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Winter 2004

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**By John E. Dailey, LS**

# Ohio Lands and Survey Systems

Anyone who loves challenging surveys should come to "Ohio, The Heart of It All." If you are tired of surveying squares and overworked re-running Colonial surveys, come to Ohio. We have it all.

Any discussion of Ohio Lands must start with a brief history, so here we go.

In the 1600s, the English Crown believed it owned all of North America by right of either discovery or conquest. Most of the landowners were in England and had never seen the Americas. The vastness of the land, difficulty of communication, and lack of creditable geographic information compounded the problems facing the Crown and the absentee landowners.

The French were the first to actually explore the area that is now Ohio. Robert Cavalier, Sieur de La Salle, who explored the Great Lakes area and the Ohio River in late 1669 and early 1670, claimed the territory for France. It became a matter of dispute between the French and English until the end of the so called French and Indian War in 1763. The Treaty of Paris in 1763 assigned all of the "Great West" to the English.

The Crown had many debts, accrued by war and gambling, and very little hard cash to pay those debts. The one thing it did have was land. In order to satisfy some of the creditors, the King granted large tracts of land to the Penn family, the Massachusetts Bay Colony, the Connecticut Colony, the Virginia Settlement, and after the Dutch were expelled from New Amsterdam, the New York land developers, as well as others.

The English had a rough idea of what they possessed along the Atlantic Coast, but had very little idea of what lay beyond the Appalachian Mountains. The interior interested them mainly in terms of what goods could be extracted and shipped to England for sale. Those to whom the Crown owed money were based in England, and they accepted the Crown's land in exchange for payment. They, too, had to rely on sketchy descriptions of their on-site managers and explorers as to what they owned.

## Overlapping Grants

Since accurate maps and descriptions were non-existent, a lot of guesswork entered the negotiations. Having no idea that there was almost 3000 miles of land to the west, the King often granted charters to developers and colonies for land that stretched "from sea to sea," namely from the Atlantic Ocean to the Pacific Ocean. Again, due to the lack of information, many of these grants overlapped and encroached upon each other which caused legal problems almost immediately. He gave the same western land to the Connecticut Colony, the Penn family, the New York Colony and the Virginia Colony. Any attorney with a modicum of land law experience would salivate at this predicament.

During the Revolutionary War, George Rogers Clark, operating under the authority of the Governor of Virginia, sought to capture the British Forts in what is now Illinois. In February, 1779, Clark and his men defeated Henry Hamilton, the Lieutenant Governor of Canada, and his troops at Vincennes, now in Indiana. With that victory, the Americans effectively took control of what was to become the Northwest Territory. Great Britain formally relinquished its right and interest in the Northwest Territory by the Treaty of Paris, September 3, 1783. In 1788, the first permanent and legal white settlement in Ohio was founded in Marietta.

The boundary problems between the Colonies continued until the end of the Revolutionary War. The new nation, which had not yet settled on a name or governmental structure, was deeply in debt with no hard cash to pay its huge debts.

The Continental Congress, a loose affiliation of the thirteen former colonies, had no taxing authority and little authority to encumber the colonies with any debts. It had pursued the war and had borrowed a great deal of money to pay for war material. It had also promised their soldiers some sort of compensation. The time of reckoning was at hand.

The Ohio country was the frontier at that time. The Atlantic Coastal plane, east of the Appalachian Mountains, was becoming overcrowded. After England renounced her claims to the Western lands at the end of the war, the race was on. The "West" had vast areas of vacant land, and people began to move. These were some of the original "Squatters."

The Native American claims had not yet been settled, so there were serious confrontations between the Indians, the squatters, and other settlers moving west. Several wars, battles and treaties ensued. Finally their claims were extinguished and most of the Native Americans were moved further West out of Ohio.

Through some serious negotiations and compromises, Connecticut, New York, Pennsylvania and Virginia agreed to cede their western lands to the newly formed government. Pennsylvania ceded its western lands but maintained access to Lake Erie. Connecticut ceded all her western lands with the exception of a strip of land 120 miles long starting at the new westerly line of Pennsylvania and lying between the 41st parallel of North latitude and Lake Erie. Virginia ceded its western lands except for an area that would be used to pay bounties to its Revolutionary War veterans (more infor-

