# Goldfinch

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#### Boundaries for Iowa

How did Iowa come to have the shape it has today? Before 1846 there was no state of Iowa and there were no boundaries for the state. Before Europeans came to North America, the boundaries for states and nations as we know them today did not exist. The native Indian groups living in North America had not made maps of the Iand on which they lived. Most tribal groups thought in terms of Iarge Iand areas. They knew where their region began and ended but they did not feel that they owned it.

Europeans were used to thinking about land as something to be owned. They drew boundary lines on maps to show what land belonged to which nation. They also drew more lines on the maps to show the land owned by each person.

After the American Revolution, the thirteen separate



colonies became the thirteen United States, Seven of these states claimed that they owned land stretching westward all the way to the Mississippi River. Much of this land was unsettled west of the Appalachian Mountains. After much debate and some argument, the boundaries for all those states were decided. Most of the western land became the property of the federal government, and was called territory. The government planned to remove the Indians who lived on this land and sell it the pioneer settlers. to Eventually more states could be created from the area.

By 1837, sixty years after the Revolution had ended, thirteen new states had been added to the Union. The only territory that remained east of the Mississippi River that had not gained statehood was in Wisconsin and Florida. By that time, the United States government and its citizens had already begun to look to the land west of the Mississippi River for future development.

This physical map of North America shows how the continent looks without political boundaries.

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The land west of the Mississippi River had been purchased from France in 1803. Called the Louisiana Purchase, it almost doubled the size of the nation. By 1837 three states had already been formed from that great region - Louisiana, Arkansas, and Missouri. In addition, large sections of land had been opened for settlement just north of Missouri, in the future Iowa Territory. Congress wanted more detailed and accurate information about this area that was so rapidly being filled with new settlers. To gather this information, the United states hired Joseph Nicolas Nicollet. Leading a large group, he explored the land between the upper Mississippi River and

the upper Missouri River in order to prepare a map of the region. Between 1836 and 1840 he traveled through forests and prairies, carefully recording the rivers, streams, hills, valleys, and **plateaus** which he found. Earlier explorers had made good maps, but Nicollet's scientific skill and improved scientific instruments provided a more accurate map than the earlier ones.

Nicollet knew that it would not be long before the people of lowa Territory would ask to become a state, so he included suggestions for future state boundaries in his report to Congress. His map was published in 1843 — only one year before the Iowa Legislative Assembly applied for statehood. The recommendations in his report later caused boundary disputes between the people of the Territory and Congress.

The Territory's rich and fertile soil attracted many settlers and lowa filled rapidly with newcomers. By 1844, 75,000 people lived in the Territory. Many of these people thought it was time for statehood. They wanted to have full control over their own government — to be able to vote for President and choose Senators and Representatives to Congress.

They wrote a constitution, selected boundaries for a state and sent their request for statehood to the United States Congress. The boundaries they chose were based on the recommendations of Robert Lucas, Iowa's first territorial governor. The boundaries followed the rivers of the region: on the east the Mississippi River; on the west the Missouri River; and to the north the St. Peter's (now the Minnesota) River. The southern boundary between lowa and Missouri was already waiting to be settled in the courts. However, Iowa's boundary request ran into trouble. Much of the trouble had to do with free states and slave states.

For many years Congress had tried to keep an even number of slave states and free states. This meant there would be equal representation for each side in the United States Senate. States were created by Congress in pairs, one from the North and one from the South. Northern members of Congress wanted to create as many free states as

plateau n. — a region that is mostly flat, high land.



THE LOUISIANA PURCHASE

they could out of the remaining Louisiana Territory in which Iowa was located. They looked at Joseph Nicollet's report and saw his recommendations for state lines based on the **topography** of the area. He suggested a boundary line on the **94°30' meridian** which was close to the natural **watershed** between the Mississippi and Missouri Rivers. Nicollet thought of the upper midwest as a region divided into smaller areas by ridges, rivers and plateaus. He also thought

**topography** *n.* — the natural and man-made surface features of a given area of land, such as mountains, valleys, lakes, rivers, and roads.

