

# From Metes and Bounds to Grids or a CliffsNotes™ History of Land Ownership in the United States

by Richard Norejko, CMS

*The statements made or opinions expressed by authors in Fair & Equitable do not necessarily represent a policy position of the International Association of Assessing Officers.*

Private land ownership in the United States is essentially a reflection of American history. The tremendous willingness of the colonists, living in a new world, to experiment with new ideas and new rules is what has offered them the opportunity to own a piece of real estate—a piece of America. Americans have always shown a kind of *forward-looking-ness*, a special welcome to the new and the untried. We don't feel constrained by the habits of other people or of other times. We truly believe that as a nation we are like nothing else the world has ever seen before.

How did we get to this point? What happened to create this situation? Who has been influential in the process? How did property descriptions develop from the metes-and-bounds system of colonial times to today's grid system? This article offers a whirlwind tour of how land ownership developed in the United States of America.

## East Meets West

Americans have a deep-seated passion for freedom, a freedom present in American life and American experience since the first moment we began to think of ourselves as something different from Europe. That moment could be said to have occurred when, in 1492, a Genoese entrepreneur and navigator named Christopher Columbus caught his first glimpse of the island shores of what was, for him at least, a New World. At this time, however, the Americas were already settled.

For thousands of years, Indians had spread throughout the Western Hemisphere, and by the year 1500, it has been estimated that the North American population alone may have been 10–15 million. These Native Americans probably spoke more than 300 different languages in at least 12 entirely different language systems or language stems. They also had developed more than 600 autonomous social systems that were radically different from each other, from the pueblos of the Southwest, to the fortified towns of the Mississippi

Valley, to the woodland villages of the Northeast. In Central and South America, they constructed even more complex societies. The Aztecs of Mexico and the Inca of Peru created aristocracies and emperors. The Aztec capital of Tenochtitlán (modern-day Mexico City), with a population of 200,000 people, may have actually been the largest city in the world on October 12, 1492.

It was inevitable that the Western Hemisphere would be “discovered” by a civilization from the East. The events leading up to Columbus's “discovery” actually began when the Roman Empire dumped the old Roman gods in favor of Christianity. Along with the eventual collapse of the Roman Empire arose a new religion, Islam, which overran the old Roman provinces of Asia Minor and Northern Africa, all the way to the borders of modern-day France.

In 1096, the chief of Europe's Christian church, Pope Urban II, called for a mighty effort to recover the sacred city of Jerusalem, where Christianity was born, from the hands of Islam. The Pope's call became a military crusade. Thousands of Europeans who had never strayed more than a few miles from the place of their birth now had to recapture a city in a very distant land.

These Holy Crusades taught Europeans two important lessons: first, how to organize and support large-scale expeditions and explorations of previously unknown territory, and second, how to enrich themselves from trade and cultural exchange with Palestine and the Islamic world.

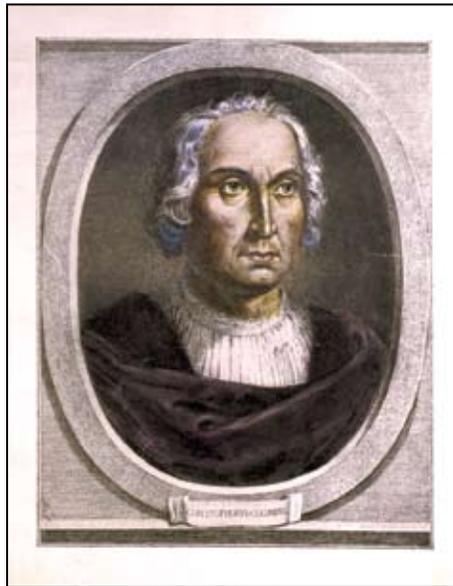
The lure of trade encouraged Europeans and European governments to undertake an ambitious series of explorations aimed at opening new markets. In 1271 the Venetian Marco Polo set off on a three-year journey to the very heart of the Chinese Empire. Polo spent 17 years in China, and when he returned to Europe in 1295, he published a rollicking account of his adventures and the fortunes that could be made in trade with the Far East.

