open and forced them to cease operation on January 20. Without trains to bring in supplies until May 6, the ingenuity of the pioneers was called into
action. The little flour they possessed was soon gone and, since coffee was impossible to obtain, they used their coffee grinders to grind the plentiful supply of wheat to make bread. Along with milk and potatoes, this made up the principal part of their winter diet.

An even bigger problem facing the settlers was that of acquiring fuel. The kerosene in the stores lasted only a few days after the trains stopped, so "many were compelled to sit in darkness for several months." The Simonson family in the Sinai area displayed their resourcefulness by using grease in a dish with a rag for a wick, and, like many others, burned twisted hay for heat and cooking. Frustration undoubtedly ran high for the people at Oakwood who had an abundance of wood within a mile and yet could not reach it. Those living in towns burned lumber from the yards, small buildings, bridges, and even fences to keep warm.

No trains also meant no mail. George W. Hopp, the postmaster at Brookings must have been a hero to many when he made one or two trips to Tracy, Minnesota, and carried back all the mail he could on a hand-pulled sled. Upon his return, he stated that miles of telegraph poles were completely buried by snow with the top of one occasionally in sight which made a "very convenient resting place." The whole county must have resembled a huge prairie dog town under snow. Streets were filled with solid drifts to the tops of buildings so the residents dug tunnels in
order to get from one business to another in town. Out in the country, farmers, whose homes and barns were completely covered with snow, found it necessary to tunnel down to reach and feed their stock. With a steady parade of storms that winter, drifting snow created the never-ending task of keeping these passageways open.

Even though these were trying times, there were a few incidents which could bring a smile to even the most dejected face. As mentioned earlier, steps were constructed from the cabin door to the surface, making it somewhat easier to climb up and down. These, however, often became icy and treacherous, especially for a stranger who

... would suddenly lose his balance at the top of the stairway ... shoot with great speed down the incline, force the door open in his headlong flight, and finally come to an abrupt halt on the floor in the center of the room.22

With the railroad out of commission, it took sheer determination on the part of a traveler to make a desired trip.

A woman on her way to Lake Co., Dak. Ter., was snowbound at Tracy, Minn. She had a ticket to Volga, and so insisting that the R.R. Co. bring her there, that the Co. had to hire some men to draw her on a sled to Volga. When she arrived at Volga, she hired these same men to draw her down to Lake Co.--woman wants her way, even the stubborn R.R. Co. found that out.23

At one point during this long winter, a bachelor, who lived in a little sod hut at Lake Hendricks, wound up his clock and went to bed as usual.
During the night he awoke several times but as it was pitchdark in the room he rolled over in his bed and returned to slumbers. Finally he could sleep no longer. Getting up, he struck a match to see what time it was. He was surprised to find that the clock had stopped, as it had never before failed to run its thirty-two hours in a stretch after being wound up.24

He went to the door and looked out into broad daylight and found that snow had drifted up over his windows. After feeding his oxen and cow, he skied over to his neighbor's house. Though usually a good-humored man, he was quite disturbed to find that the friend's calendar was two days ahead of his own. "He had slept continually for two nights and a day."25

The preceding accounts of the winter of 1880-81 are only an example of many which illustrate the versatility and resiliency of these hardy settlers who survived six months with only meager supplies and very little comfort. With such a cold, miserable reception to Dakota, it would be no surprise to find that many packed the few belongings they had left and headed back East when it was finally over.

However, they stayed. When the green blades of grass appeared once again, "they held forth the alluring promise of an untold prosperity to the one whose grit kept him in the battle with the elements."26 The famous winter of 1880-81 seemed to bring out the best of each individual and as a consequence, the strength and determination of the group as a whole was revitalized. None of the pioneers left
the Lake Hendricks settlement, and for weeks trains were filled with new settlers coming into the county. For three weeks, every car was filled with newcomers and their belongings, leaving "no room for even a sack of flour to feed the hungry settlers."

Pioneers and winters continued to arrive in Brookings County without serious consequence until January 12, 1888. Unlike the winter storms of 1880-81, most of which began in the evening when people were back in their homes, this particular blizzard struck at 2:00 on a beautiful afternoon.

It seemed so pleasant that the hayless immediately started out after hay, the thirsty for water, the hungry for food, the cold for fuel, and those who had no business to call them forth—went forth anyhow to bask in the delightful sunshine or to complete a journey long deferred.27

Then, without warning,

... old Boreas clench his fists, stamped his foot, and in less time than it takes to tell it, he belched forth such a storm as sent terror to the hearts of the timid and anxiety to the breasts of the brave.28

For fifteen hours it continued, blinding, impenetrable, intensely cold [300-400 below zero] the atmosphere filled with needles of ice driven by a furious gale, accompanied by a deafening roar; then it was gone and nature smiled out again as bright and innocent as a morning in May.29

However, it had not been innocent. During its relatively brief visit, the blizzard had taken the lives of 174 South Dakotans, and numerous head of livestock were lost.30
Unfortunately, Brookings County was not exempted from such loss. In the Lake Sinai area, Ole Tisland had gone to water his cows at noon, and by the time he was ready to return home, the storm was in full progress. Though his house was only 150 feet away, he missed it in the blinding snow and perished.\(^{31}\) Although Baard Johnson, another Lake Sinai settler, did not die immediately from severe exposure during the storm, he never regained his health and passed away the following year in March.\(^{32}\) According to Myrtle Woodard's memoirs, there was yet another death in Brookings County during this blizzard. A man named Mr. Sillage had gone to get his two sons from school when the storm hit. When the trio became lost on their return home, he turned the sled upside down to shield them and wrapped the boys in his coat. By the time they were found, Mr. Sillage had frozen to death, but the two brothers survived even though their feet had to be amputated.\(^{33}\)

Many children in the state died while trying to get home from school during the storm so it was often referred to as the "School Children's Storm." Though no students were lost in Brookings County, many died in nearby counties when they made a futile attempt to reach their homes and families. As a child in a school near Huron that day, O. W. Coursey likened the blizzard to an electrical storm. Through his eyes it

\[\ldots\text{ looked like a long string of bales of cotton}\]
each one bound tightly with heavy cords of silver, and then all tied together with great silvery ropes . . . above which the sky was perfectly clear.34

His teacher gathered her pupils back into the school where they spent a long, cold night, but remained safe.

The winter of 1880-81 and the 1888 blizzard gained such bad reputations that few which followed were able to compete with their infamous records. Brookings County has continued to experience long difficult winters and blizzard conditions, but the hardship and tragedy of these two early storms have never been equaled.

The first three months of 1897 helped bring the nineteenth century to a close in true Dakota style. A blizzard on January 4-6, made it impossible to see more than one-half block, stopped the railroad, and left parts of Aurora under drifts ten feet deep, 20-40 feet wide, and 4-10 rods long.35 It was only a couple weeks later when the next storm attacked, dropping temperatures to -25°F on January 21. The trains were again blocked, but this time one of them had a load of several thousand dollars on its way to Pierre to be counted by the governor, so another engine was attached and it pushed through anyway.36 When January came to a close, sixteen inches of new snow lay on the ground.37

Another snowstorm followed on February 13, dumping nine inches of fine, damp snow accompanied by strong northwest winds, again causing railroad travel to cease.38 The
next month, just when it seemed that spring had arrived, the area was once more snowed in, leaving the residents without mail service for five days.

Moving into the twentieth century, Brookings County residents have continued to meet and deal with the brutal weather that winter can dole out. Though this study is concerned primarily with the most severe storms, it would be unrealistic to portray all South Dakota winters as being prolonged, harsh, and blustery. Some, in fact, are actually quite mild and pleasant subjecting the people to very little discomfort.

Space prohibits a detailed discussion of all winter storms that this century has thus far produced in Brookings County. However, the major storms have been listed chronologically in Appendix B with a brief description of each occurrence. As one reads through these summaries it becomes obvious that the area cannot escape the havoc that winter weather provides, but it is interesting to note the changing degree of impact it has had on the lives of the people residing here.

As the years progressed, so did the people. With the introduction of new energy sources, modern communications, and faster transportation systems, the residents were faced with new kinds of problems when the area was visited by snow, wind, and ice. As before, they made the necessary
adjustments, revised their priorities, and adapted to each new challenge admirably.

Early settlers had very little, if any, warning of approaching winter storms, with one exception. Those living in the southwestern section of the county had their own personal "weather prophet." Lars Magastad, of the Lake Sinai area, would

... howl like a coyote to warn of a coming blizzard. On one occasion when he knew that several of his neighbors had gone to town for supplies and a storm came up, he stood out on his hill swinging the lantern until they were safe at his home that evening.39

Today's technology and science have made the forecasting of such storms quite reliable, and the people may have a two- or three-day advance warning. Through means of radio, television, and newspapers, residents are now alerted to the potential danger of approaching storms so they may be better prepared. Nothing can be done to temper the storm itself, but responsible predictions can help save lives and property if citizens heed the warnings and take the necessary precautions.

Persons who live in Brookings County know that stormy, winter weather "comes with the territory," and usually plan accordingly. Homes and shelters have always been necessary to protect their inhabitants from the elements. Though the early sod houses were not completely impervious to the wind and snow, they did afford the dwellers
significant protection. They constructed these homes so that the doors opened inward and, as a form of insurance, kept a shovel inside to expedite digging out should an unexpected blizzard arrive to bury them in a frigid tomb. Having survived some rather frightening and deadly storms, they required little convincing to have an extra supply of twisted hay indoors as well as a rope long enough to reach the barn.

Even today's generation, especially those living in a rural setting, is cautioned to have an alternate heat source available since many homes are dependent upon electricity which is frequently disrupted during a severe blizzard. A recent pamphlet published by the Cooperative Extension Service at South Dakota State University still recommends that those living on farms keep a shovel in the house and a ball of binder or baler twine handy to avoid getting lost if it becomes necessary to leave the house.

Though trees had been planted to break the force of strong winds and buildings were more sturdily constructed, the first three months of 1917 brought back memories of earlier Dakota blizzards. Once again, farmers had to enter their barns from second-story windows to care for their stock, and the train's passage through the county was thwarted. The 1935-36 winter season also reminded the people of their vulnerability in the hands of winter's irascibility. As routes to town were closed for indefinite
periods of time, large churns once again became functional as "formidable amounts of cream accumulated."\textsuperscript{41} Residents learned first-hand how it felt to be without food and fuel when the supply was only minutes away.

The train, which brought many people into Brookings County, continued to play an important role in their lives for several years. Though newer and faster means of communication and travel had reached this land, the residents were reminded of the railroad's significance during the terrible winter of 1935-36 in a \textit{Brookings Register} editorial:

\begin{quote}
Coal shortages made people face the reality that the railroads are still functioning and that to keep the right-of-way open at all times is quite important in sustaining comforts and conveniences, if not life itself . . . our very existence depends on their proper functioning.\textsuperscript{42}
\end{quote}

With a declining dependence on railroad services today, it has lost some of the prestige it once had. Most people now give little thought to whether or not the trains can get through during a blizzard.

Increasing use of the automobile led to a new item on the budgets of towns in the county. With more people relying on these vehicles for mobility, snow removal became a civic responsibility. Since the snow had always been left to accumulate in the streets before, some complaints were initially voiced that the clearing "interfered with the use of sleighs."\textsuperscript{43}
Fig. 34. Getting the Train Through
Until the introduction of special snow removal equipment, roads and streets had to be cleared by hand. Crews of men, armed with shovels, were sent out by the truckload to open roads so people could get through. Main Street in Brookings was first cleaned "professionally" by the E. Z. Poole dray line in November 1927 at a cost of $30.44.

Even though the automobile had become a necessary part of many lives, it was rendered virtually useless when drifts ranged from five to nine feet high during the early months of 1936. Horses and sleighs once again displayed their value when routes to town were impassable.

The few hitching posts left standing in Bruce when the cars came in have been much in demand the last two weeks . . . a common occurrence to see the side roads lined with horses and sleds. Regardless of the convenience of the modern motor car nothing has been found to take place of the faithful horse.45

Along with old customs being put into practice once again, we also see mention of the "modern way of meeting an emergency" during the trying winter of 1935-36. When snow-covered railroads and highways prevented the usual means of transportation, the plane was brought into service.46

The difficulty of that winter also prompted an early form of conservation, though the people probably did not realize it at the time. Due to impassable roads and the severe cold during February,47 motorists in South
Dakota used three million gallons of gasoline less than
they had during the same month in 1935.48

Brookings County was plagued by five blizzards during
the first three months of 1952, giving the highway de-
partment a strenuous workout. At the end of March they
were still trying to open 100 miles of snow-packed county
roads. Lake Hendricks and Oak Lake townships were the
worst with roads buried beneath drifts six to eight feet
deep. All available county equipment was utilized and pri-
Vate equipment was also hired. Bulldozers were needed to
move the heavy snow which was "like moving earth."49

Snow and its removal was also the main topic of
conversation during the winter of 1968-69. Over 70 inches
of snow fell that winter, 45 of them in December.50 Keep-
ing roads open was a full-time job as they would fill in
just about as fast as they were cleared. Along one road in
Winsor township, the farmers with loaders organized a group
in which each was responsible for keeping a portion of the
road clear.51 With road travel nearly impossible much of
the winter, it might well be called the "Winter of the
Snowmobile." This vehicle was often the sole means of
getting about and was a vital resource in case of an emer-
gency.

With the arrival of telephone service and electric
power, winter's wind and ice were furnished with yet more
objects to play with. Beginning in the late 1930s, an
increasing number of newspaper articles relate stories of consumer inconvenience caused by downed poles and lines throughout the county. Along with the inconvenience to customers, power and phone companies incurred additional expense as the poles and wires needed repair or replacement following unrelenting winter storms.

Early in April 1950, a heavy coating of ice plus high winds caused hundreds of poles to be snapped off at the ground, completely disrupting long distance communication. It was at times like this that people could really appreciate the value of a radio, as it was often the only contact with the outside world. The radio has continued to be a dependable device for transmitting information which has saved lives and brought comfort and peace of mind to many as they were kept aware of a storm's progress.