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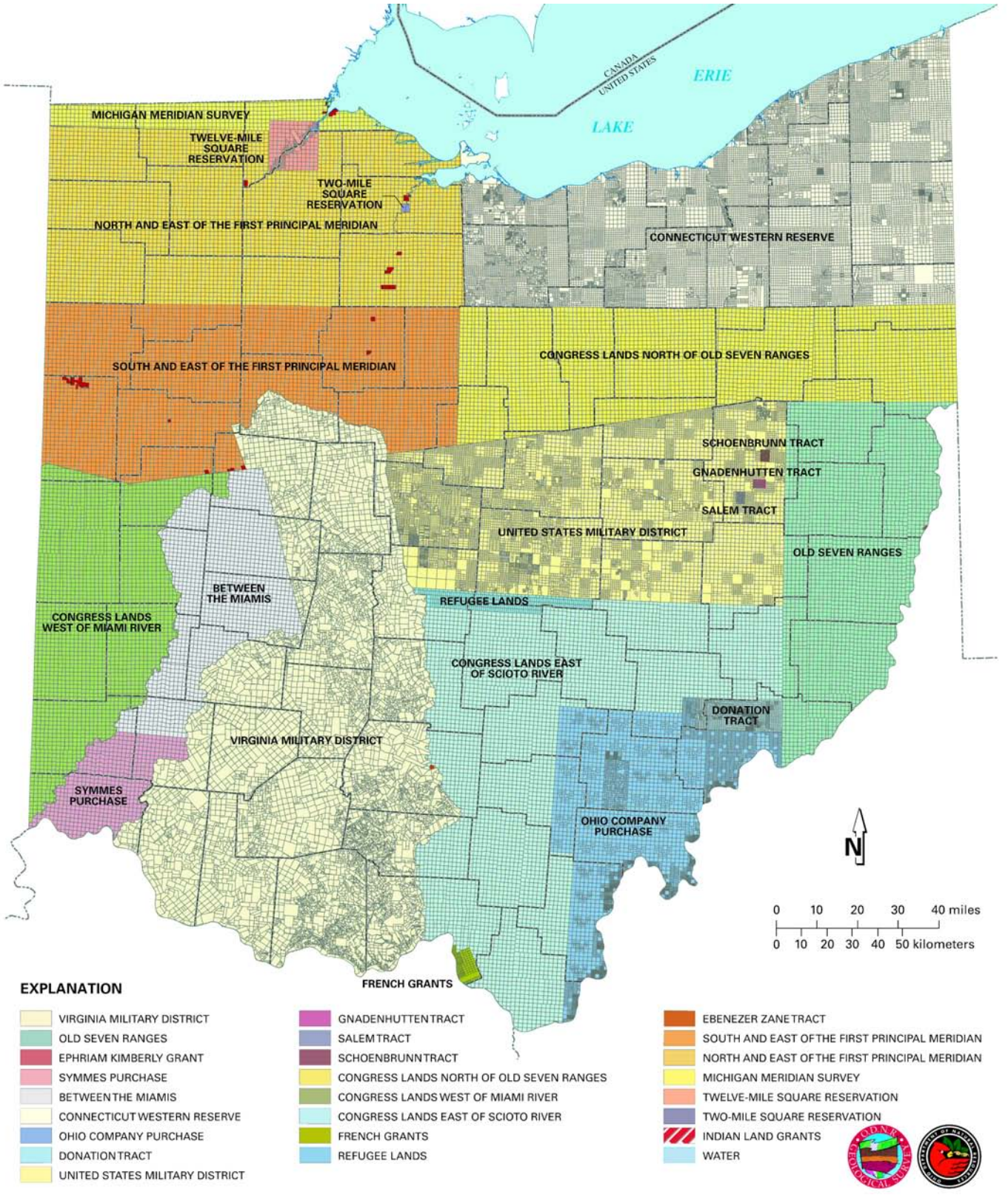
# Original Land Subdivisions of Ohio




From *Original Land Subdivisions of Ohio: Ohio Division of Geological Survey*, compiled by James McDonald, James W. Wright, Christian D. Steck, Lawrence H. Wickstrom, Brian D. Gara, and Lap Van Nguyen. 2003, MG-2, 1:500,000 scale, 1 plate and GIS files.