- ° the symbol for degree.
- ' the symbol for minutes.

state boundary lines might be based on the products each area might produce, and on the transportation of these products to good markets. His plan even included a strong trading link with British North America (now Canada) by way of the Red River in present-day Minnesota.

Nicollet's vision of state boundaries for Iowa was not accepted by the settlers. The writers of the proposed Iowa constitution and boundary plan thought of Iowa as a great agricultural state lying between two mighty rivers. They even wanted to include the rich valley of the St. Peter's (Minnesota) River. Because rivers provided the best transportation for agricultural products, lowans argued that the state's boundaries should include both rivers so that farmers could easily sell their crops. The people felt the state should not be used to balance the power between the Northern free states and the Southern slave states. In 1844 the lowa voters refused to accept the constitution with the Nicollet boundaries.

Finally, Iowans accepted a compromise agreeing to the boundaries that we know today. Iowa became the 29th state on December 28, 1846.

**meridian** *n*. — lines on a map representing either half of the circle that passes through the north and south poles.

watershed n. — the land area from which water drains into a river system.



JOSEPH NICOLAS NICOLLET

But I may remark, in the first place, that two states may be formed west of the trans-Mississippian states of Arkansas and Missouri; and then, by taking about equal portions of each side of the Missouri River, embracing the mouth of the Platte River, we have a third state, with a good and well-watered soil. This latter division would still leave sufficient space for the state of Iowa, by extending it as far north as the St. Peter's. Now, north of the two last-mentioned states might be formed another, embracing all the remaining tributaries of the

Mississippi on its west side, as well as those of the Red River of the North, and as far north as to the British possessions.

Thus it appears, that, by a judicious division of the remaining country along the borders, taking in a small portion of the more barren region beyond it, there is sufficient space for five new states of large size, compact in their forms, and having a good portion of fertile soil; most of them possessing convenient navigable streams, with a fair prospect of mineral resources.

Report to Congress, 1841



#### The Western Boundary

Most of the western boundary between Iowa and Nebraska is defined as "the middle of the main channel of the Missouri River." North of Sioux City, where the Missouri flows from the west, another river forms the western boundary. This is the Big Sioux River which flows between Iowa and South Dakota.

Locating "the middle of the main channel" of the Missouri River has been a big problem. This is because the "Mighty Mo," as some people call it, has changed its course many times.

The Missouri River was once made of many small streams

woven into and out of the main channel, much like braided hair. When spring arrived, ice would block some parts of the river. Unfrozen free streams poured water on top of this ice. Because the river banks could not hold all the extra water, it spilled over the banks, flooding towns and farms. Other times, chunks of ice blocked the channel and forced the river to cut a new channel.

Sometimes, huge pieces of land were cut off by sudden changes in direction of the powerful river current. Only the river moved, of course. The land stayed put. Some of these pieces of land became islands. If the river moved a great distance, land near the river could become part of the opposite state. This is what happened to the land on which the small lowa town of Carter Lake is located.

Carter Lake, a town of 3,500 people is very unusual — it is the only lowa town which sits entirely on the Nebraska side of the Missouri River. There is no way to get to Carter Lake, Iowa, without first going into Nebraska! This was not always true. Carter Lake had been on the east side of the Missouri, just like Council Bluffs is today. It was clearly inside the Iowa boundary. In the late 1800s, there was a quick



Two maps of the Missouri River as it flows past Pottawattami County. The 1890 map shows the river as it used to be, with many channels and islands. The 1976 map shows the river after the channel was controlled. Carter Lake was once a horseshoe bend of the river. The boundary lines for the town of Carter Lake closely follow the old course of the river.

change in the course of the river. The Missouri River channel shifted 12 miles eastward. This left Carter Lake on the west side of the river — the Nebraska side. Both Iowa and Nebraska claimed this land.

In 1892, the United States Supreme Court ruled that the area was still part of Iowa. Even so, there has been much debate over which state should govern Carter Lake. As late as 1979, Carter Lake residents had a Nebraska zip code. They also picked up their mail at a nearby Omaha post office, and they were not even listed in Iowa phone books!