The November 20, 1953, sleet storm further exemplifies the costly destruction winter weather can generate. Northwestern Bell Telephone Company had seventy employees working to restore service as 200 poles were downed in the Madison and Brookings area. The high winds combined with freezing rain to create quite a task for the Sioux Valley Empire Electric Association. A 50-man crew was put to work around the clock replacing 200 poles at a cost of $40,000.

The (in)famous 1880-81 winter season was not to go unchallenged during the twentieth century. A blizzard,
Fig. 35. This car did not quite make it when it attempted to hurdle a six-foot drift in Brookings. (Brookings Daily Register photo)

which began on the evening of January 10, 1975, kept a stranglehold on the entire county through January 12. Traveler's advisories had been issued when four inches of new snow and 40 mile per hour winds were predicted. However, it was not the snow which gave this particular blizzard its notoriety. The fierce winds combined forces with freezing temperatures to drop the wind-chill factor to -75°F. The winds, which gusted to 50 miles per hour, took the new snow, added it to the eight inches that had
Fig. 36. The view of this barn northwest of Volga is taken from a 20-foot-deep drift which buried a cattle shed in the foreground. (Brookings Daily Register photo)
fallen previously, and sculptured hard-packed drifts as high as five and six feet.56

Fortunately, no lives were lost in Brookings County during this blizzard, but other areas were not as lucky. A family of six in northeastern South Dakota was asphyxiated when the sewer exhaust on their house became clogged with ice and snow.57 Two Augustana students also died when they left their stalled car and attempted to reach a truck stop one-half mile away. Their bodies were found inside sleeping bags in a snow-filled ditch 1,000 feet from their car near Valley Springs, west of Sioux Falls just off Interstate 90.58

Brookings County was, however, one of the state's prime losers of livestock, with over 1,000 head being killed.

The pattern was for cattle to walk over the fences on top of snow drifts and wander with the storm until they ran into an obstacle. Of those that died, most iced up and smothered.59

It was estimated that 7,500 head of cattle worth $1.5 million to livestock producers perished in South Dakota.60

City crews were kept busy during this blizzard just keeping emergency routes open. County officials tried unsuccessfully for two days to reach a woman in Aurora who had broken her hip.61 With regular travel virtually impossible, the ordinance which banned snowmobiles from the
city streets of Brookings was temporarily lifted so emergency situations could be taken care of.62

Such a blizzard as this would certainly suffice for one winter, but the season was definitely not yet over. A second storm attacked the county on March 23-24, 1975, bringing with it eight inches of new snow and winds in excess of 40 miles per hour. The visibility was near zero
and the only thing which kept this blizzard from exceeding the first one was the warmer temperatures. At least 50 high line poles were downed by the storm in the White area, and the towns of Elkton and Bruce were without long distance telephone service.

Fig. 38. Poles downed by winter's fury. (Brookings Daily Register photo)

This storm had just departed when a third storm arrived to take its place on March 26-28, 1975. Two to four inches of additional snow was blown about by southeast winds. Several people north and east of Brookings were without electricity due to broken lines from the ice and wind of the previous storm. Some areas had no power for up to five days, and fire departments were called upon to carry water for livestock.
Living on a farm outside of Brookings during these storms, Mr. and Mrs. Melvin Lind were reminded of their susceptibility to winter's wrath. Mrs. Lind recalled that the "forecasts were correct," and when the storm reached them, its howling winds tore down the wires leaving them with no heat or electricity for 63 hours. Without any power, they had to carry water to their 600 hens, and the temperature in their house dropped to 36°F. In order to warm water for coffee they used a soldering blow torch.

When power was finally restored, she wrote:

We will appreciate our electricity and not take for granted all our conveniences furnished us by the REA. I doubt if we will ever fuss about our monthly REA bill!66

With all the technical knowledge at our disposal today, we have not been able to tame the perilous acts of winter weather, but we have come a long way in surviving them. In an energy-conscious age, we are better protected in houses which are well insulated against cold and wind. Many homes now have alternate heating methods such as wood-burning stoves, which not only save money, but are invaluable when other sources of heat are cut off. Men no longer have to dig out roads and streets with shovels alone. Modern machinery now makes the task much less difficult.

Unfortunately, deaths are still recorded and livestock losses are high, even when bulletins and warnings are broadcast regularly over radio and television. There
Fig. 39. Opening roads the hard way. (Photo courtesy of Ed Watson)

Fig. 40. Modern city snowblower in action. (Brookings Daily Register photo)
are always people who think they can overcome these furious forces of nature. In a county highly dependent upon the automobile to reach places of employment, unnecessary risks are often taken by those who insist on driving even when warnings have been issued against it.

As we look back over a century of winters, we see that each generation has learned to cope with that season's unpleasantness. Many improvements have been made to make life easier, and some of those changes have been quite dramatic since that first winter of 1880-81. However, some things have changed very little. In George A. Perley's diary of that early winter, we find the following excerpts:

Feb. 11, 1881--No trains for two weeks; 700 snow shovelers at work. No church services, fuel exhausted. Saloons running, plenty of fuel. (italics mine)

Feb. 18, 1881--A freight train arrived, the first in 19 days. The whole town turned out to open the way. A car of wood was confiscated. Saloons remain open.67 (italics mine)

An article in the Brookings Daily Register following the first blizzard of 1975 noted:

Horatio's Tavern was open in spite of the weather and did a land office business in carryout beer. A group of students was seen pulling a toboggan stacked with 11 cases of beer.68

Scenes from the January 1982 blizzard reveal that alcoholic beverages are still an important weapon in the battle against winter's woes.
Fig. 41. Scene on west edge of Brookings during January 1982 blizzard.

Fig. 42. but the Liquor Store was still open for business.
Those who have survived extremely hard winters with large accumulations of snow in Brookings County have been faced with the possibility of yet another struggle against nature. Excessive amounts of snow coupled with warm temperatures can lead to flooding along the Big Sioux River and the creeks.
ENDNOTES

1Souvenir Edition of the Brookings Weekly Register
(Brookings, S.D.: Dutcher, Breed & Storgaard, 7 September 1899), n.p.


3"Old Diary Tells of Bad Winter of '80," Brookings Register, 26 February 1936, p. 2.


10"From Sherman," Brookings County Press, 28 October 1880, p. 3.


13"O. E. Cotton Grand Old Man of Preston Township, Came to Brookings County and Homesteaded the Year 1878," Volga Tribune, 22 August 1929, V, p. 38.

14"From Sherman," p. 3.


17 Smith, Pioneering in Dakota, p. 42.

18 "O. E. Cotton Homesteaded the Year 1878," p. 38.


21 Smith, Pioneering in Dakota, p. 43.


24 Sandro, Immigrants' Trek, p. 44.

25 Ibid.

26 Ibid.


28 Ibid.


33 "Myrtle Woodard Memoirs," Brookings County Historical Museum, Volga, S.D., 1968, p. 44. (Typewritten recollections based on several personal interviews.)

35 *Brookings County Press*, 14 January 1897, p. 3.


38 *Brookings County Press*, 18 February 1897, p. 5.


41 "Blizzard and Cold Halts Activities," *Volga Tribune*, 13 February 1936, p. 3.


45 *Brookings Register*, 18 February 1936, p. 2.

46 Ibid.

47 From January 18 to February 22, the area was held in the grip of a record cold spell. The thermometer never reached above 0°F for 35 days in a row. During this period the temperature ranged from a "high" of -7°F on February 3, to a low of -35°F on February 16. *Brookings Register*, 27 February 1936, p. 1.


52"Storm Damage Heavy in This Vicinity," Volga Tribune, 13 April 1950, p. 1.

53"Sleet Storm Damage Runs to Thousands as Power and Light is Hit," Brookings Register, 22 November 1953, p. 1.

54"SVEEA Estimates Place Sleet Storm Damage at $40,000," Brookings Register, 29 November 1953, p. 1.

55A wind-chill chart has been included in Appendix C.


66Mrs. Melvin Lind, "The Week That Was," article from the Brookings Daily Register, in Brookings County Historical Museum, Volga, S.D. (Typewritten.)

67"Old Diary of Winter '80," p. 2.

68"Brookings area digs out," p. 2.
CHAPTER V

FRUSTRATING FLOODS

Winters, such as those described in the previous chapter, sometimes leave behind heavy amounts of snowfall which may in turn precipitate another natural disaster in Brookings County--flooding. Rapid melting of large accumulations of snow can fill the Big Sioux River and creeks to overflowing in a short period of time, causing damage over a widespread area. Though severe flooding is not a common occurrence in the county, it has happened often enough to be a concern for those living near these waterways.

Flooding became disastrous only after people encroached upon and competed with the river for occupancy in an area which was created to store its excess water. The Big Sioux River and creeks in Brookings County attracted the early settlers with more than just the gift of water. With a substantial supply of trees and rich, fertile soil along their banks, the streams enticed many to choose the floodplain as the site of their new homes. Though the benefits were many, it was not long before these newcomers were subjected to the devastation that the river could also produce.
Following the notorious winter of 1880-81, the people were made painfully aware that "water, although a good servant is a hard master." The twelve feet of snow which had fallen that season melted in a matter of days, making it impossible for the river and creeks to contain the water within their banks. The river burgeoned to a width of five or six miles in several places, destroying crops, livestock, buildings, and machinery. The area around Brookings was completely inundated, making it possible to travel from Aurora to Volga by boat, a distance of twelve miles.

This flood filled up several dry lake beds, shedding light on a costly mistake which had been made earlier. When Mr. Irish, the Chicago & North Western surveyor, went through the area he believed that the country was drying up and planned accordingly. Because he neglected to put in a sufficient number of culverts, several sections of railroad were washed away by the flood waters. In an effort to salvage as much as possible of the railway between Volga and Brookings, an article in the Brookings County Press urged the citizens to "go out and save what you can of the track."

Having just survived a long winter with no trains to bring in supplies, the loss of track to flood waters must have created a scene of disillusionment among the people, but once again their determination overcame yet another of nature's obstacles. For some, this meant taking rather
drastic measures. Coping with husbands who had been without tobacco was a serious problem for many women. Ole J. Sundet recalled that some men actually "cut their pockets off where the tobacco had been and chewed them." 6

This first flood was a result of excessive snow melting rather quickly. However, some floods in Brookings County were generated by torrential rains which fell in relatively short time periods. One of the earliest floods of this type occurred on May 17, 1892. The "heaviest rain in nineteen years" began at 5:00 p.m. the previous day and within twenty minutes the basements in the "town portion of the city" were filled with water. 7 Reverend G. S. Froiland remembered it as a "veritable cloudburst" and that his home "was slowly but surely melting away" as the rain penetrated the sod little by little and soon seeped in through the roof and walls. 8

The following day three additional inches fell between the hours of 5:00 and 7:00 p.m. The north end of Brookings was described as "a lake of water such as one would not believe could exist from a rainfall if he had not seen it." 9 There was considerable loss of stock from exposure and much land on the river bottom was made unproductive for that year. 10 Several bridges were washed out and "Brookings enjoyed very little trade from farmers on the west side." 11 A dairy barn of the Agricultural College farm
was struck by lightning during the deluge, killing five cows and causing $1,000 damage.\textsuperscript{12}

Much of the county was again saturated on May 2, 1912, when over 4.5 inches of rain fell between the hours of 6:00 and 10:00 p.m.\textsuperscript{13} With an inadequate sewer system, the streets and gutters became "one sheet of water" and by 8:00 p.m. the streets in Brookings were likened to rivers with water standing one foot deep on sidewalks. Water on Main Street rose to three feet filling every cellar in the business section including the telephone office basement, knocking out service for the night. Though merchants suffered nearly $40,000 in damage, one business was somewhat luckier.

Marvin & Sons plumbing shop was filled to the windows, but on account of the nature of the stock their loss will not be a heavy one.\textsuperscript{14}

Members of the fire department were on duty all night assisting the street commissioner, police officers, and members of the street committee of the city council in trying to direct the course of the water.\textsuperscript{15}

Outside the city of Brookings, damage was also extensive. Medary Creek was filled to overflowing within a few minutes, putting Trenton and Medary townships under water. However, it was along Deer Creek that much of the county's destruction was sustained. The flood carried with it small buildings, fences, machinery, and drowned several
hundred head of livestock. One farmer near Bushnell lost his barn, 200 sheep, 80 lambs, and four miles of woven fencing.\textsuperscript{16}

The flood waters also rendered thousands of acres, which had been sown to wheat and other small grain, useless as a crop for that year.

The fortunate farmer last year was the one whose land was low; it did not dry out when the hot winds came in June. This year the situation is exactly the opposite; the farmer with high land is the one who will raise the crop.\textsuperscript{17}

When the final toll was taken, however, the railroad came in as the biggest loser. Nearly a mile of track and three bridges were washed out between Brookings and Aurora,
and between Brookings and Volga the track was torn 30 feet out of line for nearly a mile. The Rock Island Line (former Burlington, Cedar Rapids, & Northern) lost one and one-half miles of track between Bushnell and White. In all, approximately $70,000 in damage was realized by the railroad.18

Even though things looked pretty grim, there was at least one bright spot in the overall picture. As the heavy rains caused the runs and ditches to fill up, suckers from Lake Goldsmith and the Big Sioux River took journeys "in strange and devious paths" and found themselves in the town of Volga, much to the enjoyment of local fishermen.19

Seven years later, Brookings County was drenched by 3.69 inches of rain which fell in less than two hours on the evening of June 14, 1919.20 This downpour followed three weeks of frequent rains and was so severe that police and others who were awake called merchants to their places of business. Even so, much merchandise was ruined in the business section of Brookings. When the power plant went out of commission, the scene in downtown Brookings was one of flood in darkness. After city lights were flooded out, lanterns and candles and matches furnished illumination and ghost-like figures in high rubber boots or in old shoes and trousers could be seen lugging all kinds of strange water-soaked objects out of basements.21

This heavy rainfall brought water in the Sioux Valley to the highest level in seventeen years according to some railroad men.22 The Big Sioux River was reportedly...
seven miles wide at Estelline (located just north of the Brookings County line), and water was backed up as far as Bruce. Deer Creek was a mile wide in some places with several bridges washed out. Farms in these areas were subjected to the unrelentless power of the water which killed several head of livestock and drowned entire fields.