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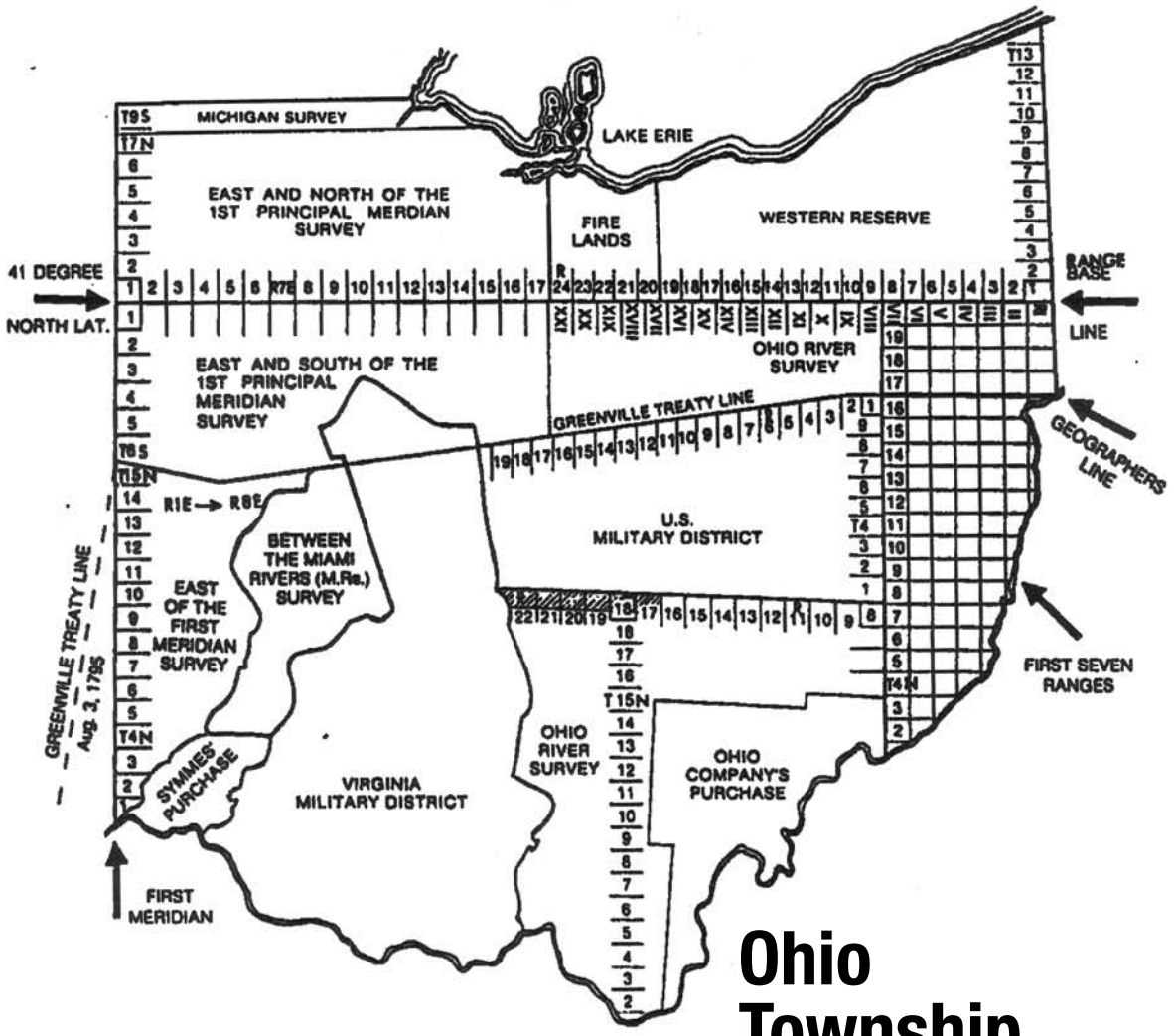


# Ohio Township Numbering

SECTIONS NUMBERED

BEFORE LAW OF 1796

| | | | | | |
|---|---|---|---|---|---|
| 36 | 30 | 24 | 18 | 12 | 6 |
| 35 | 29 | 23 | 17 | 11 | 5 |
| 34 | 28 | 22 | 16 | 10 | 4 |
| 33 | 27 | 21 | 15 | 9 | 3 |
| 32 | 26 | 20 | 14 | 8 | 2 |
| 31 | 25 | 19 | 13 | 7 | 1 |

| | | | | | |
|---|---|---|---|---|---|
| 6 | 5 | 4 | 3 | 2 | 1 |
| 7 | 8 | 9 | 10 | 11 | 12 |
| 18 | 17 | 16 | 15 | 14 | 13 |
| 19 | 20 | 21 | 22 | 23 | 24 |
| 30 | 29 | 28 | 27 | 26 | 25 |
| 31 | 32 | 33 | 34 | 35 | 36 |

AFTER LAW OF 1796

| | |
|---|---|
| 2 | 1 |
| 3 | 4 |

DIVISIONS OF TOWNSHIPS IN U.S. MIL. DIST.

| | |
|---|---|
| 3 | 2 |
| 4 | 1 |

DIVISION OF TOWNSHIPS IN FIRE LANDS AND RESERVE.

From *Original Ohio Land Subdivisions: Ohio Cooperative Topographic Survey*, Vol. III, C.E. Sherman, 1925.

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vey system. The VMD contained 6,570 square miles, about 4.2 million acres of land.