The Europeans who profited the most from the new world of trade opened up by the Crusades were the Italian city-states and the port cities of Southern Europe. Western Europeans were also determined not to miss the opportunity for wealth in the East. Since the Italian city-states controlled the Mediterranean routes, Western Europeans wanted to find another route to Marco Polo's China. The Portuguese underwrote expeditions that proved it was possible to sail south around the coast of West Africa into the Indian Ocean. The Spanish were right behind the Portuguese in breaking out into the Atlantic.

In 1492, a navigator from the Italian trading emporium of Genoa named Christopher Columbus persuaded the King and Queen of Spain to finance and support an expedition of sailing, not east into the Mediterranean Sea and then overland to the Near and Far East, or even south around Africa, but due west into the Atlantic, so that Spain could arrive directly at China's back door.

## Christopher Columbus

Columbus set sail from Spain in August 1492 and in October landed in what he thought were islands off the coast of



*Portrait of Christophorus Columbus, created between 1890 and 1940. (Source: Library of Congress Prints and Photographs Division)*

India. Instead, they were two enormous continents stretching from north to south like a great barrier across the Atlantic. And a *barrier* they were, because the discovery of these continents was met with disappointment rather than joy. They constituted a major obstacle to the real goal, which was reaching China and

India. Columbus and his men were not glad to discover the Americas.

Explorers, supported by various European governments, tried their very best to find a water route around or through America. Ferdinand Magellan sailed southward around South America into the Pacific Ocean. Amerigo Vespucci and Martin Frobisher probed northward looking for a northwest passage through North America. When no such path appeared, these European countries turned their attention elsewhere.

It was individual freebooters who took a second look at America, not as an obstacle to the Far East, but as a source of wealth. In 1519 Hernando Cortés spent two years in Central America pillaging, massacring, and finally capturing several kings'—ransom-worth of gold and silver. In 1532, Francisco Pizarro mounted a similar campaign against the Inca of Peru. He too rampaged and pillaged the Inca Empire, seizing up to \$65 million in Inca treasure. Other Spanish adventures swarmed over Central America and the North American Southeast looking for treasure to repeat the examples of Cortés and Pizarro.

The wealth generated by extraction of riches from the Americas made Spain a major political force in Europe throughout the 1600s. But Spain managed its American profits poorly and was unable to match the energy of France's rise to European dominance. The French proceeded to copy the Spanish program by mounting extraction incursions of their own in North America.

The French found in abundance something almost as valuable as gold, fur—beaver, fox, lynx—to extract and bring to Europe. Like Spain, France used its exploration and opening of North America for extraction rather than settlement. There was one more European sea power that had not been heard from, and that was England.

## America Is Settled

Of all the European nations facing the Atlantic Ocean, none would ordinarily have seemed to have greater advantages for entering the race for North American exploration than England—better than the Spanish, better than the French, better



*Christopher Columbus among Indians, lithograph created between 1850 and 1900. (Source: Library of Congress Prints and Photographs Division)*



*Elizabeth I, Queen of England, 1533-1603, copyright 1904 by G. Barrie & Son. (Source: Library of Congress Prints and Photographs Division)*

than the Dutch. The English enjoyed a westerly location in the Atlantic Ocean and had a long history of seafaring. In fact, a handful of English adventurers did follow in the wake of Christopher Columbus. However, sixteenth-century England was involved in battles between Catholicism and the Protestant reformation movement. When England finally turned Protestant for good in 1558, the country became the ally of Protestants and the enemy of every Catholic in Europe. Thus, between 1582 and 1602 the Protestant Queen of England, Elizabeth, sanctioned raids upon the great treasure fleets of Europe's greatest Catholic power, Spain, which were extracting riches from the Americas. This kind of freebooting was expensive; therefore, it made sense for English raiding parties to establish a supply base on the North American coastline.

King James I granted a royal charter to the Virginia Company of London, an English joint stock company, on April 10, 1606, for establishing colonial settlements in North America. The territory granted to the London Company included the coast of America from the 34th parallel (Cape Fear, North Carolina) to

the 41st parallel (Long Island Sound). Another English-chartered company, the Massachusetts Bay Company, organized in 1628, was granted rights to the area between the Charles and Merrimack rivers and westward to the Pacific Ocean.