Around 1935, projects were begun to straighten and to **stabilize** the wandering river.

stabilize v. — to hold steady, to prevent changes.

The United States Army Corps of Engineers constructed dams, dikes and levees on the river. These structures would prevent flooding and help keep the river in channel.

lowa-Nebraska boundary disputes have not ended yet. As the river moved to its stabilized final course, much land ended up on the wrong side of the river. Like Carter Lake, decisions must be made. Officials for lowa and Nebraska are still trying to decide which land belongs to which state.

Now the "Mighty Mo" should follow the same course year after year. The "middle of the main channel of the Missouri River" should finally stay the same and be easy to find. The western boundary of Iowa is now much like the fence or street which creates boundaries where you live. — Jeffrey Madsen



This sketch shows one way that the Missouri River could change its course and cause boundary problems. A short cut taken by the river at the place marked 1 would give a piece of Nebraska land to lowa. The opposite result would occur if the river took a short cut at the place marked 2.

#### The Southern Boundary

We have seen that the western boundary of Iowa was disputed because the words "the middle of the main channel of the Missouri River" did not point to a real place that was always easy to find. The same was true for what would become the southern boundary of lowa. When Missouri became a state, this boundary was described in its state constitution as the Missouri northern boundary. The landmark used to describe this boundary was known as "the rapids of the river Des Moines." This description was used in their state constitution when Missouri voters accepted statehood in 1821. Later, trouble

started because state and federal governments could not agree on where "the rapids of the river Des Moines" really were.

In 1816, before Missouri or lowa became states, Colonel John C. Sullivan surveyed and marked what would soon become the northern boundary of Missouri. His survey was supposed to be a "parallel of [the] latitude which passes through the rapids of the river Des Moines," but he made a mistake. He did not adjust his compass as he moved eastward from the Missouri River. This caused his boundary line to angle upward until it was four miles further north on the east (Mississippi River) side than on the west (Missouri River) side. Few people knew this though, and it would only become important when many people began to settle the area.

As settlers quickly moved into the lowa country after 1833, they started farms and towns. As these grew, the settlers wanted to know just where the northern Missouri boundary line was. One of the reasons they wanted to know was because of slavery. Missouri was a slave state and many people in the area did not want to live where laws allowed one man to own another man.

Missouri officials also wanted to be sure just where the boundary was. They believed that the Des Moines rapids were much further north than the Sullivan line, Therefore, Missouri officials sent Joseph C. Brown to re-survey the boundary line in 1837. He was supposed to begin at "the rapids of the river Des Moines," and then mark his line as he moved westward toward the Missouri River. He found a place on the Des Moines River, near Keosaugua, which he thought was the spot described by the words. This place, Great Bend, was 63 miles upstream from the mouth of the Des Moines River where it flows into the Mississippi River. He marked his line from Great Bend to a parallel spot near the Missouri River. Missouri then claimed Brown's line as its northern boundary.

The difference between the two lines was about 2,600 acres. Most of the settlers living on the disputed strip of land thought they had settled in the lowa country. Much of it was rich farm land, which officials from both Missouri and Iowa Territory claimed as part of their jurisdiction. But in 1839 Missouri sheriffs tried to collect taxes from settlers in the disputed strip. Iowa Territorial Governor Robert Lucas warned Missouri Governor Lilburn Boggs that the Missouri sheriffs would not be permitted to do this. Governor Boggs warned Governor Lucas that the Missouri militia might be brought out to make sure the taxes were collected.

So when another Missouri sheriff tried to collect taxes an

**jurisdiction** *n*. — the authority to govern.

Iowa sheriff arrested him. Of course this angered Missouri officials, and in the icy cold December of 1839 the Missouri militia was ordered to the border area. In response, Governor Lucas called for Iowa volunteers to meet at the border town of Farmington. As troops gathered from both sides, people in the area began to think that there might really be war between Iowa and Missouri.

