North Dakota Law Review

Volume 24 | Number 2 Article 3

1948

Origin of Surveys in North Dakota

Henry G. Ruemmele

ORIGIN OF SURVEYS IN NORTH DAKOTA

By HENRY G. RUEMMELE *

All property located within the original 13 colonies became the property of each State, by adoption of the Constitution of the United States. This property was described by "metes and bounds," using a starting point designated as the foot of a mountain, the mouth of a stream, a tree, or a stump.

As additional lands were acquired by the Government, it was found necessary to survey them into smaller tracts suitable for sale, allotment and homestead. In 1784 the Continental Congress appointed a committee to devise a system of measurement to accomplish this purpose.

The first plan, used to some extent in Virginia, called for subdividing public land into tracts 10 miles square, with a subdivision of 100 smaller tracts, numbered from 1 to 100 commencing at the northwest corner and numbering East and back West.

At the suggestion of Thomas Jefferson, the Continental Congress in 1785 reduced the unit of measurement to six miles each way, instead of 10. These new units were called "townships" and the sections were numbered from 1 to 36, commencing at the southeast corner, numbering West and then back East.

This was the forerunner of the present Rectangular System, which was adopted in 1805 and was first used in the Northwest Territory and most of the Territory west of the Mississippi (except Texas). The General Land Office of the Government was charged with the responsibility of making the surveys under this system.

To start the surveys, a starting point was necessary, and on a more or less arbitrary basis, starting points were selected and a line running due North and South through each point was established, each being called a "Prime" or "Principal Meridian." Throughout the United States many such meridians were established, but all the land within the State of North Dakota was surveyed from the Fifth Principal Meridian.

* Lecturer, School of Law, University of North Dakota. Member of the North Dakota Bar.

A line was then run through each starting point East and West, this line being designated the "Base Line." The base line for the Fifth Principal Meridian was established in the State of Arkansas.

Having established a starting point, and a common line running both North and South, as well as East and West, lines were then run North and South parallel with the Prime Meridian and six miles apart. These lines marked off the country