Over 16,000 metes and bounds original surveys are found in the VMD, creating a patchwork of surveys which, from the air, resemble a giant jigsaw puzzle. Because of the number of surveys and the difficulty of finding the physical objects they relied upon for descriptions, this is probably the most litigated land area in Ohio.

Virginia relinquished and ceded to the Federal Government its claim to any unallocated land in the VMD in 1852. In 1871, Congress deeded this land to the State of Ohio, which in turn set it aside in 1872 as an endowment for what is now The Ohio State University. At the time, 76,735 acres were believed available for sale by the university. The Ohio State University sold or quit-claimed these lands to individuals until the 1940s.

In Northeastern Ohio, other things were happening. In its 1786 Deed of Cession to the United States, the State of Connecticut retained the Western Reserve containing approximately 3.4 million acres (about 6205 square miles) including the Fire Lands. Connecticut released its jurisdictional claim to this land by a Deed of Cession to the United States of America on May 30, 1800.

Indian title to the Western Reserve lands lying east of the Cuyahoga River, was extinguished by the Treaty of Fort McIntosh in 1785, and confirmed by the Treaty of Greenville in 1795. The Indian rights to lands West of the Cuyahoga River were extinguished up by the Treaty of Fort Industry in 1805.

The Connecticut Western Reserve forms all or part of 14 northeastern Ohio counties. This is a strip of land extending 120 miles west from the westerly line of Pennsylvania between the 41st parallel of North Latitude and the south shore of Lake Erie. It was now time to do something about it.

Near the end of the Revolutionary War, the British fleet, assisted by Benedict Arnold, burned the towns of New Haven, Greenwich, Norwalk, Fairfield and New London, Connecticut. In 1792, in order to compensate the citizens of these towns for their losses, the State of Connecticut set aside the western 500,000 acres of the Reserve. In 1795, each of about 1800 "sufferers" received a deed to a portion of this land based on their claims of damages. This area is still referred to as the "Firelands" or the "Sufferers Land."

The "Firelands" comprise of the westerly 5 ranges of townships within the Western Reserve and were created before the survey of the Western Reserve began and before all the Indian claims were extinguished. The townships were numbered to agree with the later survey of the Reserve, but each township was divided into four quarter townships, numbered counterclockwise beginning with "quarter-town" No. 1 in the southeast corner.

**This was a very harsh land at the time.... Several survey party members died of either dysentery or malaria.**

In 1795, ten years after Hutchins began his survey for the Federal Government, a group of New Englanders purchased the remainder of the Western Reserve from the State of Connecticut. This wily bunch bought about 3.3 million acres of land for about $1,200,000. With it, they purchased the right to subdivide the Reserve as they saw fit. The owners decided on five-mile-square survey townships with the township purchaser retaining the right to subdivide the individual townships as they saw fit.