William Willson reported that while on business in Missouri he and his crew had been stopped and searched by soldiers. The soldiers were looking for ammunition. Other reports told of lowa citizens who had been held in Missouri as spies.

Before things had gotten to this state, Albert Miller Lea had been sent by President Martin van Buren to decide which line was the correct boundary between Iowa Territory and Missouri. Lea wrote that it was general knowledge that "the rapids of the river Des Moines" were in the Mississippi River, not the Des Moines River. He suggested that the Sullivan line was not an accurate one, yet it had often been used in legal papers as the northern boundary of Missouri. But when the war was about to start the federal government had not made a decision. Just when it looked as though the first shot would be fired the Missouri troops were dismissed, and Missouri's iurisdiction was withdrawn back to the Sullivan line. The Iowa troops gladly went home. The "war" was over, and no one had been killed. These events were later called the "Honey War" because early in the conflict someone had destroyed some valuable honey-filled bee trees

which were growing in the disputed strip. A poem was later written about the war and set to the tune of *Yankee Doodle*. It made fun of the two governors for their part in creating the needless conflict.

Even though the "Honey War" had ended, the boundary issue was not settled right away. The United States Supreme Court finally decided the boundary issue in 1851. The court decided that the Sullivan line was the best boundary because it had been used so often in treaties. The court also ordered that the Sullivan line be re-surveyed and re-marked, correctly this time. Big cast iron monuments, each weighing about 1,600 pounds, were placed at the east and west ends of the line. Smaller cast iron posts were placed every tenth mile, and wooden posts were placed every mile along the boundary line.

One more survey was done in 1896, again at the request of the United States Supreme Court. A few of the wooden mile markers were replaced at that time with stone monuments. Some of these cast iron and stone markers can still be found today along lowa's southern boundary. — Jeffrey Madsen

#### The Eastern Boundary

The lowa state constitution defines the eastern boundary of lowa as "the middle of the main channel of the Mississippi River." In a navigable river this is the middle of the principal channel and not necessarily the deepest part. There are a number of islands within the Mississippi River. The islands which were included in the first lowa survey became part of the state. This meant that anyone on the islands came under the laws of lowa, not of the bordering states, Illinois and Wisconsin.

navigable adj. — deep enough and wide enough for ships to use.

principal adj. — main.

#### The Northern Boundary

You have already read that before the decision about lowa's boundary was made, there was a controversy between the residents of the lowa Territory and Congress. After the boundary had been decided as the parallel of latitude 43°30', it had to be accurately measured and marked. This was especially important because the future boundaries of Minnesota and North Dakota were to be a part of this parallel of latitude.

Government surveyors began to work during the summer of 1849 on the west bank of the Mississippi River. However, an epidemic of cholera caused them to stop their work. Before leaving, the surveyors did manage to place a marker where the Mississippi River crossed the parallel 43°30'. The marker was a four-sided iron post with the word "lowa" on one side and "Minnesota" on the opposite side. The date, 1849, appeared on a third side.

In the spring of 1852 another survey crew gathered at the marker to complete the work begun in 1849. The party of forty-three men included fourteen surveyors, a hunter, a doctor, an interpreter, four cooks, as well as chainmen, flagmen, monument builders, teamsters, sod choppers, and general handymen. The group was divided into four crews. As one group followed the other, each had special duties to perform. They could also check on the accuracy of the markers placed by the previous surveyors. The first crew to work

teamster *n*. — a person who drives a team of horses.



The old border marker between lowa and Minnesota, near New Albin.

its way across the unmapped countryside had a special mission. They measured and marked the parallel using a Burts' solar compass. The purpose of their work was to see how accurate their survey would be using the instrument. This first group also sent messages to the survey parties behind them, included which special suggestions to help make the work of the following crews easier.



It took good planning to provide for so many people to move through the unsettled countryside. Transportation for

the men's personal baggage, the camp equipment, surveying instruments, and food for 60 days was carefully arranged. To

Burt's Solar Compass was not affected by the earth's magnetic field. When the compass was tested on the survey of the lowa-Minnesota boundary it proved to be more accurate than the magnetic

compass.