One death was attributed to this storm. Silas Worden, a nineteen-year-old, was viewing the flood on horseback when his horse fell off a culvert. Mr. Worden's feet were stuck in the stirrups causing him to drown in the water near Estelline.

As with previous floods, travel was again restricted. The railroad suffered thousands of dollars in damages as several sections of track were washed away throughout the county, and it was still impossible to get from Volga to Brookings by car one week after the deluge.

In an effort to prevent additional harm to its people, a brief article in the Volga Tribune warned them against using city or well water for drinking without boiling it first as the "floods have undoubtedly contaminated all of it." Following this flood we also see accusations being made against someone other than Mother Nature for the destruction. A news item in the Brookings Register put blame for damages on the city for not having plans to adequately dispose of excessive water.

Only a year later, on June 30, 1920, Brookings was
again subjected to a severe storm which flooded the town. At 6:30 p.m. a warning was received from Watertown that a storm was on its way and fifteen minutes later it hit.

Rivers suddenly sprung (sic) into existence and swept down one street and disappeared, while the flood waters from some other section were collecting to form a river on another street. Though flooding was extensive in the business section of town, most of the merchants had learned their lesson the previous year and had their goods packed higher from basement floors.

This time, the railroad was blamed for flooded basements. According to J. P. Soderstrom, the city engineer, the Chicago & North Western had failed to make

... any provisions whatever for the drainage of the draw south of the railroad grade except for a 50-inch culvert which turns the water loose upon a flat piece of land which runs off on city streets. The city had put in a large storm sewer within 200 feet of the culvert, and Mr. Soderstrom claimed that if the railroad had dug a drainage ditch leading from the culvert to the city sewer most of the downtown flooding may have been averted.

Though the Brookings area had a lot of water sitting around following this storm, J. C. Alexander alleged that the residents did not know what water was. He had just returned from a trip to Ortonville, Minnesota, where

... the rivers, creeks, lakes, etc., are so full and running over that the surplus is piled on top of the hills for lack of other room.
Spring thaw and heavy rains joined forces in April 1937 to once again inundate much of Brookings County. West of Brookings, thousands of acres in the Sioux Valley were flooded and pasturelands along College Creek (Six Mile Creek), which flows through the northwest part of the city, were also immersed.  

A number of places in the county sent in reports of the flood's destructive power. The railroad tracks north of Bruce were completely submerged. Bridges south of Elkton and in Sterling township were destroyed and several approaches to bridges were washed away, especially along the course of the Big Sioux River. Medary Park*, a pavilion on the banks of the Big Sioux River, five miles west of Brookings on Highway 14, was "practically submerged."  

Throughout the area it was not uncommon to see "tops of straw and hay stacks looming over the water in the form of islands." Mildred Johnson's description of the scene in Trenton township undoubtedly applied to several other places in the county as well.  

Due to all the water the creeks have overflowed (sic) their banks. Several roads are impassable because the water has washed out culverts and bridges. One creek flooded several acres of hayland and the farmers had to work in several feet of water to remove the hay.  

*Today a church camp is located at the former site of Medary Park.
The year of 1951 brought with it several episodes of flooding in Brookings County. Rapid thawing in late March of that year caused the river and creeks to swell over their banks. Water poured over a mile section of Highway 14 to a depth of eight inches, inundating several farms on the bottomland. Virgil Van Maanen, who lived four miles west of Brookings, lost 30 pigs in this flood and his neighbor's farm was under water to a depth of two feet in places, so the "Mrs. had to be rowed to the house from the highway." On the evening of June 20, 1951, a cloudburst battered the town of Bruce causing basements to be flooded and sections of road to be washed out. Four inches of rain was recorded within a four-mile radius of Bruce doing great harm to corn and small grain as six inches of water stood in several fields.

When 2.20 inches of rain fell in Brookings on August 30, 1951, it brought the total for that month to 8.56 inches, the heaviest precipitation recorded in twenty years. Though rainfall was heavier north of town, there was still enough to flood downtown basements.

These floods, however, were only a preview of the spring to come. Unprecedented snowfall in the White and Toronto areas during the winter of 1951-52 was blamed for the high waters which covered miles of Brookings County land in April 1952. On April 8, a "wall of water swept through
Fig. 44. Looking northeast toward the old golf course. Six Mile Creek in foreground.

the north edge of Brookings" covering the golf course*, as well as homes on the fringe of the city, with knee- to hip-deep water. William Spears, who had lived in the north-west part of Brookings for 35 years, had never seen the water so high.43

Most of Brookings County west of the city "resembled a bunch of rice paddies."44 However, the water never did get over Highway 14 because the farmers who had witnessed the flood a year earlier took it upon themselves to keep the

*Six Mile Creek flowed through the former Brookings golf course which, at this time, was located on the north edge of the city.
culverts clear of debris. South of Brookings, Lake Campbell rose higher than anyone could remember, and the road near Conservation Park was completely flooded on April 4 and 5 to a depth of two feet. Bruce took the brunt of the flood to the north as the railroad tracks were once again washed out and several basements were filled with water, including that of the schoolhouse.

Five years later, on June 16-17, 1957, the area was soaked by a series of thunderstorms which hit "across the area in roman candle fashion." Rainfall, which varied from 1.5 inches to 8.0 inches, produced widespread flooding, but reports from the southeastern corner of the county indicated that they felt the greatest impact. Minnie Johnson, who lived three miles south of Aurora, had eight feet of water in her basement and lost all 200 of her chickens. Though loss of livestock was minimal, several head became stranded on knolls in the bottomlands. Henry Andreessen, who had a flock of 200 sheep, was able to haul his animals out of the lowlands by boat. A grim job for residents of Elkton resulted when flood waters reached the graveyards of their community. Three cemeteries required considerable restoration as many graves needed to be refilled after the heavy waters caused them to sink.

Once again, the roads and bridges received extensive damage, but no damage to railroads was reported. Approximately 44 bridges or approaches to bridges had been washed
out, 13 of which required major repairs. In addition to township damage, 14 miles of the county road system needed repair, which carried an estimated $25,000 price tag.51

In an interview with a Brookings County soil conservationist, it was stated that damage to crops, fences, roads, bridges, livestock, and land would run into the "million-dollar figure." Eight to ten thousand acres had been covered by this flood, one third of which was in crops. Millions of tons of soil were carried away by the flood waters, a permanent loss to the county. He also maintained that

... proper land treatment and conservation measures such as contour farming, contour strip-cropping, terracing, and grassed waterways over the entire watershed would have greatly reduced the runoff and at the same time kept much of the soil on the farms where it belongs.52

During the 1960s, heavy rains caused flooding in the county on at least four different occasions. The town of Bruce was the location of the first one which occurred on April 1-2, 1960. The entire community was flooded, and travel was quite difficult as two miles of county highway east and west and one-half mile south had water flowing over them. Some of the township roads north of Bruce also had to be closed. Though some farms were completely covered with water, this thought was voiced: "It's better than the dust storms of last year."53

A heavy downpour on July 29-30, 1961, created
flooding which entered many basements and ground-level floors of business establishments in Brookings. Lightning during this storm, however, was also responsible for much damage. It killed five dairy cows on a farm northeast of Lake Campbell, put nine telephone lines out of order, and set fire to a straw shed at another farm near Lake Campbell.54

A Fourth of July storm in 1962 dropped 2.65 inches of rain in the morning which formed lakes on the west edge of Brookings, flooded basements and the golf course, knocked down grain, washed away topsoil, and spilled over roadways. An additional problem faced farmers when their livestock refused to touch the silt-covered grass on pastureland which had been exposed to the flood.55

On June 14-15, 1967, a "once-a-century" storm hit Brookings, breaking a record which had stood for 55 years. During the 24-hour period from 4:00 p.m. on the 14th to 4:00 p.m. on the 15th, 4.78 inches of rain fell. Small creeks "rose and roared" and dry creek beds were filled for the first time in months. One man had to be rescued as his car sank to the roof at the Sixth Avenue viaduct in Brookings.56

However, the most spectacular flood of the 1960s occurred in the spring of 1969. The warm temperatures brought with them the melting of over 70 inches of snow that had fallen during the winter. This quantity of snow and the
amount of water contained in it was reported as "a once in 40-year situation," and led to early predictions of widespread flooding.57

"Not since Noah have people had such authoritative warning of high waters to come," according to William Hiatt, the United States Weather Bureau's Associate Director of Hydrology. Pictures beamed to earth from cameras orbiting in satellites showed the January snow cover across the northern Midwest. Backed by this knowledge, the President of the United States started "Operation Foresight," the first time that federal disaster aid was committed before
the waters began to rise. The experts had no doubt that the Brookings area would be submerged and in February farmers and those living in trailer homes west of Brookings were already being asked to make evacuation arrangements.

Though the flood itself could not be averted, it was interesting to note the amount of energy expended in preparation for it. In early February a group of city and county officials met to discuss steps to be taken to prevent loss of life and property. The fire chief planned to make an inventory of water pumps and the County Civil Defense Office would make sandbags available to those requesting them. The Civil Air Patrol was asked to make frequent checks of the county, and maps were requested from the Brookings-Lake telephone system so calls could be made to get information on moisture conditions at any given spot.

During February and March, the citizens were constantly made aware of the impending danger. A one-hour television special was aired twice to discuss reasons for concern and steps which should be taken to minimize damage and loss. Nearly every week the Brookings Register ran articles to help prepare the residents for an onslaught of water:

"Preparations Suggested for Areas to be Flooded"
"Washing Salvages Flooded Bedding"
"Aho Gives Flood Hints"
"Flooded Basements Dangerous"
"Disaster Plan for Frozen Food Care"
"Prepare for Rat Invasion"
Fig. 46. Flood of 1969: Scene of U.S. Highway 14 between Brookings and Volga (photos courtesy N. F. Koegler)
Even though the people were given ample notice, one of the biggest problems facing those in charge was the people in rural areas who did not heed the warnings. The Civil Defense and fire department went on several missions to rescue families who did not evacuate in time. There was no loss of life, and the city of Brookings "escaped virtually unscarred," 60 but roads and bridges sustained $500,000 in damages. 61

Fig. 47. Six Mile Creek in northwest Brookings

Since the notable flood of 1969, Brookings has had to contend with two record-breaking rainfalls which resulted in flooding. On June 15, 1977, 4.3 inches of rain fell in three hours, backing up storm sewers and turning downtown
streets into lakes as deep as two feet. Six Mile Creek also flowed over its banks, spilling into Sexauer Park.62

On June 24, 1980, rainfall measured at 5.54 inches "sent sand-bagging crews into action at some points and left foot-deep water standing on some streets." Flash flooding was reported at Elkton and south of Brookings. Many basements in town were flooded and several county roads had to be barricaded because of the enormous amount of water.63 Over ten inches of rain was recorded just south of Aurora during this same storm. Medary Creek rose over the road for about a mile to a depth of a foot and nearby fields were

Fig. 48. Medary Creek south of Aurora
flooded. A Sioux Falls Argus Leader van was delivering its papers when it hit the water at 4:00 a.m. causing it to flip over on its side. The driver had not realized that there were any "lakes" in this area.

This review of flooding in Brookings County makes it obvious that it is not the type of disaster common enough to warrant a great deal of worry among the residents. Though the potential is always there, the most serious floods have occurred only after highly abnormal acts of nature. The excessive snow and rain which precipitated these floods are events quite rare in this area.

Though flooding is not a regular phenomenon in Brookings County, another of nature's most temperamental acts of violence makes frequent visits during the spring and summer months. Thunderstorms which bring precious water to the land are also, unfortunately, the birthplace of uncontrolable winds, tornadoes, and hail.
ENDNOTES


2Ibid.


4Brookings County Press, 5 May 1881, p. 2.


9Brookings County Press, 19 May 1892, p. 2.

10"Brief News Items," Brookings County Press, 26 May 1892, p. 3.

11Ibid.


14Ibid.


16Ibid.

17Ibid.

19Volga Tribune, 9 May 1912, p. 3.
21"Heavy Rains Flood This Section Saturday," Brookings County Press, 19 June 1919, p. 12.
22Ibid.
24Volga Tribune, 26 June 1919, p. 1.
27Volga Tribune, 26 June 1919, p. 6.
28"Heavy Rains," p. 12.
30"Severe Wind and Rain Storm Visits City," Brookings Register, 1 July 1920, p. 16.
31Ibid.
32Brookings County Press, 8 July 1920, p. 8.
34Ibid.
37Ibid.
40"Farmers Losing Livestock as Rapid Thawing Swells River, Creeks in Vicinity," Brookings Register, 1 April 1951, p. 1.


42"August Rainfall Heaviest Recorded in Last Twenty Years; 1951 Total 26.05", Brookings Register, 2 September 1951, p. 1.

43"Medary, College Creeks Swell to Highest Level in Memory; Flood Acreages," Brookings Register, 9 April 1952, p. 1.


45Ibid.

46"Peak Thought Reached in Run-Off Here; Cellars, Fields Flooded," Brookings Register, 6 April 1952, p. 1.


49Ibid.


51"County Road Damages Estimated at $25,000," Brookings Register, 23 June 1957, p. 1.


58 Ibid.
59 Ibid.
60 "Local Fire Department Evacuates Area Families From Flooded Farmland," Brookings Register, 9 April 1969, p. 1.
64 Interview with John Leiferman, Aurora, South Dakota, 7 June 1982.
With the arrival of each spring in Brookings County, the people are given a fresh chance at prosperity. The warmth of the sun penetrates the land to once again bring new life to a dormant landscape. Town residents shed their coats and busily clean yards, paint, and prepare gardens. Those engaged in agriculture anticipate the future as they cultivate their fields in preparation for the "best year yet" in crop production. Spirits are filled with the hope that propitious weather will be with them throughout the future growing season.

However, the odds of having ideal weather from April through September in Brookings County are slim. The county is located in an area highly susceptible to thunderstorm activity during the entire growing season, and these storms are often accompanied by the destructive forces of high winds, tornadoes, hail, and lightning. In a matter of minutes dreams can be shattered as whole fields lie in ruin, buildings are destroyed, and lives put in turmoil.