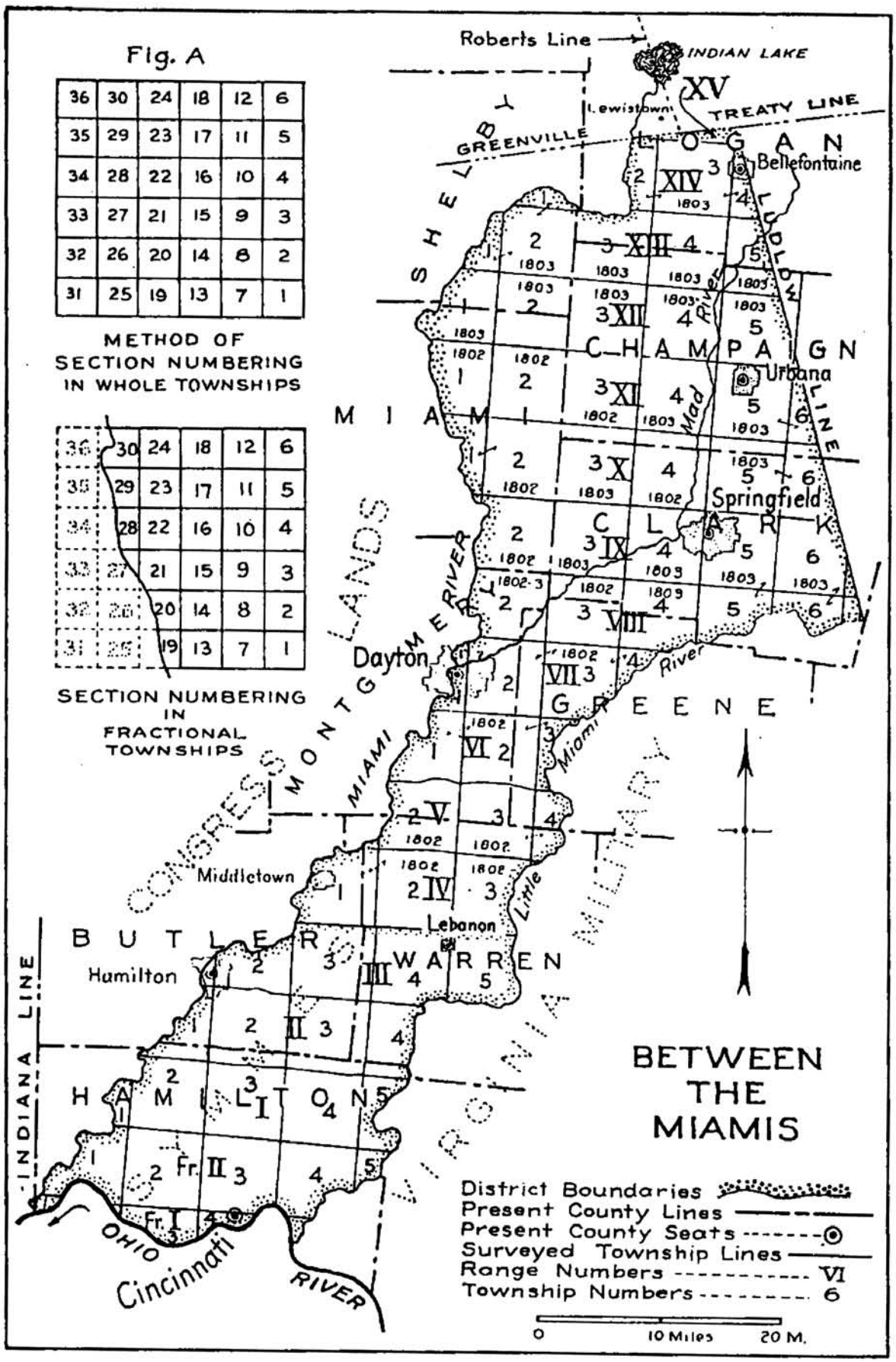
**The Connecticut Western Reserve Survey** was began in September, 1796, when General Moses Cleaveland led a party of surveyors into the Western Reserve. They began by sending a survey party South along the westerly line of Pennsylvania to locate the Southeastern corner of the Reserve, where the 41st parallel of North Latitude intersects the westerly line of Pennsylvania. They then surveyed West along the 41st parallel to establish the Southern boundary of the Reserve. At every 5th mile, a survey was run to the North to intersect with the South shore of Lake Erie. The Ranges are numbered westward from the Pennsylvania line and the Townships are numbered Northerly from the 41st parallel. This was a very harsh land at the time, heavily timbered with many swamps, many mosquitos, and much fever. Several survey party members died of either dysentery or malaria. Considering the terrain and the instrumentation in use at that time, the quality of the surveys performed was quite good. The quantity of the survey work completed in a very short period of time is also extraordinary.

Due to the irregularity of the South shore of Lake Erie, not all townships contain the full 16,000 acres. Since there was no initial plan for the internal subdivision of the townships such as in the PLSS, the townships were subdivided at the whim of their purchaser. Some townships have 100 lots, some have 90 sections, some have quarter townships and others have tracts. When describing land within the Western Reserve, you have to again study the original subdivision of the township.

But the one thing you do find which in common across the entire Western Reserve is the original New England flavor in the layout of the cities, towns and villages. All have a central town square with development moving outward from there. In many of the towns, if you did not listen carefully to the people speaking, you would think you were in New England. The early settlers even brought their town names with them, such as New London and Norwalk.

The funds generated by this sale of the Western Reserve were placed in trust by the State of Connecticut for educational purposes. I understand that the original principal is still intact and the Connecticut School System still receives the interest from these funds.

Located in Southwestern Ohio, the **Between the Miami Rivers Survey** is just that, between the Miami River and the Little Miami River. Much like the Ohio River Survey, it is subdivided into six-mile-square townships, ranges and sections, but in a far different manner from those anywhere else in the country. A row of original surveyed townships running east and west constitute a Range. The Ranges are numbered north from the Ohio River. To compound the prob-




From *Original Ohio Land Subdivisions: Ohio Cooperative Topographic Survey*, Vol. III, C.E. Sherman, 1925.

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mation on the Virginia Military Survey can be found below).

The new government, loosely affiliated and operating as the Confederation or Continental Congress, now had land to sell to raise money and pay off the war debts. A rational method had to be devised to allot and dispose of this land.

After much wrangling by Congres-sional committees, a compromise was finally reached. Public land would be divided into six-mile-square survey townships, with these being then divided into 36 sections, each one- mile-square. This made each section 640 acres, a reasonable sized parcel to be sold in total and subdivided by the owner.