However, the settlers of the two colonies could not have been more different. The passengers headed to Virginia were usually single men whose average age was 20, most of whom were going as servant labor. The settlers in Massachusetts were usually complete households with the average age of the heads of households being 36. In other words, those bound for Virginia were footloose and poor, while those headed for New England were a community. As one Englishman later put it, America was a place where one could go to "live bravely," to live without restraint in a new unchartered land.

The facts that the New World had already been discovered centuries before Columbus and that it had been inhabited and "claimed" by Native Americans did not dissuade the granting of land tracts by the English Royalty. Scholars estimate that prior to Columbus's journey there were 40 million natives in the Western Hemisphere, 10–15 million in North America alone. As a result of violence, possibly



*Massasoit, on his way to meet the Pilgrims and sign the Peace Treaty, 1621, created circa 1915. (Source: Library of Congress Prints and Photographs Division)*

genocide, and an epidemic of diseases like smallpox and measles that proved deadly to the natives in both Americas, the population plummeted. For instance, in Massachusetts Bay, smallpox wiped out 90 percent of the Native American population. By the time of the American Revolution it is estimated that only 1 million Native Americans remained.

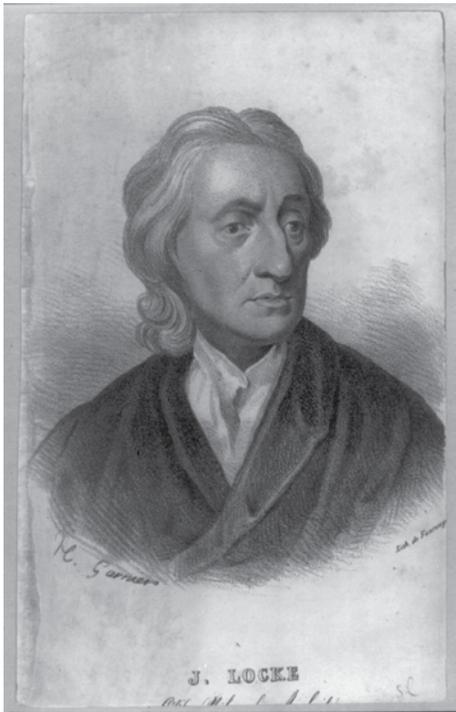
## The Settlers Define Land Ownership

Another problem was the lack of property corners, fences, and boundaries in pre-Columbus North America. While the inhabiting tribes had vastly different cultures, they did have one thing in common: no permanent occupational boundary markers or written legal instruments for claiming ownership. In Native American culture, land was common property for everyone. "What is this you call property?" Massasoit, a leader of the Wampanoag tribe, asked the Plymouth colonists in the 1620s:

*It cannot be the earth for the land is our mother, nourishing all her children, beasts, birds, fish and all men. The woods, the streams, everything on it belong to everybody and is for the use of all. How can one man say it belongs to him? (Meinig 1986)*

Since the Native Americans had nothing but their beliefs, traditions, and culture to show that they owned the land, the Europeans thought they could appropriate it freely. The English settlers adopted a natural right of individual property rights that had been advanced by John Locke (1632–1704). Locke is credited with advocating "government with the consent of the governed" and "rights of life, liberty and property..." (this quote resurfaces later in this article in a different context).

Land was the lure for the English colonists. In the seventeenth century the North American colonies were not settled by normal, everyday, cut-from-the-middle Europeans. In fact, no prosperous Englishman would choose to take ship for America. Those that did make the treacherous voyage across the Atlantic, many of whom indentured themselves for a chance of owning their own



John Locke, 1632–1704, advocate of property rights in colonial America. (Source: Library of Congress Prints and Photographs Division)

land, saw firsthand mile upon mile of land without the stone markers or hedges that delineated parcel boundaries in the British Isles. These immigrant colonists gazed at the wilderness and envisioned new markers bounding the edges of *their* own fields and meadows.

They intended to replicate the civilization they had left behind, including the metes-and-bounds system of describing property ownership used in England for many centuries. This system used physical features of the local geography, along with direction and distances, to define and describe the boundaries of a parcel of land. The boundaries were described in a running prose style, working from a point of beginning, around the parcel of land in sequence, back to the same point. Many prospective landowners were allowed the privilege of selecting the particular piece of land to be owned by or patented to them. Tracts located at the discretion of the patentee were not required to be contiguous to settled land or to be of any shape.