An old blaze on a tree marks the Missouri-Iowa border.

protect the sensitive surveying instruments as the horse-drawn wagons jolted over the rough ground, the surveyors packed the instruments in boxes of dry grass.

As each summer day passed, the crews progressed westward toward the mouth of the Big Sioux River. They built more than 500 earth, wood, and stone monuments along the 269-mile border. In timbered country, they blazed trees to clearly mark the boundary. In July the crews reached the Big Sioux River and built a large **quartzite** monument to mark lowa's northwest corner. Today, the only remaining monument is near New Albin, a metal marker that was the starting point for the surveying expedition.

blaze n. — mark made on a tree by removing a piece of bark.

quartzite n. — rock consisting of compressed sandstone.

#### Lines on the Map

Boundary lines are everywhere, yet we can't always see them. We can sometimes tell where the boundaries are between farms or city lots because of fences or hedges. Boundary lines between cities, counties or states may be more difficult to see. Sometimes there is just a sign at the side of the road to tell when we pass from one to another. Boundary lines between nations are well marked where roads cross from one country to another. Some nations build fences along their boundaries, while others use only a few markers.

Sometimes rivers, lakes and mountains divide one area from another. These are called natural boundaries. For example, the Mississippi River serves as a natural boundary between Iowa and Illinois. To help locate places, we use special circles which are drawn on a globe of the earth. These circles run directly east and west or north and south. We see them on maps as either straight or curved lines. The circles that run east and west around the globe are called parallels. The east-west circle around the globe, midway between the poles, is the equator. The circles that run north and south are called meridians.

The exact location of a place on the map is given by telling its distance north or south of the equator and its distance east or west from a particular meridian, which is called the Prime Meridian.

The distance of a place north or south from the equator is called its latitude. Parallel numbers are at the side of a map. They tell the latitude.

The distance of a place east and west from the Prime Meridian is called its longitude. Meridians are numbered at the top and bottom of the map. They tell the longitude.





MERIDIANS OF LONGITUDE

Every circle is divided into 360 equal parts, called degrees (360°). One-fourth of a circle contains 90 degrees, and a half-circle 180 degrees. Each degree is divided into equal parts called minutes, marked 60'

The latitude and the longitude of a place is given in degrees and minutes instead of miles.



Parallels of latitude and meridians of longitude as they appear on the globe of the earth.

#### Order on the Land

When we look at a map of lowa we see many squares. This is no accident. The reason for the squares goes back to a law passed in 1785, just after the American Revolution ended. The peace treaty signed between the United States and Great Britain gave the United States millions of acres of land. Most of the land lay west of the Appalachian Mountains and was largely unsettled except for native Indian tribes. When peace with Great Britain came, Americans pushed westward.

It would have been unwise to allow people to move into the west and choose their farm sites in a helter-skelter way. Up to this time in our nation's history, there had been no uniform system for land settlement. Sometimes the land was laid out in long narrow rectangles with one narrow end fronting on a road or river. Other times someone just claimed a good piece of land, choosing boundaries along the natural terrain, creeks, or rivers. Someone else might then make another claim nearby, using trees as markers. Both plots would have irregular shapes. Still another settler might claim the in-between piece, the boundaries of which would be made by the first two claims. Plots of all sizes and shapes were the result. The only way to map these lands was through a careful description of landmarks along the boundaries.

The United States government created a plan that gave order to the settlement of the land it wanted to sell. The plan was called the Land Ordinance of 1785. First the government purchased large regions of land from the Indian tribes. Surveyors then located boundaries and natural features according to a special system. This system, called the rectangular survey, provided a way to clearly record boundaries of land ownership. It helped to settle and prevent boundary disputes. It also caused the checkerboard appearance that much of our nation has.



Government instruction books provided rules and methods for surveyors to follow: This picture shows how surveyors were supposed to mark corner boundaries.