So what is a new nation that is undercapitalized but with vast land holdings to do? Become a real estate sales company. Thus, the Public Land Survey System (PLSS) was created, which would then be used in the survey of all public lands, up to and including today. The concept of an ordinary person owning title to the land on which they lived was revolutionary, to say the least.

In July, 1787, the "Northwest Ordinance," one of the greatest documents ever written, was enacted as the law for the Northwest Territory detailing the rights, privilege and duties of the people living in the Northwest Territory, the form of government to be established, and how new states would be created and brought into the United States. Many of the concepts of this Northwest Ordinance were later incorporated into the Constitution of the United States.

Since the frontier population did not want large states, this document stated that there would be created in the Northwest Territory "not less than three nor more than five states." Congress later decided to create six states. These are now the states of Ohio, Indiana, Illinois, Michigan Wisconsin and that part of Minnesota east of the Mississippi River. This Northwest Territory now encompasses almost all of NSPS Area 5.

## Ohio's Major Surveys

Ohio was on the edge of the frontier at that time and it became a veritable testing ground for survey systems and the birthplace of the Public Land Survey System, (PLSS). There are nine major survey systems in the State of Ohio and 46 sub-surveys. This article focuses on the major surveys, including the:

- Ohio River Survey
- Virginia Military Survey
- Connecticut Western Reserve Survey
- Between the Miami Rivers Survey
- Miami River Survey
- United States Military Survey
- South and East of the First principal Meridian Survey
- North and East of the First Principal Meridian Survey
- Michigan Survey

Throughout this article, the term "township" will be used frequently. In the survey systems to be discussed, *township* refers to the **survey township**, a definite geographical location of land. There is also a **jurisdictional township**, that is a governmental entity that may or may not encompass all of a survey township. For instance, the City of Cleveland contains parts of Euclid, Brooklyn, Rockport and Warrensville Townships, all of which are survey townships that still exist. However, the jurisdictional townships by those names no longer exist, having been incorporated into the City of Cleveland and several suburban municipalities. The survey townships remain for geographical identification.

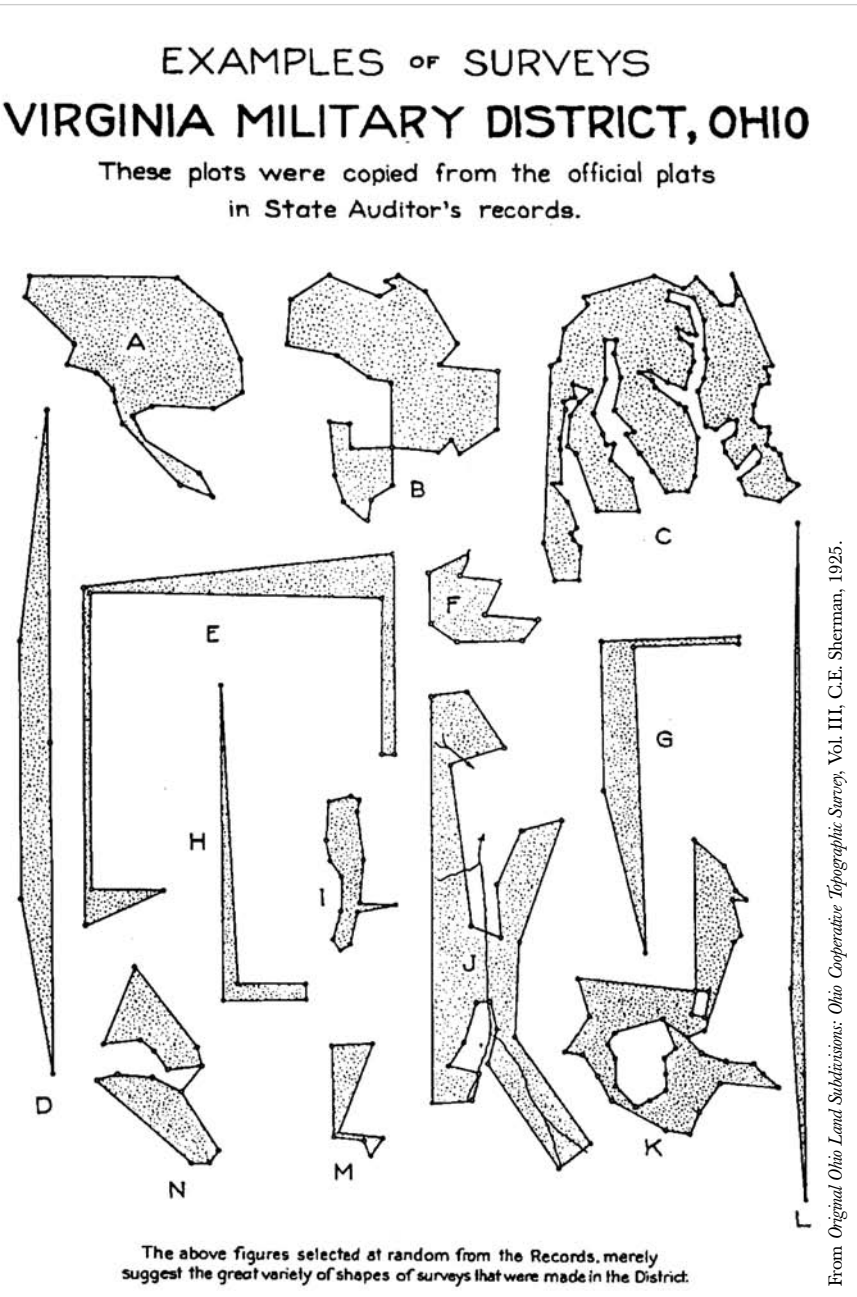
**The Ohio River Survey** was the beginning of the Public Land Survey System (PLSS). It started in September, 1785 at the Point of Beginning, the intersection of the West line of Pennsylvania and North (or right) bank of the Ohio River. Thomas Hutchins, the Chief Geographer of the United States began by surveying the "Geographer's Line," a line extending westerly from the Point of Beginning seven ranges or 42 miles. This established the northerly line of the "Original Seven Ranges." Each range line was then run south to the Ohio River. This is the original land survey system in Ohio and the first logical survey of the public lands now owned by the federal government. It is based on six-mile-square townships, each divided into 36 lots and is the basic layout for all surveying of publically owned lands in the United States. The townships are numbered from south to north and the ranges from east to west. The PLSS now encompasses all of the United States west of Ohio with the exception of Texas and Hawaii.