As large regions were chartered to settlement, choice fertile acres went to whomever first registered claims, while undesirable tracts often remained in

the public domain as wasteland for a generation or more. Though there was some preference for laying out farms in rectangular form, cadastral maps testify to the popularity of running bounds that conformed to the contours of an owner's desire to encompass only the best arable fields, meadows, stands of timber, springs, and creeks within a specified acreage. The fertile soil was needed for growing food; the water for drinking, washing, and cooking; and the woodland for providing building material.

To define the boundaries of their property, owners blazed trees, scratched boulders, and raised mounds, and described their land holdings in terms of these markers. Interestingly, the descriptions were written as a visual portrayal of the property as it existed on the day of sale. These descriptions also were written in a literary form that would be personally known to the buyer or claimant who resided there. They would have little meaning to someone speculating on land from afar; land speculators would not know about the brook or stream that was a boundary, nor would they be able to readily identify the species of trees that were mentioned by a property corner or the neighbor landowner. "Bounded on the east by William Smith land" was the style of property description that originated in sixteenth-century England when a nobleman and a "survoir" (surveyor) walked the land and made note of the boundaries—the "buttes and bounds" of the estate. To "butt" upon something is to encounter or meet it, for which the equivalent word was "mete." This method, which identified the boundaries of a tract by points where they met other boundaries or visible objects, became known as "metes and bounds."

Perhaps the best example of an early metes-and-bounds deed is one that reads,

*...a certain marked red cedar tree out on a sandy sort of plain; thence by another straight line, in a different direction, to a certain marked yellow oak tree on the off side of a knoll with a flat stone laid against it; thence, after turning around in another direction, and by a sloping straight line to a certain heap of stone which is by pacing*

*just 18 rods and about one half a rod more from the stump of the big hemlock tree where Philo Blake killed the bear; thence, to the corner begun at by two straight lines of about equal length, which are to be run by some skilled and competent surveyor, so to include the area and acreage herein before set forth. (Early Tennessee Deed)*

At that time and location, that boundary description made sense. Everyone who lived around this location knew where Philo Blake killed the bear. It was an unusual event that would be known to the local inhabitants at the time. There was no ambiguity. Confusion as to the exact limits of ownership came after time changed both the local citizenry and the objects mentioned in the deed.

---

**As large regions were chartered to settlement, choice fertile acres went to whomever first registered claims, while undesirable tracts often remained in the public domain as wasteland for a generation or more.**

---

Not all boundary descriptions were haphazard. Remember, in New England the first colonists arrived as a community, as united religious groups, and thus the emphasis was on planned communities rather than on individuals. Land was allocated to congregations or churches by the English General Court, which laid out the townships, usually in a square, *before* the new settlers moved in. Therefore, each family was to have enough property for a house, an "in-lot" of farmland near the center of the settlement, and an "out-lot" beyond the center for grazing. No gaps were left between one individual parcel and the next.

Thus, the idea of land as property, to be bought and sold in fee simple, to use the legal term, originated in England.

This colonial era of metes-and-bounds descriptions continued for 150 years, nearly as long a period as from the end of the American Revolution to the present day. Along with the metes-and-bounds method of describing land boundaries came a measuring instrument called the Gunter's chain.

## **Edmund Gunter Invents a Measuring Tool**

Born in 1581 to a Welsh family, Edmund Gunter had been sent to Oxford University to be educated as a Church of England priest, but discovered that numbers were more inspiring than religion. What really interested him was the relationship of mathematics to the real world; consequently, he spent most of his time making instruments to illustrate the way in which numbers worked.

Since only the most basic instruments existed in Gunter's day, mathematicians were expected to design their own. Gunter's most famous invention was the Gunter's chain. The practical appeal of a chain was that it was flexible enough to be looped over a person's shoulder and that, being made of metal, it neither stretched nor shrank. It became a most useful tool in measuring boundaries in the virgin land of colonial America.