Wind is a frequent companion to all kinds of weather in Brookings County. Whether it is a light, gentle breeze or a whirlwind of tornadic proportions, it is generally
present in any discussion of South Dakota weather. As early as 1897, Robert F. Kerr wrote about the wind's effect on the people:

There are occasional disagreeable days in South Dakota. For a period of three days in the early spring time a steady wind will blow up from the southeast and there is no release from its effects on one's nerves. Sometimes it will be strong enough to upset small structures and cause rolling weeds and waste paper to travel across country with marvelous celerity. If one tries to plow or drag, the dust will nearly suffocate him. If he travels along a trail he soon gets discouraged and discolored. It is almost impossible to face the wind either on foot or with a team. The longer it blows the more nervous one becomes . . .

Another, more sarcastic, description of South Dakota's climate also emphasizes the significance of wind in this state.

There is a difference of opinion regarding South Dakota climate. Some claim it is nine months of winter, three months of wind, and the rest summer . . .

One is unable to deny that wind is an integral part of a majority of days in Brookings County. Though sometimes it is joked about, the wind can have a very devastating effect on people and their property. The history of the county has been marked by several episodes of excessive winds and visits by at least thirteen tornadoes.

One of the earliest recorded encounters with a tornado in Brookings County was on the evening of August 3, 1879, in the village of Fountain. At 5:00 p.m. heavy clouds began forming in the west, and until 10:30 p.m. the "clouds kept arising, forming, and passing away." Later that
evening everyone had retired, but Mr. J. O. Walker, who was still awake, noticed the shape of the clouds. He heard it roar and described it as "an immense funnel whirling with great rapidity." Its track was not over one and one-half miles in width and came "a little north of west bearing to the southeast."³

This "act of Providence" created quite a bit of havoc during its brief visit. One house was carried over eighty feet, another was torn to pieces and strewn over the prairie, and the blacksmith shop was completely destroyed. A man, his wife, and his daughter were carried several rods by the wind, but were not seriously injured. Another family nearly drowned as they took refuge in their cellar. Everything loose in town took a tumble to the flat south of town which looked like "the variety side of a plunder store" the next morning.⁴

Concern was expressed in the Brookings County Press that

... the notice of Providence is sometimes manifestly attracted to men during their temporal existence to punish them for some egregious sin committed ... it might not be entirely illogical to conclude that we have received a special and marked administration of the displeasure of Providence in the affair of Sunday evening.⁵

Maybe the people had been "too covetous ... for a railroad in Fountain," and had "undue pride for the immense and bountiful harvest in Brookings County." No damage was done to the railroad, but the crops did suffer.⁶
The following week a relief committee was set up to help the less fortunate. One man from each township was responsible for collecting contributions from his area. These were gathered together in a central place, and then a distribution board, who had identified those who were "rendered destitute," divided the donations as they saw fit. A concert was also held to help raise money for those in need.

Hail is another dreaded fear of an agricultural region, and it often goes hand in hand with the same storms which spawn strong winds and tornadoes. Unfortunately, no generation has been spared from these destructive pellets of ice, even those who settled here first. For instance, seven
acres of wheat, the first year's crop of the Christe Johnson family, was destroyed by hail in 1883 or 1884.9

Accounts of other damaging thunderstorms which occurred prior to the twentieth century are rather sketchy. Mrs. Waldrath, former editor of the White Leader, recalled a tornado which struck their farm in the White area during August of 1886. The roof was taken off the barn, and their horse was injured. Sixteen stacks of grain and the farm machinery were scattered over a wide area, and they found their wash boiler hanging on a post over one-half mile away.10

On April 5, 1889, a windstorm was reported that "undid much of the farmer's work." Newly planted fields of wheat were uncovered, and the wind "drifted and piled [the seed] in bunches or rows."11 Two months later, winds reached the "highest velocity ever recorded at the college." For two hours on July 12, 1889, the speed reached 52 miles per hour and "at times reached about a mile a minute," which was "pretty good for an ordinary wind."12

A high wind also prevailed on Saturday, September 22, 1894, which

... part of the time reached a velocity of seven hundred miles, forty feet and two inches an hour and felt like it had come off of somebody's ice cream freezer.13

During two bad windstorms in 1898 and 1899, Volga residents
made use of their cyclone shelter which was built on railroad land south of the depot.\textsuperscript{14}

To mark the beginning of the twentieth century, a little-publicized tornado totally destroyed a barn at the O. D. Bergh farm four miles south of Volga on August 19, 1900. Four brothers and sisters had just finished shingling the barn when the twister struck from the southwest between 4:00 and 5:00 p.m. None of the family was harmed as they took shelter in their cellar, but one horse was killed, the windmill was wrecked, and the granary was pushed off its foundation. Lumber was scattered over a distance of one-half mile.\textsuperscript{15}

On July 15, 1903, an unusual morning hailstorm entered Oak Lake township and traveled through eastern Brookings County, leaving by way of Richland township. While it was in the county its width never exceeded two miles, but it damaged 50\% of the crops it came into contact with.\textsuperscript{16}

Crops were completely destroyed by hail for a distance of four or five miles north of Brookings on July 31, 1909, but none fell in the city itself. This storm did not "leave a straw standing after it passed." Farms were hit north and west of Bruce, east of Brookings, east of Elkton, and it hailed for thirty minutes in the village of Aurora.\textsuperscript{17}

Wind, rain, and hail joined forces to batter the southeastern part of the county on May 18, 1911. Five men returning from Dell Rapids in a Ford car were overtaken by
these elements which included hail "as large as a man's fist." The men took refuge in a grove of trees, but the branches were soon stripped of their leaves. When it was over, the car had sustained $50 damage and "looked as if somebody had gone after it with a sledge hammer" as glass in the windshield and lamps was smashed and the brasswork was badly dented. In the Elkton area, the Rock Island depot was unroofed by the wind, barns were demolished, and cattle were destroyed.18

North-central Brookings County was the scene of a storm on June 11, 1916, described by old settlers as "the most sudden and destructive hailstorm" they had even seen there. A strip twelve to fourteen miles long, between Bruce and White, received most of the damage.19 In Bruce, the water fall was great, with nearly everyone loosing (sic) all or the majority of young chickens, cellars full of water, land under water, and gardens damaged in town.20

Torrents of rain which continued into the night caused creeks to overflow, made roads impassable, and beat down crops.21 In Preston township, the crops were "pretty much ruined" as hail was several inches deep in places and wire fences were even blown down.22

A number of residents in White were ready to "head for their cellars" when they realized they could not escape the oncoming fury. No hail fell in the town itself, but crops north and west were "pounded into the ground" and some
trees were stripped of their foliage. The people were fortunate that the storm had not occurred when their fields were further advanced or the loss would have been complete.\textsuperscript{23} Two horses belonging to Olans Udseth drowned when they became frightened of the hail and started swimming across Lake Hendricks.\textsuperscript{24}

On June 14, 1924, much of South Dakota received extensive damage as a severe windstorm attacked an area 100 miles wide and 350 miles long. Twenty deaths were attributed to this storm which did over $10$ million in damage.\textsuperscript{25} Brookings County was lucky in escaping this widespread disaster. Only an area west of Sinai reported any damage and that was caused by hail.\textsuperscript{26}

One of the most terrific windstorms in Brookings County history swept a wide path from southwest of Sinai to northeast of White about 10:00 p.m., July 1, 1928. The wind tore down great trees which had stood for a quarter of a century, wrecked telephone poles, and broke many large windows in downtown businesses.\textsuperscript{27} The roof of the hangar at the Brookings airport was carried nearly 300 feet from its original location and some of the wood was shoved three feet into the ground. One wall of the hangar caved in, damaging two planes.\textsuperscript{28} The schoolhouse three and one-half miles northwest of Volga was completely destroyed and most of the textbooks were scattered and rendered useless.\textsuperscript{29} A patient in the Volga hospital was cut by flying glass as the room's
window was blown in. Two boys in a Ford coupe were picked up by the wind and then set back down in a field with no harm done. As an added indication of the wind's velocity, electric workmen reported finding large willow branches hanging on lines in localities where no willows were present for approximately a mile.

As a young boy at the time, Arlan B. Raad, now of Brookings, remembers that particular storm as it went through Ahnberg. He and his brother were upstairs sleeping at the time. Their father called to them and met them on the steps with a gas lantern. The light was blown out and when they looked up, they could see stars in the sky. Their roof had blown off, and though the storm had passed quickly, it took time to rearrange the upstairs furnishings, switching everything from the east side to the west side and vice versa. They spent the next few days in a vacationing neighbor's house.

Brookings and Volga both sustained a great deal of damage during a storm which occurred on June 11, 1929. A hard wind of "almost cyclonic strength" struck at 4:15 a.m. In Volga, trees were broken off, windmills and small buildings were demolished, and barns were twisted from their foundations. Fourteen poles were blown down between Volga and Brookings and the electric line between the two towns was put out of order. In Brookings, winds reached a velocity of 75 miles per hour at the State College.

Two new
barns north of Brookings were demolished and silos which seemed like "bright and shining marks for the wind" were blown over at several farms.\textsuperscript{34} One of those new barns belonged to Mac Johnson. Forty men, neighbors and businessmen, got together to help him dismantle it. Along with the assistance from his friends, he received a "splendid settlement" from the Farmers Mutual Tornado Insurance Company.\textsuperscript{35}

Strong southerly winds plus high temperatures made Brookings County an uncomfortable place to be on May 21, 1933. To make matters worse, the wind whipped through fields causing dust to fill the air. In the Volga area, a large tree, one foot in diameter, was broken off three feet above the ground. A farm north of Volga lost a garage and a chicken house, and southwest of Volga a new woven fence with steel posts was flattened to the ground.\textsuperscript{36} Jessie Workman and Henry Jornlin were discussing a new sidewalk on the Brookings courthouse lawn when a large tree crashed, tearing off one of Mr. Jornlin's overall suspender buttons. In addition to other tree damage in town, the wind played havoc with telephone wires, small buildings, awnings, and business signs.\textsuperscript{37}

The spring of 1933 delivered yet another severe storm to Brookings County. On June 4, hail, rain, and "wind of tornado proportions" swept an area about a mile wide and several miles long northeast of Volga. Bark was removed
from trees, fences were torn, and small buildings, windmills, and telephone lines received damage. Hail destroyed part of the crops and left fence posts "shiny as if they had been polished." 38

Lou and Laura Johnson lived in the Lake Sinai area during the '30s when hail such as this would destroy what little crop they were able to grow on their parched land. Yet, their optimism never seemed to wane. "When it hailed, and their crops lay all in ruins, they scooped up the hailstones, got out the freezer, and made ice cream." 39

It was only a year later, on June 19, 1934, when much of the county was ravaged by wind and hail. At 8:45 p.m. black clouds were observed in the southwest which moved rapidly in a northeast direction. The upper part of the clouds "appeared like big rolling waves, four or five deep, of a grayish color." The storm struck, "with dirt filling the air followed by wind and driving rain." 40

According to Oscar Kjenslee, who lived near Lake Campbell, the storm seemed to break in two. He reported that it looked like "two gigantic funnel-shaped clouds hanging close to the earth." One went through Volga, northeast of Brookings, and into White, whereas the other traveled northeast of Lake Campbell to northeast of Elkton. 41

Reports of damage from throughout the county revealed antics which are quite characteristic of tornadoes. At the Roscoe Searle's farm, three miles north of Brookings,
the wind blew a big barn down "twisting it into a sorry mass of kindling wood and piles of wreckage." With the help of the fire department and several neighbors, the roof of the barn was lifted to free the imprisoned cattle. Arnold Olson found his barn scattered over a nearby field. His horse, colt, and cow were killed outright, and a ewe died when a stick was driven through its heart. A big iron tubing was found shoved three feet into the ground.

The roof of the grade school building in Volga was removed by this wind. The home of Engebret Nelson, two miles south of Bruce was carried 50 feet and smashed. Oscar Mehl's new barn was blown off its foundation, but his old one was left untouched. A large double barn at Pete Peter's farm, five miles east of Bruce, was also completely demolished. Though the list of damages is quite lengthy, most losses incurred during this storm were covered by insurance.

The tremendous power of this storm was further illustrated by the experiences of two individuals. Mrs. John Hastings, who lived one and one-half miles east of Bruce, was caught in the storm when she went to gather her turkeys. She lost her way and ended up at another farm one-half mile away. Harold Nesson was hauling hay when the wind blew his load over into a ditch. He grabbed the first thing he could in the darkness which was a telephone pole. He wrapped his arms around it and hung on "undoubtedly (?)
saving the pole from going down as several poles went down north of him."49

On July 9, 1938, the White vicinity was struck by a tornado which destroyed all crops in its 1/2-mile wide, 6 1/2-mile long path.50 At the District 62 schoolhouse, the flagpole was bent to the ground, the well was caved in, and books were scattered as far "as the McCuen place, over a mile away." However, the broom stood unmolested against the inside cement wall.51

The Clarence McCuen farm, four miles north and three miles east of White, was the most heavily damaged. His house was "lifted straight overhead, poised for an instant, and then disappeared," leaving nothing behind but the basement. The barn and other structures were completely demolished. One tractor on his farm was picked up and carried 40 rods into a lowland; another tractor, only a few feet away, was untouched.52

Some of a tornado's most famous tricks were also on display following this storm. Many chickens suffered as they were stripped of all but their tail feathers, a rabbit, minus its fur, was found at the Alvin Scott farm, and straws and sticks were driven into fences and telephone poles. Total damage north and west of White was estimated between $30-$50,000.53

Areas around the town of White again received most of the damage when a hailstorm hit the county on June 17,
1940. Crop losses ranged from minor to total as the stones fell in sizes varying from marbles to golf balls. Windows were shattered, car tops were dented, and limbs were torn from trees in both city and country.54

Property in Volga was also damaged, and hail "the size of eggs but of irregular shapes" caused a short panic as they bombarded a large crowd attending the Creamery Picnic. There were no serious injuries, but quite a few received cuts and bruises as they ran for shelter. The lack of wind kept the hail from causing great losses, but some of the stones hit the ground with "such force that they made holes in lawns an inch deep." Those living away from downtown reported that the "roar of the storm was very audible before it struck."55

Winsor township was the unfortunate recipient of a tornado's destructive actions on May 1, 1942. The northwest part of the township was hit at about 7:00 p.m., doing great damage at the Sherman, Swenson, and Frylman farms. Most of the homes survived, but other buildings were demolished. The Swenson double garage was carried away, but the cars inside were practically unscratched. "One car had a window open and through this the storm had gently laid a large timber."56

Leslie Sherman was injured when the post he had been clinging to was torn up and thrown a distance of 40 feet, carrying him with it. Mr. Swenson was also hurt when he
was picked up by the storm and hurled into the porch of his house. He managed to get inside the door, but was unable to close it. Through the small opening he "was pelted by ears of corn and other strange missiles."57

The people of Winsor township had just barely gotten back on their feet after this twister when another tornado attacked parts of that same area on June 27, only two months later.