### The Rectangular System of Surveys



How the System Worked:

The land was first divided into townships six miles square. To divide an area into townships, the surveyor began with a given line of latitude called a Base Line. Then he used a line of longitude as the Principal Meridian. For lowa the 5th Principal Meridian was used. Every 6 miles north and south of the Base Line a latitudinal line was drawn on the Principal Meridian. Every 6 miles east and west of the Principal Meridian, a line of longitude was marked on the Base Line. When these lines were extended, they crossed to form the squares that became townships.

The first row of townships north of the Base Line is called T1N. The rows of townships south of the Base Line are called T1S, T2S, and so forth (see figure 1). The first column of townships west of the Principal Meridian is called R1W (range one, west of the Principal Meridian). Columns east of the Principal Meridian are called R1E, R2E, and so forth. To name and locate a township on a map, first give its T (township) row, then its R (range) column.

After the townships were surveyed, each one was divided into numbered sections. Each section contained one square mile or 640 acres. Number one always is in the northeast corner of the township (see figure 2).

Each section was divided into four parts called quartersections (see figure 3). These were named by their location in the section — NE (northeast), NW (northwest), SE (southeast), and SW (southwest). Each quarter contained 160 acres. The quarter could be further divided into smaller lots. In figure 3, the two 80-acre lots are located in the southeast quarter of the section.

Can you find the North half of the southern quarter of section 14, Township 2 south, range 3 west of the principal meridian?

#### The Surveyors Go to Work

Because the government owned millions of acres of unsettled land there was a lot of work for surveyors to do. The surveyors needed to mark boundaries for the lands that settlers wanted to purchase. This had to be done as rapidly as possible, and completed before the settlers arrived. Then the new owner could properly record the purchased land at the courthouse.

To be sure that every surveyor would mark the boundaries in the same way, the government provided an instruction book for them to follow. Because the work had to be done accurately, the surveyors and their assistants were required to take an oath when they were hired. The flagman and axeman took this oath: "I, \_\_\_\_, do solemnly swear (or affirm) that I will well and truly perform the duties of axeman or flagman according to instructions given me, and to the best of my skill and ability."

In Iowa the first rectangular survey started in 1836. By that

There are 7.92 inches in one link 100 links in one chain 80 chains in one mile (one side of a section) time more than 10,000 people lived in the area. The surveyors eventually caught up with and moved ahead of the settlers. The surveying crews finished their work about 1858. Among them was Samuel William Durham.

Sam Durham was twenty-four years old when he first visited lowa in 1840. He liked what he saw, and moved from Indiana to Linn County the next year. Sam was a surveyor and got a job surveying parts of the Iowa Territory for the government. He worked as a surveyor for fourteen years.

In 1853 Sam led a survey crew to Cerro Gordo County near Clear Lake. Supplies for their trip included cloth for tents and wagon covers, bags, twine, and cord. The men also took paper, one dozen pens, two bottles of ink, a bucket, iron spoons, a set of knives and forks, eighteen pounds of candles, and tallow for shoes and harnesses. Their provisions included 100 pounds of sugar, 60 pounds of coffee, 399 pounds of corn, two bushels of apples, 70 pounds of beans, and 1,097 pounds of flour. With just two horses along on the expedition, the surveying crew usually walked.

A surveyor's life was full of hardships. There were no roads and they tramped through



A folded-up surveyor's chain. Surveyors measured the land with a chain like this one. The chain had brass handles at each\*end and a small brass tally attached to every tenth link. marshes and forded streams to do their important work. Because their work took them away from settlements, they had to carry all of their supplies and provisions with them. If someone became ill, there was rarely a doctor nearby. The report of Ira Cook tells about his wintertime experience:

"Our work was hard, our days long: in winter or summer we were at work in the morning as soon as we could see, worked as long as we could see at night, and then tramped to camp by moonlight or starlight, often for many miles. We lived on bread, salt pork, beans and coffee. Occasionally we would vary it by the capture of wild game. On this trip I remember one of the boys shot a deer, and once we found a "bee-tree" containing several gallons of honey.