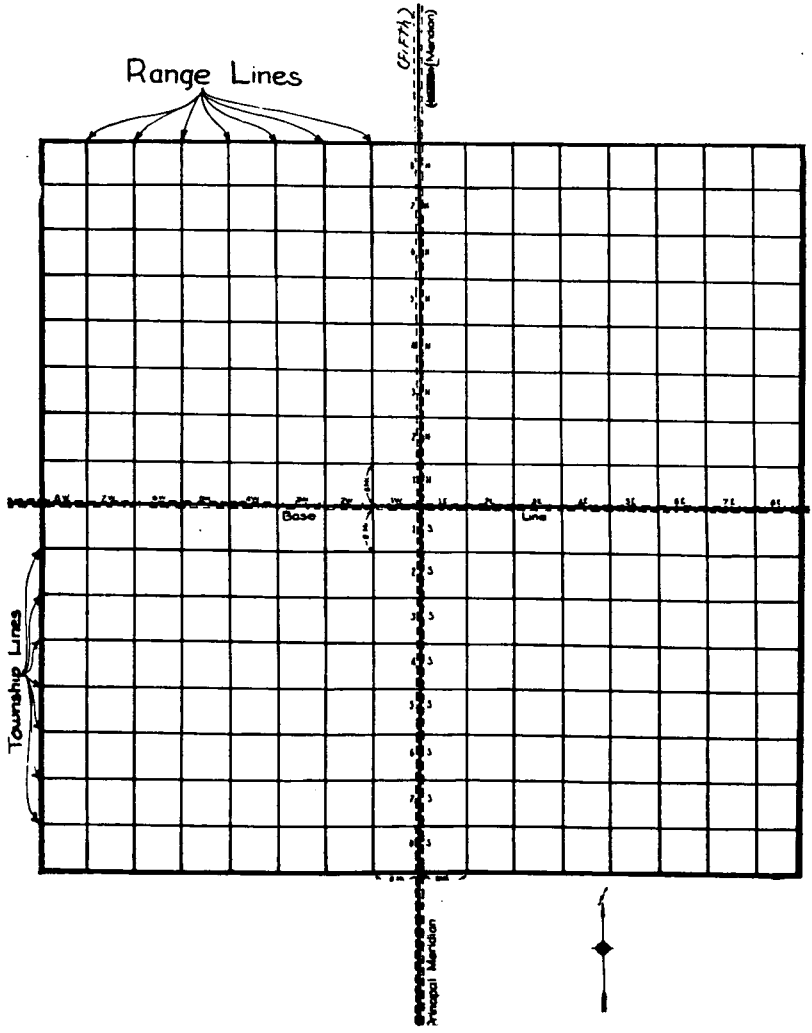

Fig. 1

TOWNSHIP PLAT

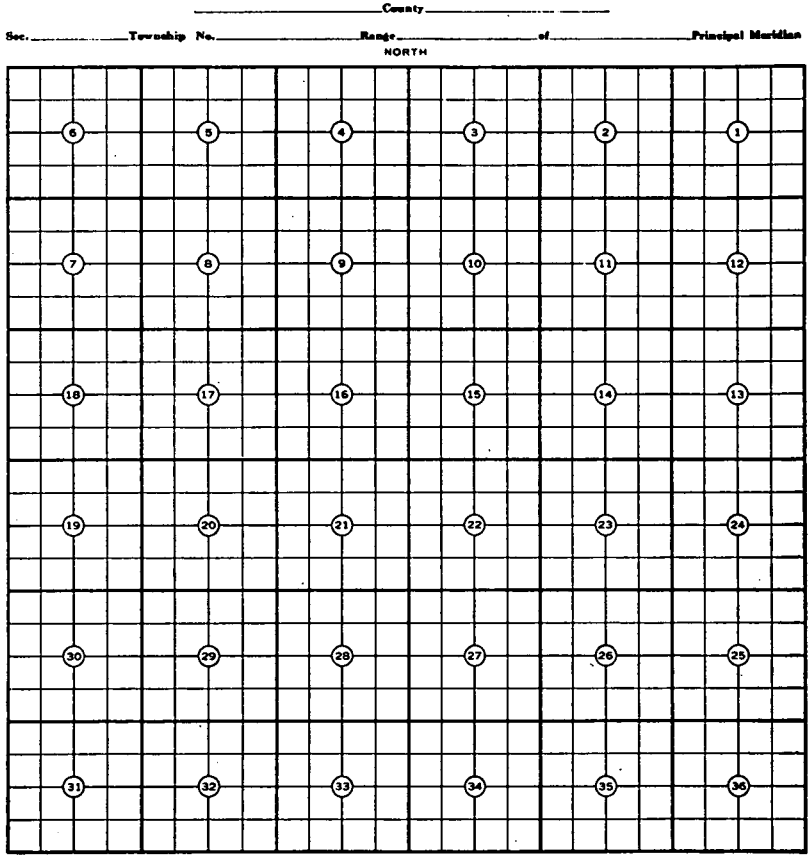

Fig. 2

into strips six miles wide, each strip being known as a "range," and numbered either East or West from the Prime Meridian.

To complete the six mile squares, lines were then run East and West across the Prime Meridian at right angles, parallel to the base line and six miles apart. This cut the ranges into "Congressional Townships," but usually referred to simply as "Townships." They are numbered, commencing North and South of the base line, starting with the number one. (See figure No. 1.)

Owing to the curvature of the earth's surface, lines extending to the magnetic pole become closer together, so that it was impossible to run lines due North and South and due East and

West and make a square tract. Of necessity the townships are narrower at the North side, by approximately 3 rods or 49.5 feet.

In order to keep the six mile distance as near as could be, usually every 24 miles North from the base line a correction line was established, together with a "Guide Meridian" the same distance from the Prime Meridian. The survey was then moved over so that the North and South lines were six miles apart.

Thus we arrived at the township of approximately six square miles. To break this into smaller tracts, the township was then divided into 36 Sections, each approximately a mile square, and containing approximately 640 acres. The Sections were numbered from 1 to 36, commencing at the northeast corner, numbering West and then back to the East. (See figure No. 2.)

Because the township is narrower on the North side and because of inaccuracy in surveys, all sections in a township cannot contain 640 acres or be exactly a mile square. To take care of this discrepancy the Sections on the North and West sides of a township contain an irregular number of acres and are known as "Fractional Sections."