Suddenly what appeared to be fibers of cloud fabric began a regular gyrating motion. They moved like figures in a dance, faster and faster and then merged into something that looked like a gigantic gray fire hose that dangled from the heavens as it moved slowly across country with the motion of a drunk man.58

This "gray fire hose" found its way to the Arthur Liebsch farm and nearly destroyed it. All the buildings, except for the small house, were crushed and carried away "as if they had been eggshells." Days later, the twelve-foot brooder house, the windmill head, and a new wagon box had not yet been recovered.59

Another farmer, named Otteson, witnessed a strange phenomenon at his place during this tornado. He saw the twister pick up water from one of the sloughs and later drop it. Shortly thereafter, the creek on his land was running over its banks although no rain had fallen.60

As this particular tornado approached, several farm families tried to outrun it in their cars, but found that it was a little more difficult than expected.
One farmer was heard to say that he had always supposed his car was really tops in the "get away" but Saturday night it could only crawl. Another man admitted that turning a car around in the road down which a tornado is approaching takes a lot longer than is comfortable.

A late summer storm on September 2, 1943, left residents of the Lake Campbell area with "the most hail they've seen in several years." Accompanied by strong winds, stones, the size of crab apples, stripped some corn. A tornado was sighted in the southwest section of the county, but it disintegrated about 5:00 p.m. Rain in the Lake Campbell region varied from .50 to 1.50 inches during a fifteen-minute period when the storm struck there at 7:00 p.m.

About 9:00 p.m. on August 3, 1944, Brookings County was once more subjected to a tornado's fury. The center of this storm seemed to strike on the curve of Highway 77 south of Brookings, where a funnel was actually sighted, but it left a five-mile-wide swath of destruction across the southern part of the county.

Following this twister, the Red Cross made a survey of the damage which had been inflicted. It found that 22 barns had been wrecked, 14 of them between Sinai and Volga. Gerhard Nelson had just left his barn after milking when the tornado crumpled it. The twister also displayed its strength by driving a four-by-four beam through the left side of his Ford sedan. On the Walter Lunden farm near Lake Campbell, everything was demolished except the house and
that was "literally split in two." Groves of huge cottonwood trees were uprooted and flung to the ground. Several windmills and outbuildings became nothing more than piles of wreckage, and a steel corn crib was blown about a mile. All telephone lines south of Brookings were down and one third of the hangar roof at the Brookings airport was ripped off.  

This tornado caused quite a scare at the Lynch farm when the mother and her twin sons, only weeks old, were unable to get into the cellar. The rain had swelled the door shut, but they weathered the storm without serious injury. However, a related incident in the White area did result in tragedy. The ten-year-old son of Harold Fouts died from burns he received when he came into contact with a power line while trimming branches after the storm.

About two weeks later, Sinai was again struck by a windstorm. Several windmills were twisted and trees were ripped down. Andrew Quam needed his neighbors' help in retrieving his hayrack which was lodged ten feet from the ground in a grove of trees.

Two storms did considerable damage in two separate areas of the county during the summer of 1955. Shortly after 3:00 p.m. on July 7, Lake Hendricks township bore the brunt of a storm which downed 14 barns in a four-mile radius, destroyed the "Grant Johnson" school, and reduced a concrete block double garage to a pile of rubble. One man was
injured when the vehicle he was driving was rolled over by the wind. The second storm concentrated its wrath in Eureka township. Stones the size of the "proverbial hen's eggs" accompanied a strong wind and together they ripped screens, smashed windows, and ruined gardens.

The north and east parts of Brookings County were engaged in several battles with the weather during the spring and summer of 1956. The first assault came from the southwest on May 10, striking the city of Brookings with torrents of water which flooded downtown streets and several basements. According to one report, this storm helped clean out storm sewers as 80 rats turned up in a trap at the disposal plant. The Victor Holt farm, four miles northeast of town, received considerable damage as the nearly new cement silo was totally destroyed, the windmill was twisted, shingles were ripped from buildings, and a hayrack was deposited in a tree.

The next storm chose Volga as its target. Golf-ball-size hail on June 3 damaged windows, screens, trees, gardens, and left the ground white in places. Later that same month, crops in the northeast corner of the county sustained damage varying from 5-90% as wind and hail whipped through on June 25.

The summer of 1961 also had several bouts with hail, beginning on June 21. Three fourths of the farmers in Lake Sinai township were hit, but only one third of them had
insurance to cover the damages estimated at $500,000. The corn still had a good chance to recover, but 50% of the oats, barley, flax, and wheat was destroyed. Hailstones the size of golf balls also did heavy damage in Medary township as they "threshed the heads of oats and shredded leaves on corn." Only a few of the farmers in this area, however, had crop insurance because that township had a long history of no hail, even when nearby areas were hit.

Another hailstorm selected the area of White as its target during the evening of August 2, 1961. Hail the size of golf balls stripped fields of corn in only twenty minutes. Later that month, Sinai was once again bombarded with hail on August 22. There was so much hail from this storm that there were still traces of it on the north side of buildings the next morning. Though the stones were no larger than marbles, they did considerable damage by stripping the corn of its leaves.

A hailstorm early in the afternoon of July 18, 1963, aimed its fierce power at the northeast part of the county, once again concentrating on the White area. With winds clocked up to 100 miles per hour and hail the size of baseballs, the damage was extensive in an area eight to ten miles wide reaching from northwest to southeast of White. Arthur Walker, who lived five miles west of White, lost 18 windows in his house and his crops were declared a total loss. In the town of White one half of the bricks were
knocked off the side of a large building. Differing reports gave credit for this incident to a small twister, lightning, or high winds "sucking" the bricks off the wall. As an indication of the hail's size, a soil indentation the size of a fist was made by a stone west of White, and cows which were caught in the storm suffered bruises two to three inches wide.75

Residents of Brookings and the surrounding area found themselves digging out from under "... a mass of tree limbs, fallen wires, crumpled television antennas, smashed barns, twisted mobile homes, and other debris ..." following an early morning windstorm on June 21, 1968.76 The first warning of the approaching storm came at 1:06 a.m. when the Weather Bureau notified the Brookings Civil Defense Office of possible tornadoes. The warning siren was sounded and immediately the city police, state patrolmen, sheriff's department, civil defense personnel, and telephone and electric linemen joined forces to watch for tornadoes and assess damage. A tornado was sighted by a Volga patrolman at 2:00 a.m., but apparently it never touched the ground. At 2:22 a.m. the all-clear signal was given to area residents and the 100 people who had gone to the Civil Defense building for shelter.77

During the storm's quick journey through this area, it produced winds up to 100 miles per hour which knocked out telephone and electric service, did extensive damage to an
apartment complex, tipped mobile homes, damaged buildings and planes at the airport, severely harmed several trees in the city of Brookings, and downed twelve barns and a few silos out in the country.\textsuperscript{78}

The '70s were ushered in with a storm which brought both hail and tornado damage. On June 15, 1970, golf-ball-size hail fell and many trees were uprooted in the villages of Aurora and Elkton.\textsuperscript{79} A tornado was reported at the Melford Trygstad farm southwest of Brookings at 8:00 that evening. Before the twister left, it destroyed the pump house, barn, steel grain bin, pine trees, and several head of livestock.\textsuperscript{80} During June 1971, several tornadoes were spotted throughout the county, but no damage was reported.

On May 20, 1975, a "baby twister" visited a southeast residential area of Brookings at 4:30 p.m. Some of the material being used to construct a new house was picked up by the wind and used to break two windows in a nearby house, and to dent the steeple of the Wesleyan Methodist Church. Three-year-old Cathy Hall required five stitches for a gash on her back caused by flying glass when the picture window in the living room of her home exploded.\textsuperscript{81}

July 1981 was one of those months when hailstorms were more the rule than the exception in Brookings County. During three days of a four-day period, July 19-22, hail pelted various parts of the county. On July 19, 220 acres of soybeans were destroyed about 8:00 p.m.\textsuperscript{82} Fields of
small grain between Volga and Brookings were lost and corn was stripped during a hailstorm at 6:00 p.m. on July 21.83 As an end to this series of storms, hail hit north and east of Brookings on July 22.84

In the preceding discussion of disasters created by thunderstorms and their offspring, wind, hail, and tornadoes, little mention was made of the force behind the thunder—lightning. With 44,000 thunderstorms occurring over the earth daily, nearly eight and one-half million lightning strokes jab the earth every 24 hours.85 Unfortunately, some of those bolts of lightning have chosen
Brookings County as their target. Though lightning has taken no lives in the county, it has damaged or destroyed much property.

One of the earliest buildings to be destroyed by lightning was a church in the Lake Sinai area. The settlers had been holding their religious services in school houses or sod homes until 1890 when they built their first church. Only five years later, it was struck by lightning and burned to the ground. Since then, barns in the county have been the prime target of fires started by lightning. In addition to the buildings which have been destroyed, several head of livestock in Brookings County have been killed by lightning's blast of fire, and telephone service has been interrupted more than once when poles and wires have been struck.

Hail, wind, tornadoes, and lightning have all been a part of spring and summer weather in Brookings County. All four have affected the lives of people since the county was first settled. Again, the major difference between then and now is the number of people who have had to endure these frustrating acts of nature. Additional people led to increased property holdings, which in turn contributed to mounting destruction in the path of each storm.

As one reads through descriptions of the havoc that these storms have created in the county, it is obvious that the storms themselves have not increased in number or in intensity. They have attacked with varying degrees of energy,
any time of day or night, and often in highly selective areas within the county.

When the county's economy was still based primarily upon agriculture, these tempests could mean the difference between success and failure for an entire year. It is often said that the farmer is the greatest gambler as weather plays such an important role in his life. In the earliest days there were few organizations to help in financing or marketing his products, and he was taught to look to "divine authority" for good fortune. He is still a gambler, but with the aid of crop insurance he now has much better odds.

With fewer people dependent upon agriculture for their livelihood today, the impact of these destructive elements has changed. Many residents have moved from rather detached rural settings to the more cohesive units of small towns and into the city of Brookings. The concentration of most residents in smaller areas of the county has increased the potential for an isolated storm to inflict greater destruction. If a tornado should visit the south-central portion of the county today, especially in Brookings and Medary townships for example, the loss would be devastating.

Fortunately, the public is now made aware of impending tornado activity with greater accuracy. However, this was not always true. The United States did not even keep records of tornadoes until 1916, and the fear of causing panic kept the Weather Bureau from forecasting them until
March 1952. World War II brought with it a concern for the safety of air bases, war plants, and human lives in the tornado belt. The public was very receptive to these warnings, so they were continued, and the Bureau acquired more sophisticated instruments and methods to keep their forecasts as accurate as possible.

The peak period for tornadoes in South Dakota is May, June, and July. Information is now disseminated to residents early in April to make them aware of the danger that tornadoes bring with them. The spring of 1982 reveals excellent examples of the energy put forth now to keep people in Brookings County prepared for such an event. The Brookings Daily Register published articles which gave advice for surviving a tornado. The radio stations in town broadcast short spots daily, warning people that the tornado season was near and listing steps they should take if one were sighted. Brookings and Volga participated in a statewide warning test of the National Weather Service in which all emergency personnel went into action and the schools took part in a tornado drill. The other towns in the county all have sirens which can be activated at the Brookings Police Department should the need arise, but these systems still need improving according to Bob Bishman, Brookings County Civil Defense Director. When weather conditions are favorable for tornado formation, law enforcement
officers, members of the Brookings CB club, and amateur radio clubs are asked to keep an eye out for them.\textsuperscript{90}

There have been relatively few attempts to reduce the violence of a tornado, but for ages mankind has tried to break the force of hail. It was the custom of the Romans to shoot arrows or hurl javelins toward the gathering clouds in hopes of frightening them away.\textsuperscript{91} During the Middle Ages the ecclesiastical agencies also became involved. In Medieval Europe church bells were rung,

\ldots a practice that tended to increase the casualty rate because lightning often struck the unprotected belfry, electrocuting the bell ringer.\textsuperscript{92}

Toward the end of the eighteenth century, France set up more than a million metal-tipped poles called paragreles which were supposed to draw the electric charge from the clouds and prevent the formation of hailstones.\textsuperscript{93} After 1912, France once again attempted to pull electricity out of a storm by erecting enormous lightning rods of pure copper across the favored paths of storms. The "kingpin of the first line of defense against hail" was the Eiffel Tower, "an inspired way to launch the scheme." But, there it ended. "What the copper attracted was not lightning but thieves, who made off with it."\textsuperscript{94} The method still under study today is the use of silver iodide to artificially increase the number of ice particles in storm clouds so that a relatively larger number of less damaging smaller hailstones might be produced.\textsuperscript{95}
Though prevention has been one attempt to solve the hail problem, the most realistic and beneficial source of relief has been insurance. In 1919, a session of the legislature in South Dakota enacted a law providing for State Hail Insurance. During the first year it was offered, 43,850 farmers took advantage of it in the state.96

Insurance has given the farmer some control over the damages imposed by the storms just described, but it was of little help during those long years when the sky refused to produce the clouds necessary for the manufacture of precipitation. Devastating and discouraging periods of drought have also been a serious hardship for county residents.
1 Robert F. Kerr, "Early History of Brookings County," Briggs Library Archives, South Dakota State University, Brookings, S.D., 1897. (Handwritten.)


3 "Terrible Visitation Made Upon This Community in the Form of a Terrific Tornado," Brookings County Press, 7 August 1879, p. 2.

4 Ibid.

5 Ibid.

6 Ibid.

7 "Relief Committee," Brookings County Press, 14 August 1879, p. 2.