Today the Gunter's chain is 66 feet in length; or 4 rods; or 4 perches; or 22 yards—a strange distance that makes sense only in the context of the traditional units used for measuring land. Like all units of land measurement, a perch originally varied according to the quality of the ground—a perch of poor soil was larger than one of fertile soil—but during the sixteenth century it became standardized at 16.5 feet. This inconvenient length was derived from the area of agricultural land that could be worked by one person in a day. The area was 2 perches by 2 perches (33 feet by 33 feet). Therefore, a day's work amounted to 4 square perches. Conveniently, there were 40 day works in an acre, the area that could be worked by a team of oxen in a day, and 640 acres in a square mile. It was significant that all were multiples of four, a number that made it simpler to calculate the area of a four-sided field.

Gunter divided the chain into 100 links, marked off into groups of 10 by brass rings. On the face of it, the dimensions made no sense; each link was 7.92 inches long; 10 links made slightly less than 6 feet, 8 inches; and the full length was 66 feet. In fact, he had made a brilliant synthesis of two otherwise incompatible systems: the traditional English land measurements based on the number 4, and the newly introduced system of decimals based on the number 10.

Gunter's chain allowed either method to be used. An acre measured 4,840 square yards in traditional units and 10 square chains in Gunter's system. Thus, the entire process of land measurement could be computed in decimalized chains and links, converted to acres by dividing the result by 10. What made Gunter's chain unique was that it did not vary, and in 1607, it would have been hard to find another means for measuring boundaries that was so consistent.

---

***In the autumn of 1774 when delegates of the discontented colonies convened in Philadelphia as members of the First Continental Congress to articulate their grievances, it was not by chance that the first resolution they agreed to was “that they are entitled to life, liberty, and property.”***

---

Besides Gunter's chain, seventeenth-century surveyors also used a 32-point compass card (a card graduated to 32 points and marked with the initials of the winds) and a circumferentor (a transit with crosshairs in the lens of the tele-



*This 32-point compass rose from a chart by Jorge de Aguiar (1492), is the oldest personally signed and dated Portuguese nautical chart. (Source: Wikipedia, Original is in the Beinecke Library, Yale University, USA.)*

scope and built-in compass and plumb line). As a result of the mathematical skills needed to survey parcels and the low supply of trained surveyors, for the next 150 years surveyorships were ranked among positions of public trust and scrutiny because land measurement had profound implications for the stability of a society committed to rapid development of that key resource.

Surveyors' most important duties—surveying the boundaries of land withdrawn from the public domain for private use—were too vital to the public interest to be entrusted to men engaged in purely private practice. Entry into the profession was controlled by official appointment instead of personal decision, market demand for services, or examination. Also, surveying was not a full-time occupation entered into after long specialized training. It was a skill, like law, that an educated man could pick up through reading or a brief apprenticeship. It was particularly compatible with farming because of its seasonal nature. So surveyors were also customarily farmers, who, like other colonists, cleared land, cropped it, and sold it for profit.

## **King George III Proclaims Royal Ownership**

America grew. Immigrants flowed into the New World, forming the 13 original colonies. People spilled over the Appalachian Mountains to settle into new territory. The buying and selling of land

based on the metes-and-bounds survey system, which had been practiced in the American colonies for more than 150 years, was about to change.

On October 7, 1763 came a harsh reminder of the legal reality behind American property. By royal proclamation, King George III declared it,

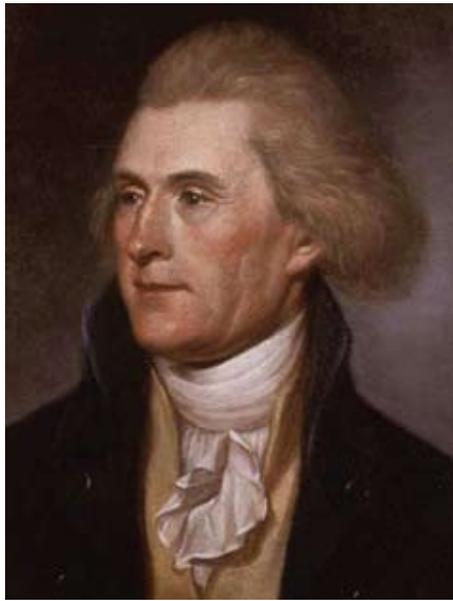
*...to be our Royal will and Pleasure... that no Governor or commander in chief in any of our Colonies or Plantations in America do presume for the present, and until our further pleasure be known, to grant warrants of Survey, or pass Patents for any lands beyond the Heads or Sources of any of the Rivers which fall into the Atlantic Ocean from the west and North West.* (Linklater 2002, 47)

In effect, a line had been drawn along the watershed of the Appalachians beyond which land could not be measured and owned, and everyone who already settled west of it was commanded “forthwith {to} remove themselves from such settlement.”