The fractional sections are usually Sections 1 to 6 along the North side and Sections 7, 18, 19, 30 and 31 along the West side, as every effort was made to confine the irregularity to those tracts next to township and range lines.

To secure as many regular tracts as possible those sections along the North side of the township were divided so that the South half would contain 320 acres, and the South Half of the North Half would contain 80 acres. This confined the irregular tracts to an approximate North quarter of the Section, which was divided into four tracts, numbered 1 to 4 from the northeast corner. (See figure No. 3.)

Section 6, in addition to the fractional lots at the North side, also has fractional lots on the West side in common with Sections 7, 18, 19, 30 and 31. The division is made the same as on the North side, except that the lots are numbered from the northwest corner South and the full quarter sections are confined to the Easterly portion of the section.

A Section is the smallest subdivision actually surveyed by the Government surveyors and at each Section corner is a marker known as a monument of survey. Sections are usually

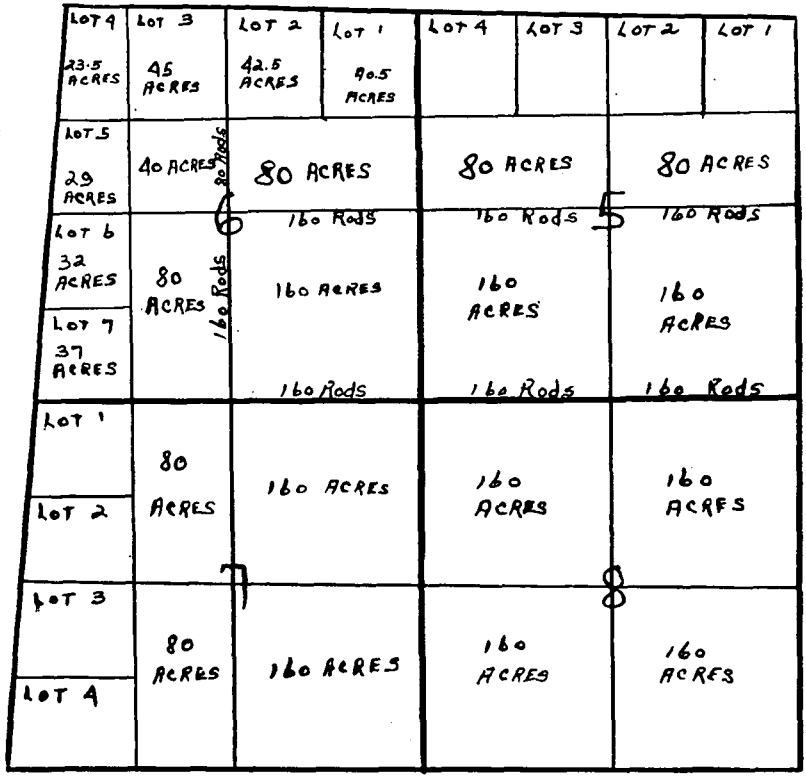

Fig. 3

then divided into quarter sections and smaller denominations for purposes of conveyancing.

Township bordering on or containing a lake or river also contain fractional Sections, which border on said river or lake. For the purpose of ascertaining acreage for public sale, the Government surveyor ran meander lines or guide lines along the rivers or lakes, but these lines are not considered boundary lines. The irregular tracts resulting from this are also called "Lots" and in some instances have been designated as "Lot ___ on the North Bank" or "Lot ___ on the South Bank," but ordinarily they are merely designated by number.

The land within the State of North Dakota was surveyed by the General Land Office using the Rectangular System. For arriving at distances, in most cases, a chain composed of 100 links was used. Each chain was 66 feet long, and each link

7.92 inches long. After much use the links began to wear so that the resulting measurements, over the great distances for which they were used, were inaccurate.

Surveys made today with modern equipment have shown that many of the distances appearing on the United States Government surveys are inaccurate, and in fact very few Sections contain a full 640 acres, or are 5280 feet square.

As a supplement to most of the atlases now in use in the State of North Dakota, the publishers have included a rather comprehensive discussion of the systems of surveys used within the United States, complete with diagrams. Included also is a complete map of the State, which graphically shows the division of the land into counties with direct reference to township and range lines.

(To be continued.)