8 Brookings County Press, 14 August 1879, p. 2.


11 Volga Tribune, 5 April 1889, p. 3.

12 Brookings County Sentinel, 12 July 1889, p. 3.

13 Brookings County Press, 27 September 1894, p. 3.


15 Brookings County Historical Museum. (Typewritten article with photo.)


20*Brookings Register*, 22 June 1916, p. 3.


32Interview with Arlan Raad, Brookings, S.D., May 1982.


38 "Severe Storms Strike Saturday," Volga Tribune, 8 June 1933, p. 1.


43 Ibid., p. 7.


45 Ibid.


53 Ibid.

144


57.Ibid.


59.Ibid.


63."Tornado Whips Through South Part of County Late Thursday; Several Farms Hit," Brookings Register, 9 August 1944, p. 1.

64.Ibid.

65.Ibid.


72.Ibid.


Ibid.

Ibid.


Ibid.


95 Hallett, "When Hail Breaks Loose," p. 57.

They say you are a tenderfoot until you can taste the difference between the dust of Texas, Kansas, and Dakota.  

It seems hard to believe that our earth home, 75% of which is covered by water, could ever expose its inhabitants to lengthy periods of nearly arid conditions. Yet areas which generally receive sufficient moisture during the year to support the people living in them, have undergone severe shortages of water not once, but several times. Brookings County has unfortunately found itself in this dilemma at various times throughout its history.

The lack of precipitation which induces drought is also an essential ingredient for the creation of three related disasters. Warm temperatures plus little rainfall in the spring produce ideal conditions for a bumper crop of grasshoppers with insatiable appetites. Strong winds blowing across dry land subject the people to miserable dust storms, and without rain, prairie fires run rampant over the landscape consuming everything in their paths. Though these types of disasters are far from being common occurrences, they played an especially important role in the early development of Brookings County.
Grasshoppers were one of the earliest problems confronting the settlers. During the 1870s, 'hoppers arrived in swarms so thick they looked like "clouds of smoke in the distance." Their "gauzy wings made it appear like the air was filled with snowflakes." These living "clouds" settled wherever they pleased and left virtually nothing behind when they departed. They would even "cover fences a couple of inches thick, clinging to each other like swarming bees."2 One of the county's early pioneers, P. O. Peterson, remembered their arrival during those first years.

Within 24 hours they stripped a 70-acre field of grain so bare that only stems were left standing... they settled on log houses which were dark and weatherworn and left them as white as though they had been sandpapered.3

Another settler reported that forty hogs and fifty turkeys fattened themselves on nothing but grasshoppers and a little hay. When they were butchered and prepared for meals, "the pork and fowl had the peculiar taste of grasshoppers."4 Water in the creeks was stained the color of coffee by the excrement of the insects and "even the fish tasted like grasshoppers."5

On December 7, 1874, Governor John L. Pennington sent a message to the Territorial Legislature asking for help in assisting families who had been "rendered destitute in consequence of the destruction of their crops." Forty to fifty persons in Brookings County were "without
actual necessities of life," but the Legislative Assembly adjourned without making any provisions to aid the needy. However, the federal government appropriated $150,000 to buy food for the grasshopper sufferers. Brookings County received 1,250 pounds of flour, 540 pounds of bacon, and several loads of potatoes which were distributed from the Charles Stearns home in Medary.

These insects also played a role in the early settlement of the county. In 1874, rumors of an Indian attack caused fear in the village of Medary and created an exodus of settlers. As they headed back East, they took a last look at their former homes, saw smoke, and thought the Indians were burning Medary. What they did not realize was that the smoke came from fires started by other homesteaders to frighten the grasshoppers away. "As a result of this scare, settlement in the County was retarded for several years."8

The Lake Hendricks colony was unusually fortunate during the summers of 1877 and 1878. "The insects appeared like a snowstorm approaching across the lake," and threatened to settle on their land. The farmers managed to drive the swarm up from the ground by setting fire to the dry grass still available from the preceding year.9

The ravages of these insects left little to supply the people's winter provisions. Yet there were many who stayed, thinking that "next year would be better." Most
of those who remained turned to trapping and hunting for their livelihood.

In some cases, what the grasshoppers had not destroyed, prairie fires took care of.

Nothing would strike anguish into the hearts of the early settlers on the open prairie as the prairie fires . . . a lurid northwest sky with the wind from that direction was the alarm signal.10

In the old days prairie fires illuminated the night, coming twinkling over the tops of the little hills, zigzagging down their sides . . . 11

. . . with a fearful roar the fire would roll forward with a wedge point leading the attack. With strong winds its speed was unbelievable. Long tongues of fire reached out to devour everything in its way.12

In 1873, when W. W. Pay and his brothers settled the village of Oakwood, they stacked the hay for their stock all together after the harvest. A prairie fire then came from the south, crossed the fire break, and burned every stack. In order to feed their livestock that winter, they cut the long slough grass from the north side of the lakes and brought in a load of hay from Medary.13

A prairie fire in 1878 burned away the entire winter fuel supply for the Edwin Ruen family in Lake Sinai township. To keep warm that winter, they gathered buffalo chips and sage brush roots to burn and stacked them near their sod house. They also cut tall slough grass, carried it home, and twisted it so it would burn more slowly.14

At the end of March 1879, one of the largest
prairie fires in this part of the state covered an area along the eastern boundary from Brookings County to Union County in extreme southeastern South Dakota. This week-long fire burned out farmers in a path over 100 miles long and two to twenty miles wide.\textsuperscript{15}

Another prairie fire, on October 7, 1880, began near Aurora at noon and was backed by a wind from the south. By the following morning, it had reached the county line and then continued north to Gary in Deuel County. At 11:00 a.m. the wind changed and came from the west, spreading the fire over the rest of the county lying to the east.\textsuperscript{16}

During the fall of 1885, different parts of the county sustained losses when prairie fires once again appeared. In mid-October, one hundred stacks of grain were burned south of Aurora and one hundred acres of grain were lost in Oakwood township.\textsuperscript{17} A dozen farmers north of Brookings lost crops in an area four-five miles wide and seven-ten miles long, during the latter part of that same month.\textsuperscript{18}

In an attempt to protect themselves from these fiery menaces, the early settlers formed fire breaks around their homesteads by plowing a couple of furrows on each side, four or five rods apart. However, these were of little benefit during the spring of 1889. Dry weather had left eastern South Dakota in perfect condition for the
spreading of prairie fires during the first days of April. Six towns in this half of the state were nearly destroyed and at least two lives were lost. One victim was Anna Sweeny, age 25, who was "suffocated by smoke and burned to a crisp."\textsuperscript{19}

Although no lives were taken in Brookings County, several areas did receive fire damage that spring. An earlier fire on March 10, started in the hills of Winsor township and continued day and night until it reached the cultivated fields of Oakwood. Considerable damage was done to hay, and two or three timber claims were lost.\textsuperscript{20}

Oakwood was then the scene of a destructive fire during the first three days of April 1889. It started in a stable near the lake and was pushed by "gale-force" winds across the prairie in a southeasterly direction destroying eight acres of trees and two more stables.\textsuperscript{21} Residents of Volga attempted to avert this fire from their town by burning the prairie west and north of them. Their own fire got out of control for a time, passing through the cemetery, but no real damage was done.\textsuperscript{22} In September of that same year, a prairie fire destroyed twenty tons of hay north of Lake Hendricks.\textsuperscript{23}

With prairie fires on the loose throughout eastern South Dakota during the 1890s, a Sioux Falls paper made the following plea to farmers:
It is time the farmers made a break—not a political break but a fire break. The days of the "sere and yellow" leaf are coming rapidly, the crickets have begun to sing, and soon the succulent grass of the prairie will be the most inflammable of timber, awaiting only the hunter's gunwad or the carelessly dropped match to carry destruction to many happy homes and dispel dreams of wealth which are just on the eve of realization—which need only a little work with the plow to appear in the pants pockets as dollars. Better make a break. *Sioux Falls Press*\(^2^4\)

Volga area farmers were also reminded of a law regulating the setting of fires. It was considered a misdemeanor, punishable by fine, imprisonment, or both, to set a fire without fifty feet of fresh plowing completely surrounding the stacks or stubble to be burned.\(^2^5\)

These warnings and precautions, however, were not enough to arrest two large fires in Brookings County. In early November 1892, Winsor and Bangor townships lost considerable hay to a blaze,\(^2^6\) and in October 1893, a fire swept through Argo township burning tons of hay and other property.\(^2^7\)

As the county became increasingly populated and more land was put into crop production, instances of prairie fires in Brookings County declined.

For years the prairie fire was a nightmare to the pioneers. But as the prairie, the wild, untamed prairie, with its overwhelming size, has been conquered, so has also the prairie fire, that annually galloped over these plains been conquered with the prairie.\(^2^8\)

The 1890s were indeed quite dry and the 1910s were not much better. Myrtle Woodard remembered the trying
times during those years when the high winds blew the fine soil up into clouds of dust. Dust "a mile high in the air" during mealtime was especially unappetizing. When dishes were removed from the table after eating, one could see where they had stood; "dust covered the balance." 29

An 1894 Brookings County Press news item described the weather at that time as

... remarkable, surpassing anything ever known before. The Sioux river is dry, a thing never before heard of, and everywhere wells, lakes, and small streams are giving out ... 30

Fig. 51. Big Sioux River west of Bruce
Those dry, dirty years forced many homesteaders to leave as foreclosures were made on their farms. In an effort to get relief for the thirsty land, Philo Hall, the mayor of Brookings, issued a proclamation calling all citizens to a prayer meeting. Business places were closed and the gathering asked the "Divine Authority" to intervene and deliver His people from this affliction. It rained, but for many, it was too little too late.31

In retrospect, these early periods of drought and related disasters, seemed to be only a preview of just how bad things could get. The families who had survived the trials and tribulations of prairie life thus far, were really put to the test during the 1930s. According to J. B. Kinar, of the United States Weather Bureau, never before in American history had so little rain fallen over such a wide area. The months of June 1933 through May 1934 were the driest on record for the Dakotas, and to make matters worse, they were preceded by several years of inadequate rainfall.32 These conditions were further aggravated by extremely high temperatures, and once again circumstances were conducive to the raising of millions of grasshoppers.

One survey gave the following description of the drought-stricken area.

All around grasshoppers jumped and flew. Far out on the plain, three cows were standing, heads down. A horse slept on his feet. No trees. No streams.
No grass. No clouds. Nothing. Just land, land, miles and miles of it. Flat, dry, dusty--an arid, uncharted desert of land. Not a living thing as far as the eye could see.33

Brookings County received very little moisture for weeks on end. The Big Sioux River was very low; one could walk on the river bed for considerable distances, the first time since 1894.34 Lake Sinai also dried up during the '30s and large portions of the flat lake bed were plowed and planted into corn and oats.35 Lake Oakwood was also dry, and revealed stumps of oak trees larger than those on the bank, an indication that this had occurred before.36

The numerous dust storms were one of the most discouraging aspects of this drought in Brookings County. Osbourne Stime of the Sinai area remembered the "big drifts of dirt" which covered whole fence lines, leaving only the tops of the posts in view. Lamps had to be lit in the middle of the day because it got so dark. Sometimes this went on for days.37 The recollections of another Sinai resident likened these dirt storms to blizzards when children had to use fence lines as their guide back home from school.38

Two notable dust storms in Brookings County during the "Dirty Thirties" occurred on November 12, 1933, and on April 21, 1934. Winds averaging about 56 miles per hour out of the northwest whipped the dry dirt into a frenzy during the first one.39 It started at 8:00 a.m., and before long the question was changed from "What is this
country coming to?" to "Where is this country going to?"
The storm reached its height at noon when sunlight was almost completely shut out by the airbourne dirt. It was often impossible to see buildings across the street.40 Fences were blown across highways and street lights were blown down.41

The second storm became most severe at 4:30 p.m. The dirt was "so dense it became dark as night" and made it necessary to turn on electric lights.42 A large crowd was present in the city of Brookings due to a convention, county spelling and declam meets, and a track meet at the college. During one and one-half hours when the storm was at its worst, buildings were not discernible across the street and travel on highways was difficult.43 Two motorists, Eva and Verna Johnson, suffered many cuts and bruises when their car collided with a truck during the storm.44

As if the drought and its dust storms were not enough, the people also had to face the ruthlessness of grasshoppers. The Herbert Thompson farm in Lake Sinai township was plagued by these insects for three years in a row. His already small hay and grain crops were claimed by the 'hoppers, and his cattle barely survived on Russian thistles, the only thing that would grow in the dry soil.45

The son of Sam Langum, also of Sinai, recalled growing up during the "Terrible Thirties."
... in 1934 ... Dad and Vic got out the binder to harvest the little crop we had in two sloughs. The next day, the grasshoppers "moved in" and "harvested" it for us. That fall Charles and I picked 35 acres of corn by hand in one day. The total yield was about 15 bushels.46

The extreme heat that also accompanied this drought caused at least one death in Brookings County. Harold Townsend, 21, was overcome by the heat while working in a field north of Brookings and died on July 18, 1932.47

A county which had become very proud of its numerous stands of trees had to watch many of them die during this long drought. An original tree plantation provided by the Federal Bureau of Forestry 40 years earlier had an enormous amount of dead wood cut out of it during the winters of 1933 and 1934. A grove of Scotch pine, the "marvel of the region," was about gone. Trees in downtown Brookings continued to die even though each household was given 2,000 gallons of free water during the summer to prevent just that.48

Although many still used prayer to help them survive this series of miserable events, the people also had the aid of the federal government. With so many families left with nothing to give them hope, President Roosevelt backed several programs to revitalize the multitudes of broken spirits. The Works Program Administration (WPA) put farmers to work building water reservoirs and on other soil conservation projects, for a $15-per-week wage. Families
were saved from hunger by allotting them $20-per-week on "starvation relief," and a one-year moratorium was declared on rehabilitation loans. The government spent millions to buy cattle which might have otherwise starved, slaughtered many of them, and sent the meat to relief agencies.49

In the earliest wars against grasshoppers, farmers instinctively ran into the fields shouting and waving their arms to ward off the feasting enemy.