The Ohio River Survey controls the Original Seven Ranges, The Ohio Company Purchase, and two "Congress Lands." This was the only survey performed under the Continental Congress.

The surveys for the Ohio Company Purchase and the Congress Lands north of the U.S. Military District are based on the Ohio River Survey. (Today, Hutchins' Point of Beginning lies in the city of East Liverpool, Ohio, and falls within the waters of the Ohio River. A reference monument is set about 1112 feet north of the original point. There is a stone monument with plaques and parking space so that you can see a piece of Ohio and American history and still keep your feet dry. )

**The Virginia Military Survey**, begun in 1787, is a series of indiscriminate land surveys described by metes and bounds descriptions. This land was to be granted by the State of Virginia to its Revolutionary War veterans in lieu of cash for services rendered. The size of the land grant depended on the rank and length of service of the veteran. The size of the tracts varied from 100 acres for a soldier to 15,000 acres for a Major General. The shapes of the tracts were unrestricted and were generally laid out to encompass the best land available. The veteran was given a warrant for a certain amount of land. Then the veteran or his agent went into the wild Ohio country and defined the parcel of land on the ground. A survey was then performed and a deed issued. The warrant, the surveyed land and the deed often misstated the quantity of land, usually in favor of the land owner. The accompanying plates from C.E. Sherman's final report *Original Ohio Land Subdivisions* given to the to the Governor of Ohio in 1925 shows some examples of the parcels described by these surveys. This area is referred to as the Virginia Military District (VMD).

VMD lands are found in 23 Ohio counties and run from the Ohio River northward, between the Scioto and Little Miami Rivers, as far as 141 miles inland. It is one of the original nine major subdivisions of Ohio lands and the only one not using some sort of rectangular sur-




From *Original Ohio Land Subdivisions: Ohio Cooperative Topographic Survey*, Vol. III, C.E. Sherman, 1925.

lems in the area, there are two "Fractional Ranges" along the Ohio River. The townships are numbered east from the Miami River.

The Symmes Purchase, part of this survey system, includes present day Cincinnati It used the Ohio and the Miami, two crooked rivers as its initial lines causing some irregularity in both township and range numbers. The original survey, privately performed, began at the Ohio River and runs approximately 24 miles northward. John Cleves Symmes actually sold land beyond the U.S. Patent he had received, making many people technically "squatters" on un-surveyed federal land. Congress acted in 1799 and 1801 passing "relief acts" which gave these settlers the first right to buy this land again, this time from the federal government. (The "Between the Miamis" Survey was a federal Survey that continued the Symmes Purchase survey's rather unorthodox system of running Ranges of townships in an east west direction northward to the Greenville Treaty Line.)

**The Miami River Survey**, not to be confused with the "Between the Miamis Survey," lies west of the Miami River. This was a federal survey with the townships being six-miles-square and numbered from south to north. The easterly line of the state of Indiana acts as its controlling meridian. The ranges are numbered east and west from the Indiana line. In Ohio they are numbered from west to east and in Indiana they are numbered east to west. The townships are numbered from the Miami River north.