We completed our work in January, 1850, broke camp and started for home. In order to have the benefit of the settlements in Missouri we travelled directly south, and on the first night of our homeward journey ... we reached Platte River at nightfall, but found no timber in which to camp, only some scattering trees for firewood, and the ground frozen so hard that we could not put up out tent. We built a good, big fire, got supper, drew the wagon up so as to form a wind break and camped down between it and the fire. We were painfully aware that it was cold, very cold, but just how cold we could not tell. Next day before noon we reached a settlement in Missouri and . . . were informed that the thermometer that morning had registered 31 degrees below zero!"



A portion of the survey map of Township 96 North, Range 22 West 5th Meridian in Samuel Durham's report.

#### Surveying the Section Lines of a Township

Township 96°N. Range 22 W. 5th Principal Meridian		This tells which township Durham surveyed.
North between sections 35 and 36		This tells the particular section line he is surveying within the township.
Variation 11°12′ East		Durham used a solar compass to find the
<u>Chains</u>		difference between magnetic north and true north.
15.00	Leave timber bears N.W	Surveyors recorded all landmarks that lay in the path of the section line. The first landmark Durham recorded was the edge of a grove of timber. He used a line on the map to show the timbered area and that it grew northwest of the section line.
19.50	Wagon trail bears N.W	The next landmark Durham came to was a wagon trail crossing the section line going toward the northwest.
40.00	Set post for Quarter Section corner in mound	Exactly halfway along the section line at 40 chains, Durham's crew built a mound and set a post in the center.
60.00	Enter marsh (irreclaimable)	Durham next came to a marsh that he
67.50	Leave same bears N.W.	believed could not be used for farming. The marsh was 71% chains wide, or 165 yards.
80.00	Set post for corner to Sections 25, 26, 35, and 36 in mound of Earth and Sod	When the crew had measured 80 chains they built a larger mound and set a post in the center.
Surface rolling and dry except in the vicinity of the marshes.Surveyors recorded the importaSoil first rate. The Grove (called South Grove) is pretty goodin each section and rated the stimber, and chiefly Bur oak, Elm, Ash, Aspen, and Cherryfirst, second, or third class.		Surveyors recorded the important resources in each section and rated the soil as either first, second, or third class.
Undergrowth hawthorn, oak, hazel, aspen and pigeonberry		

## One Step Further ...

- 1. Have a class discussion about the uses of boundaries. To begin the discussion you might want to think about the way boundaries affect school districts, taxes, voting for representatives, fire protection, or laws. Think of other ways we use boundaries.
- 2. Name the six states that share a border with lowa.
- Make a township map by drawing a square with six inch sides. Then make 36 one-inch squares inside. Number each square the same way that sections of a township are numbered, 1-36. Color the E<sup>1</sup>/<sub>2</sub>, Sec. 2; N<sup>1</sup>/<sub>2</sub>, Sec. 35, W<sup>1</sup>/<sub>2</sub> Sec. 18; S<sup>1</sup>/<sub>2</sub>, Sec. 22. (On a map, north is at the top, south is at the botton, east is on the right, and west is on the left.)
- 4. Draw four one-inch square sections. Divide the first section so that it has a north half-section and a south half-section (N<sup>1</sup>/<sub>2</sub> and S<sup>1</sup>/<sub>2</sub>); divide the second section so that it has an east half-section and a west half-section; divide the third section into four quarter-sections and label the NW<sup>1</sup>/<sub>4</sub>, NE<sup>1</sup>/<sub>4</sub>, SW<sup>1</sup>/<sub>4</sub>, and SE<sup>1</sup>/<sub>4</sub>. Divide the fourth section into quarter sections. Then divide the NE<sup>1</sup>/<sub>4</sub> into quarters and label each one. Color the NE<sup>1</sup>/<sub>4</sub> of the NE<sup>1</sup>/<sub>4</sub> of the section. (See figure 3 on page 13).
- 5. Use a map of lowa that has meridians of longitude and parallels of latitude and find the degrees for latitude and longitude for Des Moines, Sioux City, Dubuque, and your home town.
- 6. Find out if your city or town's boundaries have changed. Then try to find out why. (Call your City Hall or Civic Center for information).



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