From this point, ingenuity conjured up a multitude of devices and techniques both simple and complex to squash, bury, trap, burn, asphyxiate, trample, crush, drown, or poison the common enemy.50 By the late '30s, scientists had put together the most successful means of combatting this mighty little pest. When wet, cool, spring weather was not available to kill off the wingless young, they were given plenty of poisoned bran on which to gorge themselves. In 1938, Congressional appropriations made 160,000 tons of the poisoned bait available to infected regions throughout the western half of the United States. Brookings County was included in one of the areas designated as the worst infected.51

By 1936, "the drought . . . was just about over . . . there was practically nothing left to destroy."52 17,800,000 acres had been harvested in South Dakota during 1930, and by 1935, this had dropped to 4,800,000 acres.53 Farm mortgage foreclosures indicated the seriousness of the situation in Brookings County. They numbered 101 in 1933,
Fig. 52. Grasshoppers destroyed nearly everything except the people's sense of humor. (Postcards courtesy N. F. Koegler)
72 in 1934, 68 in 1935, and 59 in 1936. Combined, they contributed to the only population decline in Brookings County history.

Long before the 1930s, the Weather Bureau had classified South Dakota as a semi-arid state, and as far back as 1893, the United States geologic survey warned settlers that the country beyond Minnesota was "a dry region, unfit for ordinary agricultural pursuits." However, the settlers were not deterred. They could not wait to till the rich soil and extract all that it would produce. During the war years, higher prices for wheat persuaded many to plow even more treeless acres. By denuding the land surface, they destroyed the subsurface water necessary for plant survival. Rainfall washed over the bare land carrying valuable top soil with it. Strong winds made a game of picking up the uncovered soil and hurling it about, sometimes depositing it hundreds of miles away. It took strong conservation measures to keep the county's soil at home.

The most recent drought in Brookings County occurred in the mid-1970s. During April, May, and June of 1976, only 44% of the normal rainfall was received, even less than what fell during the same three months in 1936. Though it was indeed drier, this area did not have to experience the terrible dust storms of the thirties. Proper farming methods and numerous shelter belts helped keep the soil in place.
Fig. 53. Modern irrigation system

Fig. 54. A Brookings County windbreak
However, the shortage of rain did have a devastating effect on crop production and cattle raising in the county and throughout the state. The value of the state's grain crops dropped $350 million during 1976. The wheat crop was the smallest in thirteen years and oats and barley crops were the smallest since the 1930s. The federal government paid up to $27 a ton to help farmers obtain a 90-day supply of hay for their cattle. In addition, the Milwaukee Railroad reduced their rates up to 50% for shipping hay into South Dakota. Even so, many farmers were still forced to sell their livestock. In order to save water for the remaining livestock, irrigators along the Big Sioux River were ordered to shut down their operations, the first time this had ever happened.

Farmers were not the only ones affected by this drought. Many businesses suffered as people chose to have old things repaired rather than buy new ones. One implement dealer's sales were down by 88% and he was forced to lay off six workers.

This discussion of drought has now brought us full circle in studying the changing impact of natural disasters in Brookings County. From an excess of precipitation which caused floods, to a serious lack of water creating drought conditions, the county has certainly had its share of the devastation that nature can produce.


5. Ibid., p. 60.


7. Ibid., p. 82.


17 Brookings County Press, 22 October 1885, p. 4.
18 Brookings County Press, 5 November 1885, p. 2.
20 Volga Tribune, 13 March 1889, p. 3.
21 Volga Tribune, 5 April 1889, p. 2.
22 Volga Tribune, 12 April 1889, p. 4.
23 Brookings County Sentinel, 18 September 1889.
24 Brookings County Press, 1 September 1892, p. 4.
26 Brookings County Press, 6 November 1892, p. 3.
27 Brookings County Press, 19 October 1893, p. 3.
30 Brookings County Press, 9 August 1894, p. 3.
31 "It Was Dry Here 40 Years Ago, Too, It Seems From This," Brookings Register, 1 May 1934, p. 8.
32 "Data on Drought," Science, 80, 24 August 1934, p. 179.


41 "Dust Storm Most Severe in History," p. 7.

42 "Dust and Wind Storm Hits Here," Volga Tribune, 26 April 1934, p. 1.


48 Stout, "They Can Take It," p. 73.


52 "This Drought is the Worst," *Business Week*, 8 August 1936, p. 11.


54 "Farm Mortgage Foreclosures in South Dakota 1933-34-35-36-37" (Brookings, S.D. Agricultural Economics Department, South Dakota College of Agriculture and Mechanic Arts, August 1938), p. 2.


56 "This was driest growing season on record here," *Brookings Daily Register*, 8 July 1976, p. 1.


CHAPTER VIII

CONCLUSION

The "Land of Infinite Variety," another of South Dakota's nicknames, is certainly given credibility if one uses the wide assortment of natural hazards to be tolerated in Brookings County as an illustration. From the earliest settlers in the county to the residents of today, each generation has had to contend with some of weather's most spectacular displays of destructive power.

This review of natural hazards in Brookings County has demonstrated that their impact has changed considerably during the last century. Not only is the county located in a region susceptible to a wide range of weather-related hazards, but one's location within the county has often meant the difference between catastrophe and prosperity.

Nature had been rehearsing these acts long before there was anyone to witness them. With the arrival of permanent settlers, not only did these forces have an audience, but the stage became filled with many additional props to make the scenes much more dramatic. As the years progressed, these performances were continued, but with a rising cost in terms of lives and property. Some of the
main characters in this drama have been drought, floods, blizzards, tornadoes, and hail. All have played, and continue to play, major roles in the lives of Brookings County residents.

Three members of the original cast of disasters no longer carry as much influence as they once did. Cultivation of the land, along with better farming methods, and the planting of trees, have curtailed the ability of the weather to produce the terrible dust storms which plagued the area during periods of insufficient rainfall. With very little prairie left, the wild fires of the early days no longer pose a threat to the people, and scientific knowledge has made it possible to fight effectively against the voracious appetites of those grasshoppers which divested farmers of their entire subsistence.

However, the droughts which perpetrated these misfortunes, have not been brought under the control of man. Attempts have been made to force clouds to produce rain, but these have been relatively unsuccessful. Since it is impossible to alter the weather patterns which produce this problem, man has had to devise ways in which to survive in spite of it. Drought-resistant plants have been developed to withstand shortages of water, and extensive irrigation has also helped to palliate such circumstances. Drought still occurs, but it does not directly affect as many people in the county as it did when nearly the entire
population was engaged in agriculture. However, out of the whole realm of disasters which have plagued Brookings County, it has been the only one which had enough power to actually coerce a substantial number of people into leaving their homes in this county.

Another hazard which has gripped the entire county in its frenzy, is winter's blizzards. The history of this area has been marred on several occasions by the anguish these tempests have produced. Some say we no longer experience the blizzards of old, but it is doubtful that their intensity has really diminished. The people in the path of such storms today, generally receive adequate warning so they might be better prepared for an assault of snow, wind, and cold. By taking the necessary precautions, they can wait out such a storm with plenty to eat in the comfort of well-insulated homes. Downed poles and wires, and blocked roads present more of an inconvenience than real hardship for people. Today's generation, which is highly mobile, is used to quick communication with the outside world, and relies on electricity for so much of its daily existence, is faced with an increasing economic problem created by such storms.

Unlike the drought and blizzard, other natural disasters which occur in Brookings County tend to be a little more selective in the areas where they choose to perform. Even flooding, which has been quite widespread following a
winter of heavy snowfall, does not engulf the entire county. Tornadoes and hailstorms have generally taken paths covering only a few miles within the county. Chances of escaping such occurrences, then, are largely a matter of luck more than anything else. For example, when county settlement was just beginning, a tornado found its way to the little village of Fountain. Had that twister gone through two years earlier, no one would have even noticed.

As the county's population grew and more people were erecting buildings, planting crops, and raising livestock throughout the county, the incidence of disaster increased. The growth of towns within the county also augmented the potential for disaster. With more people living closely together in a limited area, a storm's fury would not have to travel far to inflict tremendous damage.

In helping people get back on their feet following one of nature's devastating blows, the federal government has played an important role, even since the earliest days. By making money available for food, loans, and rehabilitation programs, residents of the county have been able to pick up the pieces and continue their lives. In addition, most people now have some form of insurance to aid in their recovery.

The public is now much better educated in the wiles of nature and is kept informed of steps to take in case danger from such storms seems imminent. Brookings County
is fortunate in having a Civil Defense Office located in the city of Brookings. Though its primary function is to deal with the possibility of nuclear war, it works closely with other community agencies in coordinating plans for the safety of its citizens from and during all kinds of disasters. As the population continues to grow, losses will also rise. With more people commuting to their place of employment and an increasing number of families making their home near the Big Sioux River, the potential for natural hazards to become disasters appears to be a veritable part of Brookings County's future. The county cannot escape these hazardous events, but if people remember that they are almost powerless on a one-to-one basis with these elements, there need be no loss of life.
### APPENDIX A

#### SOME EARTH TREMORS RECORDED IN SOUTH DAKOTA*

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 December 1899</td>
<td>Highmore at 5:00 a.m. Faulkton at 6:00 a.m.</td>
</tr>
<tr>
<td>2 January 1938</td>
<td>Clark County, southwest to northern Beadle County</td>
</tr>
<tr>
<td>1 October 1938</td>
<td>South-central South Dakota</td>
</tr>
<tr>
<td>11 October 1938</td>
<td>Southeastern South Dakota</td>
</tr>
<tr>
<td>4 November 1938</td>
<td>South-central South Dakota at 4:00 p.m.</td>
</tr>
<tr>
<td>25 May 1941</td>
<td>Several southwestern counties</td>
</tr>
<tr>
<td>11 March 1942</td>
<td>Black Hills area</td>
</tr>
<tr>
<td>16 May 1943</td>
<td>Fall River County</td>
</tr>
<tr>
<td>10 November 1945</td>
<td>Southern Charles Mix County to Yankton County into southern Hutchinson County and Turner County at 3:00 a.m.</td>
</tr>
<tr>
<td>13 May 1947</td>
<td>Pierre, Timber Lake, and Mcintosh just before midnight</td>
</tr>
<tr>
<td>7 May 1949</td>
<td>Miller</td>
</tr>
<tr>
<td>27 June 1966</td>
<td>Rapid City area</td>
</tr>
<tr>
<td>19 October 1971</td>
<td>Cedar Butte in Mellette County</td>
</tr>
</tbody>
</table>

*Source: U.S. Department of Commerce. *Climatological Data South Dakota* and *Climatological Data National Summary.*
APPENDIX B

TWENTIETH CENTURY WINTER STORMS IN BROOKINGS COUNTY

Descriptions of the following storms are based on information gleaned from Brookings County newspapers. The articles which were used are all listed in the bibliography.

April 27-28, 1907:
This storm left 18" of snow on the level with drifts three feet high. It was the first time in 33 years that Medary Creek and the pond where the ice supply was cut were frozen over on April 28. Farmers had just begun seeding. Fields were turned into mud and lowlands flooded with the arrival of warm temperatures once again. Train service was delayed.

January 29-30, 1908:
After two hours of rain, it turned to sleet accompanied by strong northwest winds. The cold was "intensely piercing." Telegraph and telephone wires were blown down. The only other damage was to a sheep barn in which 20 sheep were killed. No mail was received from the east for 84 hours.

February 8-9, 1909:
Though there was only six inches of snow on the level, it was blown into great drifts along walks and about buildings by gale-force winds which blew for two nights and a day. College and public schools were closed and all business in the city was tied up. The wind blew most of the snow off the roads so "sleighing ... was not the best." Trains were delayed and mail service was disrupted.
January 1-2, 1911:
The railroad was crippled as gale-force winds blew snow and the temperatures dropped down to -32°F on the 3rd.

March 13-14, 1913:
This was considered the worst storm of the winter, but damage was confined to telephone lines.

January 30-31, 1917:
Snow fell all day the 30th followed by wind on the 31st creating "nearest approach to a genuine blizzard for several years." Temperatures were well below zero that week including a -33°F reading on February 1.

February 3-4, 1917:
The wind blew "the hardest that it has blown in the winter for years." In some places drifts were so deep that farmers had to enter their barns by second story windows to get to their stock. There were no casualties or loss of livestock. It took a load of 16 men, two hours to clear two miles of railroad line.

March 16, 1917:
Wind blew one and one-half feet of snow into great drifts. Trains were tied up for five days and travel within the city of Brookings was practically suspended. When the storm was over, the people of Sinai came out to watch the snow plow cut through drifts as high as twelve feet.

November 9-10, 1919:
The area experienced near-blizzard conditions with about an inch of snow falling accompanied by a strong wind and temperatures dropping to -40°F.

March 3, 1920:
One of the worst storms that winter. There were six to
eight inches of badly drifted snow causing trains to be up to five hours late.

**February 1, 1922:**
This was declared the worst storm since 1917. It blockaded railroads and highways "practically isolating the city from the outside world." Two- to three-foot, hard-packed drifts were common on Main Street. It occurred at the same time as violent earthquake shocks along the Pacific Coast, "a disturbance caused by the earth slipping on its axis and shifting its poles a few millimeters" according to scientists. Truck loads of 15 men were sent out, armed with shovels, to open the roads. Mail service and delivery were disrupted throughout the county.

**March 17-18, 1923:**
These were two of the coldest and stormiest days of the year with strong wind whirling blinding snow during the greater portion of 48 hours and the mercury dropping to -16°F and -22°F.

**March 28-29, 1924:**
A high wind swept snow into deep drifts making travel in Brookings and on country roads impossible until they were shoveled. A reporter from Medary claimed it to be the "worst of the winter."

**November 14-15, 1927:**
Wet, heavy snow fell first, followed by light, fluffy snow and wind. Eight inches lay on the level, but farmers reported drifts six-seven feet deep. Sixty percent of the corn crop was not yet picked. Busses were unable to run. For the first time in Brookings, the snow drifts that lined the curbs of Main Street were cleared by the E. Z. Poole dray line at a cost of
$30. City authorities expressed concern that it would be "too expensive a precedent to establish."

April 4-5, 1929:
This storm ended a week which recorded "86° in the shade with the dust blowing," followed by a twister, a thunderstorm, and a drop in temperature to about 20°F with "the worst storm of the winter." Chicken coops, hog houses, hay racks, and farm machinery suffered damage. Nearly one and one-half feet of snow covered the ground after the snowstorm left.