George III had the right to order it because legally (by British law, not Native American culture) all land in British America was his. Full in the path of the property seekers was planted the King’s feudal authority.

Many strands led to the moment when the colonists felt driven to weave their anger together into a single declaration of opposition to rule from England. In the autumn of 1774 when delegates of the discontented colonies convened in Philadelphia as members of the First Continental Congress to articulate their grievances, it was not by chance that the first resolution they agreed to was “that they are entitled to life, liberty, and property.” Property meant land and, in particular, land beyond the Appalachian Mountains. Hence the declaration of the first paragraph of the Virginia Constitution:

*That all men are by nature equally free and independent, and have certain inherent rights...namely, the enjoyment of life and liberty, with the means of acquiring and possessing property, and pursuing and obtaining happiness and safety.* (Constitution of the State of Virginia, Article I, Bill of Rights)



Thomas Jefferson, portrait by Charles Willson Peale, 1791. (Source: Wikipedia)

Entitlement of property was a subject on which the humblest colonial mule driver was at one with the grandest plantation farmer.

Tariffs, taxation without representation, and the prevention of settlement in what is called the Northwest Territory was all the colonists could take. On July 4, 1776 America declared her independence from England.

## Thomas Jefferson Expands U.S. Territory

Even in 1776 it was evident that Thomas Jefferson heard the beat of a different drummer. Indeed, if there was any one person immune to the general lust for land beyond the Appalachian Mountains, it was Jefferson, the Virginian plantation farmer, who, in his wording of the Declaration of Independence, changed the fundamental assertion of rights, mentioned in the Virginia Constitution, from “life, liberty and property” to “life, liberty and the pursuit of happiness.”

One of the greatest paradoxes in Jefferson’s paradoxical character was his attitude about land acquisition. He acquired more western land on behalf of the United States than any speculator could have dreamed of possessing, laid the foundation for the nation’s further territorial expansion to the Pacific by sending Meriwether Lewis and William

Clark to find a route to the western coast in 1803, believed passionately in the virtues of owning land, and adored his own property at Monticello. Nevertheless, he was tepid in acquiring land for himself. After his retirement from the presidency, he wrote that, “Nature intended me for the tranquil pursuits of science, by rendering them my supreme delight.”

Jefferson questioned the basis of the royal claim of feudal power over the land beyond the mountains. His conclusion was what his fellow statesmen also believed—that George III had no right to restrict the desire to acquire property.

King George’s and England’s philosophy of land ownership originated with William the Conqueror. In 1086 William and his Norman invaders invented the belief that all lands belong originally to the King, and that belief had been handed down from monarch to monarch. In 1763, since America was already occupied, George III had no grounds for claiming power over the disposal of its land. The area west of the Appalachians, the Ohio River Valley, was French Territory in the 1600s and known as New France. In those days the nations of Europe, after each war, tossed foreign lands back and forth across the bargaining table as though they were cookies. England acquired the French Territory in February 1763 at the Treaty of Paris, which ended the Seven Years’ War, or, as it was called in America, the French and Indian War. Only a democratically elected legislature had power over the land, Jefferson concluded and, in a phrase that would have been music to any land squatter’s ears, wrote that if the legislature failed to act,

*...each individual of society may appropriate to himself such lands as he finds vacant, and occupancy will give him title.* (Linklater 2002, 58)

When Jefferson returned to the Virginia legislature after independence was declared, he was given the opportunity to put some of his land ownership theories into practice. He introduced a bill in the Virginia Legislature that would give 75 acres to any Virginian who did not already have land and a “headright” (per person) grant of 50 acres to every landless immigrant who arrived in the state

from overseas. To complete the policy, he planned to lay off every county into “hundreds” or townships, 5 or 6 miles square, in the center of each was to be a school (Liniklater 2002, 73).