**The United States Military Survey (USMD)** was established in 1796 to satisfy the military bounties for Continental Army veterans. The size of the bounty varied with the rank of the veteran, ranging from 100 acres for a Private to 1100 acres for a Major General. The USMD contains about 2,560,000 acres and is found in 12 counties in east-central Ohio. It is bounded North by the Greenville Treaty Line, East by the Original Seven Ranges, South by the Congress Lands and Refugee Tract and West by the Scioto River and takes in part of the city of Columbus.

The VMD is divided into townships five miles square containing 16,000 acres with the most northern townships containing less due to the direction of the Greenville Treaty Line. The townships are further subdivided into quarter townships instead of sections. Each quarter section is numbered counter clockwise starting in the northwest quarter. There is no uniform method for subdividing the interiors of these quarter townships.

**The South and East of the First Principal Meridian Survey** is broken into six-mile-square townships and are numbered according to the Land Act of 1796. The townships are numbered from west to east starting with the First Principal Meridian which is also the boundary line between the states of Indiana and Ohio. This survey lies south of the Base Line which was intended to coincide with the 41st parallel of latitude and the ranges are

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numbered from north to south starting at the base line.

**The North and East of the First Principal Meridian Survey** lies on the other side of the Base Line (41st parallel) and begins at the First Principal Meridian, the dividing line between Indiana and Ohio. The townships are six miles square and are numbered from west to east starting at the First Principal Meridian and from the baseline north.

In northwestern Ohio, there were other problems. The ninth survey system in Ohio, **The Michigan Survey**, is again the result of poor geographical information and the ensuing confusion regarding the location of the north line of Ohio when it became a state. This confusion led to the "Michigan Border War" which continues to this day. The Michigan Survey is located in Williams, Fulton, and Lucas Counties. It is a continuation of the federal rectangular surveys based on the Michigan Meridian and its base line, located north of Detroit.

The land was claimed by both the State of Ohio and the Territory of Michigan. This dispute nearly caused a war between the two in 1835. The militia's of both Ohio and Michigan formed up at the border, ready to do battle. They did a lot of posturing and marching around with some minor skirmishes. Some minor injuries were inflicted before more peaceful settlement prevailed, which is probably a good thing.

The cause of this controversy had its origin in the Ordinance of 1787, when it was provided that, "if Congress shall hereafter find it expedient, they shall have authority to form one or two states in that part of said territory which lies north of an east and west line drawn through the southerly bend or extreme of Lake Michigan."

The Act that enabled Ohio to become a state, defined its North boundary to be "an east and west line drawn through the southerly extreme of Lake Michigan, running east until it shall intersect Lake Erie."

Ohio was admitted to the Union without Congress clearly defining its northern boundary. Congress tried to clear up the problem in 1817, when William Harris surveyed the boundary as set forth in the Ohio Constitution. Michigan objected to the Harris Line. John A. Fulton ran another survey in 1818 based upon the language in the Northwest Ordinance. Ohio objected to the Fulton Line because it was several miles south of the Harris Line and Ohio would lose the harbor at what is now Toledo.

Congress sent a survey party to the disputed area in attempt to settle the problem. They did not, but it is interesting to note that a member of that survey party was a new engineering graduate from West Point by the name of Robert E. Lee. Lee did not distinguish himself on this survey, but he did go on to bigger and better projects such as the first flood control project on the Mississippi River at St. Louis.

An accommodation was finally reached whereby Michigan gave up its claims along the border in return for both statehood and the Upper Peninsula of Michigan. It is said that the only loser in this situation was Wisconsin, which lost the Upper Peninsula.

The surveys in the area had already begun using the Michigan Meridian and baseline, so this system was retained. This survey has townships divided into six-mile-squares and the numbering is in accordance with the Michigan Meridian.

The various land transfers in Ohio are not discussed in this article. That, dear readers, is another story for another day.

John Dailey retired on June 30, 2004 after 51 years in the surveying profession. He has served as President of the Professional Land Surveyors of Ohio, NSPS, and ACSM. He currently writes columns for Cleveland Surveying News and Ohio Surveying News, and edits the newsletter for the Computer Assisted Genealogical Group (CAGG).

*Author's Note: I have relied heavily on Professor C.E. Sherman's 1925 "Final Report of the Ohio Cooperative Topographic Survey, Volume III." Sherman was the Chair of the Cooperative Survey and his report was made to the Governor of Ohio. I have also freely gleaned from James L. William, P.S. of Columbus, Ohio. Jim is one of the foremost experts on Ohio survey history. If you ever have an opportunity to take in one of his programs, don't miss it.*