February 8-9, 1936:
The worst blizzard in years whipped freshly fallen snow around blocking roads and suspending railroad service. Volga had snowbanks five feet high across Main Street with drifts six to seven feet high behind buildings. Aurora boasted of drifts ten feet high and Bruce claimed six-foot-high drifts. Temperatures held steady in the -20°F range. College and public school classes were canceled due to a shortage of coal. "Quite a few had their kodaks out Monday, probably to prove their statement a few years hence."

February 17-18, 1936:
High winds again whipped snow around, blocking highways. This storm marked the end of the longest cold spell in 130 years according to records of the U.S. Government in Washington.

February 26, 1936:
Snowdrifts were again formed over highways, railroad tracks, and city streets to halt all kinds of transportation. It was impossible to see more than 100 feet at the height of the storm, but the temperature did not drop below -9°F.
March 23-24, 1937:
An estimated 13 inches of snow, which was blown by a strong northeast wind, closed highways with three-foot drifts and disrupted telephone and telegraph service. Train schedules were running late and there were no busses for two days. In Bruce, many students lost their way to school, walking right by the schoolhouse. Since the high line from Canby was out of order, the people of Bruce used their own electric plant to furnish power for lights.

April 24-26, 1937:
Described by pioneer residents as the "worst spring storm since 1907," this blizzard brought 1.78 inches of precipitation with it in the form of drizzle followed by heavy snow. Cars and trains were stalled by huge drifts which blocked their paths. Countless electric power, light, and telephone poles were down, and "miles of wire was twisted into tangled masses." A total of 36 poles were down between Brookings and Volga.

Several head of livestock were also lost as a result of this storm. Matt Hammer, living near Aurora, found his six cattle smothered in a shed. Ed Bessler, north of Elkton, lost seventy sheep and ten cattle. A story from the A. C. Wilson farm near Bruce illustrates the character of this snowstorm. He went to rescue his 50 sheep and

...when found they weighed around 250 pounds apiece, counting the snow and ice clinging to them. They were loaded into a hayrack and this tipped over. Then, a trying struggle and finally the sheep were safely lodged in the barn. Volga was without light and power from early Saturday the 24th to 6:00 p.m. Monday evening, leaving the people without water, refrigeration, radio, and in some
cases heat. Seventeen poles belonging to the city's light system were damaged or broken.

February 8-10, 1939:
"Snowstorms seemed to meet in the Brookings area to dump their load . . ." for three days as a high wind "whipped the flaky crystals" in every direction. Temperatures stayed around -16°F with a low of -25°F on the 11th. Public schools and the college were closed.

November 11, 1940:
This Armistice Day blizzard was generally conceded as the worst November storm every experienced here. Winds estimated at 45 miles per hour blew the snow which had fallen the night before, cutting visibility to 50 feet. All communication was virtually gone except for use of a shortwave radio station, WSUSI. Although cattle, ewes, turkeys, and hogs fell victim to the storm, Mrs. T. S. Dahl picked petunias from the east side of her house after the blizzard.

The Volga Tribune reminded parents of the siren signals which would be used by the schools in case of bad weather. If there would be no school in the morning the signal would be given at 7:50, and if school was not to be held in the afternoon, it would be given at 12:30. During questionable weather one long whistle indicated no school for the four lower grades, two long whistles meant no school for grade students, and three long whistles denoted no classes at all.

Once again there was a sense of humor displayed even though such a storm causes much hardship. A note from the White Leader read:
One ex-serviceman thinks the reason that none of his buddies turned out for the Armistice Day activities was because they were all in their dugouts and wouldn't come out for fear of the draft.

February 10, 1943:
This storm blocked county highways and closed schools. Seven rural lines were down.

February 5-6, 1946:
Fog followed by rain which turned to sleet made travel hazardous when the 45-55 mile per hour winds started blowing snow around. Visibility was limited to 30-50 feet in the city of Brookings and about ten feet in the country. Volga's Main Street was blocked by snowdrifts five feet high, while Brookings's Main Street was buried under six-seven feet of snow. Smaller drifts were so hard they could be walked on.

February 5-8, 1947:
The radio and telephone were the only links to the outside world as all train, bus, and motor traffic was stopped by furious winds heaving snow and dust.

November 18-19, 1948:
Though the storm raged all around, Brookings was "like an oasis in the desert" with business as usual. The county highway department was unable to keep roads open due to the continuous wind. People could not get into or out of the city of Brookings.

March 6-7, 1950:
The thermometer read 65°F on the day before this blizzard struck. The wind reached an intense velocity halting all highway and railroad traffic. The blowing snow kept visibility very low causing a several-car pileup near the site of old Medary. The driver of a
truck was unable to move his vehicle and sat in it for nearly an hour, not knowing that he was only 20 feet away from a wagon shop. Several large plate glass windows were blown in and trees were broken down by the estimated 65 mile per hour gusts of wind. Public schools were dismissed and some rural teachers had to keep their pupils overnight.

April 10, 1950:
This storm left a heavy coating of ice on the telephone and telegraph poles and wires. When the winds gained strength, hundreds of poles were snapped off at the ground, terminating all long distance communication except for radio. Four inches of heavy, wet snow fell in Volga while six inches were recorded in Brookings.

March 2, 1951:
Winds of high velocity filled the air with blowing snow cutting visibility to about one block most of the day. About 20 inches of snow fell which was piled into drifts four to five feet deep. Highways in all directions were blocked.

January 21-22, 1952:
True blizzard conditions were in effect with the falling of eight inches of snow, blown around by winds gusting to 50 miles per hour amid temperatures at approximately \(-20^\circ F\). The Brookings Street Department put its new snowplow to work the first evening, but it had to do the job all over again the next day. The death of Albert Hay, who had a heart attack while shoveling, was attributed to the storm.

February 19, 1952:
High winds of 30-40 miles per hour blew more than a foot of new snow around making it impossible to keep roads open. There was no plane or bus service.
March 12, 1952:
Another three to four inches of snow mixed with sleet and rain fell. High winds again drifted the snow, making roads impassable.

March 22-23, 1952:
This 24-hour blizzard kept the air filled with snow "which sifted through every crevice and crack in buildings" and piled it into drifts. The temperature stayed above zero keeping the storm from being the worst of the season though visibility was near zero the whole time. Farmers living only two or three miles from town had to drive twice that far because of filled cuts on the side roads. In Toronto, just north of the Brookings County line, residents were snowbound for four days. It took 100 men to shovel down drifts which averaged ten feet high so that the snowplow could handle them.

January 14-15, 1953:
Eight inches of snow and sleet was whipped about by high winds paralyzing all forms of travel. The temperature dropped to \(-23^\circ\)F and the county was described as a "bleak and blizzard-ridden area almost all day Thursday."

February 19-20, 1953:
Almost steady winds of 50 miles per hour, gusting to 70 miles per hour, were recorded for two days keeping visibility near zero. Good weather forecasting resulted in little human suffering though 27 inches of snow fell.

November 20, 1953:
High winds coupled with sleet did devastating damage to telephone and power services. Northwestern Bell had 16 towns without long distance service while the Sioux Valley Empire Electric Association had 7,000 customers
without service. Many thousands of dollars in damage was done.

March 11-12, 1954:
Thirty to fifty mile-per-hour winds were clocked at the Brookings Airport with frequent gusts to 70 miles per hour. Early in the day, the snow had a rose-colored hue as Panhandle dust from Oklahoma and Texas mingled with it. As the storm blew 14 inches of snow around, darkness came quickly, requiring cars to use headlights at 4:00 p.m.

March 14, 1957:
Winds gusting to 60 miles per hour whipped eight inches of snow throughout the area leaving all types of traffic at a standstill. Part of the city of Brookings was without electric power for four hours. The biggest problem in town were the "snow-birds," cars which stalled at intersections and on nearly every street when drivers had to give up maneuvering around the huge drifts.

November 17-18, 1958:
Only hours preceding this storm, lightning was flashing in the local skies. The five-inch snowfall followed .20 inches of rain which left trees, streets, and highways ice-coated. When the wind came up, visibility was reduced and branches of trees snapped under the strain.

November 28, 1960:
A thick coat of ice formed by .80" of precipitation "played havoc with electric power and telephone lines." Brookings-Lake Telephone Company reported 50 poles down leaving 50% of the rural customers without service. Icy conditions also precipitated a car accident nine
miles southeast of Aurora which claimed the life of a six-year-old boy.

December 7-8, 1963:
With temperatures dropping below zero for the first time that winter, eight inches of snow was blown into large drifts by winds gusting to 40 miles per hour.

March 17, 1965:
Twelve inches of snow accompanied by winds gusting to 55 miles per hour brought activity to a standstill. Streets opened by snow removal crews in the morning were drifted in again by 2:00 p.m.

March 4-5, 1966:
Fifty-five mile per hour winds blowing 20 inches of new snow kept visibility near zero. City crews worked through the storm keeping emergency routes open. Firemen were on duty in addition to the civil defense jeep and two snowplows which were available.

January 6, 1967:
With the temperature dropping, five inches of new snow was piled into five-foot drifts behind cars and homes by "gale-force winds."

January 16, 1967:
Warm temperatures and rain preceded this January storm. As the mercury dropped, the winds picked up to 30 miles per hour causing a wind-chill factor of -49°F. The resulting ice generated several accidents including the overturning of a Volga schoolbus.

February 14-15, 1967:
This storm brought with it -22°F temperatures and 9-10 inches of new snow.
April 1, 1967:
This ice storm added nearly an inch of moisture to the area. Many tree limbs were snapped off and there were cars in ditches all over the county.

December 16, 1967:
This ice storm which arrived on a Saturday, left roads very slippery until the middle of the following week. State and county highway crews worked to keep roads sanded, but the job was too big. "Highways were skating-rink smooth and driving was like trying to walk a greased tight rope." This storm was blamed for a blackout in Aurora and a car accident which claimed the life of Linda Bailey.

December 12-13, 1968:
This blizzard marked the beginning of a winter which will go down in history. There was more wind, more snow, and more days below zero than any other winter season back to 1893. Classes were even called off at South Dakota State University.

April 12, 1970:
An ice storm did serious damage to utility poles and lines.

February 27, 1971:
This storm dropped four inches of new snow accompanied by 45 mile-per-hour winds.

January 24-25, 1972:
Visibility was near zero as strong winds gusting to 70 miles were hour caused a ground blizzard. Roads were very icy from rain which fell the previous night.

January 10-12, 1975:
Winds reaching a velocity of 50 miles per hour brought the wind chill factor down to -75°F. Although there
were only 4-5" of new snow, it was packed into hard drifts five to six feet deep in Brookings. Elkton and Volga were also heavily drifted. For some time the only movement outdoors was by foot or by snowmobile. For two days, county officials tried unsuccessfully to get to a woman with a broken hip in Aurora. None of the eight lives lost in South Dakota were in Brookings County, but livestock losses in the area were heavy.

March 23-24, 26-28, 1975:
The first storm of that week brought the area to a standstill with eight inches of new snow blown about by 40 mile-per-hour winds amid temperatures in the teens. With visibility near zero, schools were closed, including classes at SDSU. Several people north and east of Brookings were still without power when the second storm hit which added about three more inches of snow.

November 19-20, 1975:
Although this storm did not meet all the criteria of a true blizzard, it was bad enough to cancel classes at SDSU. Eight to ten inches of snow was being whipped about by 50-60 mile-per-hour winds, but the temperature remained at 30°F. When the storm relinquished its hold on the area, many people had to dig their cars out from the drifts which had been built over them.

January 1-2, 1976:
With the temperature at 7°F, five inches of new snow fell and was tossed about by 25 mile-per-hour wind gusts.

February 23-24, 1977:
These were the dates of the area's "worst ice storm ever." 1.18" of rain plus two inches of snow caked power lines and tree branches with ice up to an inch
in diameter. The oldest parts of Brookings were the worst hit, leaving hundreds of persons without power overnight. A house fire and several accidents were blamed on this storm. Many places had to switch over to emergency power from standby generators.

November 9-10, 1977:
Rain, followed by snow, fell on the evening of the ninth. The next day the winds picked up strength, gusting to 60 miles per hour. The temperature dropped from 60°F on the ninth to 29°F on the tenth. Six to nine inches of new snow was piled into hard drifts five to six feet high in downtown Brookings. Two young men were seriously injured when their car struck a bridge and plunged into the Big Sioux River southwest of Brookings. Thanks to a county plow, and a four-wheel-drive pickup followed by the City Rescue Truck, six medical emergencies were taken care of.

January 24-25, 1978:
Visibility was near zero at times as the wind gusted to 35 miles per hour and the temperature dropped to -15°F. Highway 14 between Brookings and Volga was the scene of many accidents as people did not heed the "no travel" advisories which had been posted.

March 22-23, 1979:
Several highways became blocked when 32 mile-per-hour winds drifted four and one-half inches of new snow.

November 31 - December 1, 1981:
Five inches of new snow was recorded and the wind was clocked up to 39 miles per hour. One death was attributed to this storm, that of Clarence Sturdevant, who collapsed while operating a snowblower.
January 9-10, 1982:
Though no snow was falling, the area experienced an extremely frigid weekend with temperatures in the low twenties and winds gusting up to 49 miles per hour. This produced wind chills of more than -90°F at several times.

January 22-23, 1982:
Four inches of snow, wind gusts up to 49 miles per hour, and temperatures below zero blocked Interstate 29 and other highways in the county during this weekend. With near-zero visibility there were no mail deliveries and no airline flights. Kathy Fair, an SDSU student suffered from exposure and frostbite after she became stranded during this weather which doled out a wind-chill factor of almost -50°F. In attempting to walk the remaining four miles to her house, she stopped at four different places and got no response, and at the fifth, was chased away by dogs.
## APPENDIX C

### WIND CHILL FACTOR COMPARISONS

<table>
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<tr>
<th>Temperature</th>
<th>Calm</th>
<th>15 m.p.h.</th>
<th>30 m.p.h.</th>
<th>40 m.p.h.*</th>
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*Wind speeds greater than 40 m.p.h. have little additional chilling effect.

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