The American Revolution had begun, and by 1782 the war was costing Britain £20 million a year. The loss of trade with its former colony caused exports in Britain to fall by 18 percent. Bankruptcies for English trading companies increased. On February 27, 1782, surveying the wreckage of its plans and hopes in North America, the English Parliament voted to suspend the war by a slim margin of 234 to 215.

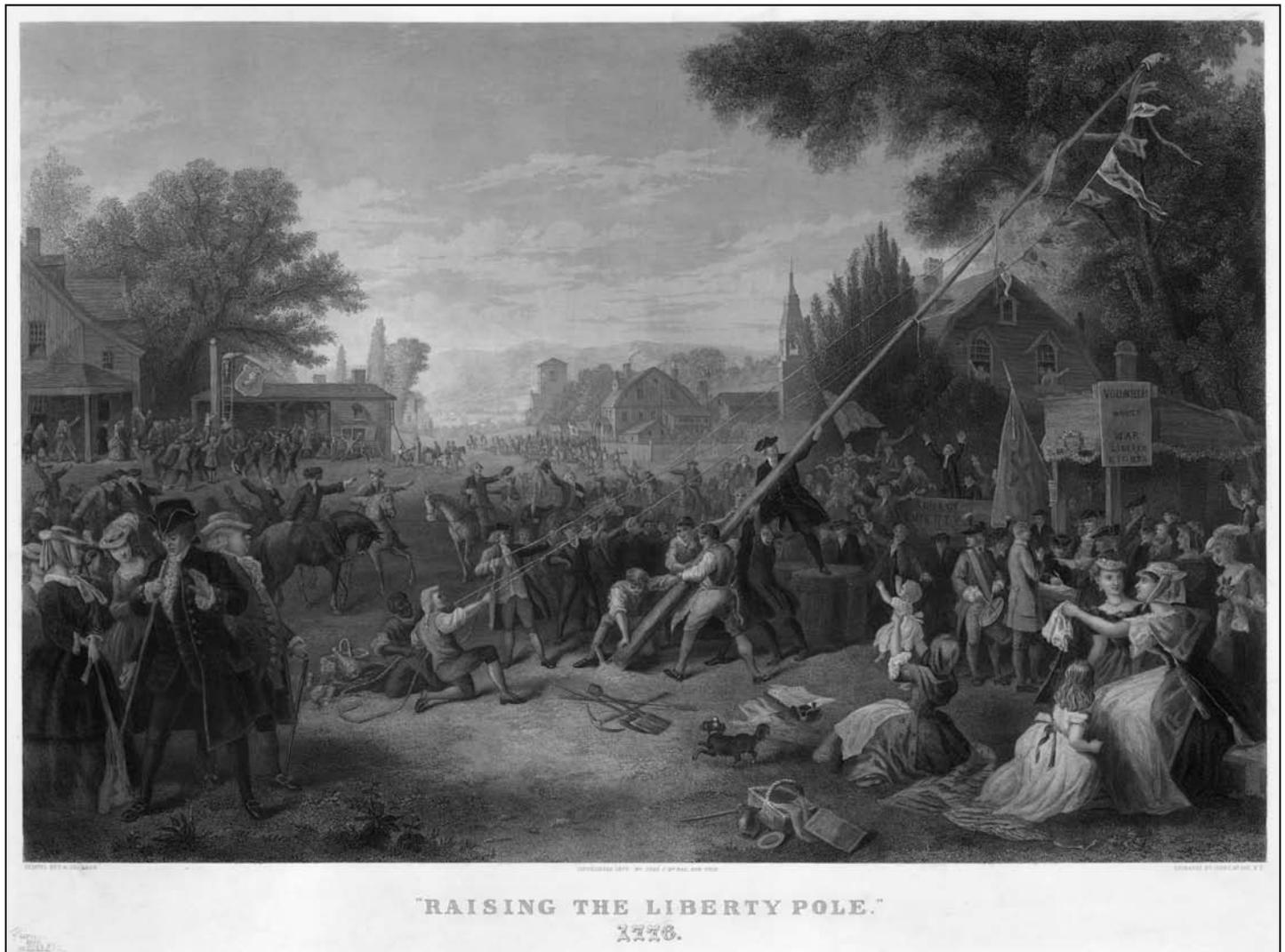
American independence was ratified formally by a peace treaty signed in Paris on September 3, 1783. If the war had done a great deal of damage to the

British economy, it had done little good to the American economy. The new national government had debts estimated at \$40 million. To make matters worse, the Continental Congress was unable to impose taxes, and the states refused to permit the Congress to raise money by imposing tariffs on foreign goods coming into the country.

The only other possible source of finance was the sale of land in the Northwest Territory, which consisted of present-day Ohio, Indiana, Michigan, Illinois, Wisconsin, and the northeast part of Minnesota. However, this territory was subject to overlapping and conflicting claims of the states of Massachusetts, Connecticut, New York, and Virginia, as well as a lingering British presence, that were

not resolved until the War of 1812. On March 1, 1784 those state delegations relinquished their claims, and this territory became property of the United States.

On that same day Thomas Jefferson was appointed chairman of a committee to report on, among other things, the best way of surveying and selling the land. To prevent speculators from acquiring the best land, as settlers had done in the original colonies for more than 150 years, the committee ruled out the metes-and-bonds survey system with its irregular shapes and gaps. Instead, the country was to be surveyed *before* occupation and divided into simple squares aligned with each other so that no land would be left vacant. At Jefferson’s insistence, these squares were to be called “hundreds”



“Raising the liberty pole,” 1776, painted by F.A. Chapman; engraved by John C. McRae, N.Y. Print shows the raising of a liberty pole in a village center on a festive occasion with many spectators, some appear to be disgruntled loyalists; in the background, several men are removing a sign bearing the likeness of King George III. Copyright 1875 by John C. McRae, New York. (Source: Library of Congress Prints and Photographs Division)

and their sides were to run due east and west, and north and south. The committee also reported that the,

*[The Western Territory] shall be divided into Hundreds of ten geographical miles square, each mile containing 6086 feet and four tenths of a foot, by lines to be run and marked due north and south, and others crossing these at right angles ... these hundreds shall be subdivided into lots of one mile square each, or 850 acres and four tenths of an acre, by marked lines. (Jefferson 1784)*

Jefferson's fellow legislators may not have realized that in addition to the opportunity to raise money by the sale of land in the territory, he was offering the United States the chance to have the first decimalized system of measurements in the world.

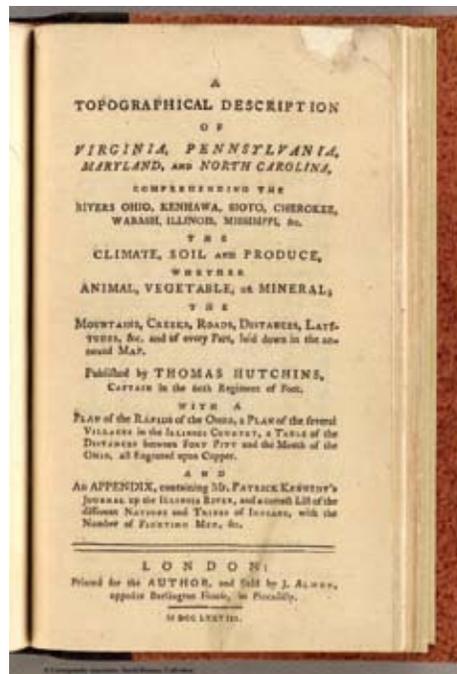
As previously mentioned, pursuit of science led Jefferson to becoming the architect of a self-regulating, land-owning democracy. No shape could be simpler than the square, and no calculation more straight forward than in 10s. This land was proposed to be surveyed in rectangles and measured in decimals. That, at least, was the rational, scientific conclusion; however, a portly fellow by the name of Rufus Putnam voiced a different argument.

## Rufus Putnam Uses Gunter's Chain in Northwest Territory

Rufus Putnam was an engineer in the Royal American Regiment during the French and Indian War. This trade taught him how to carry out every kind of measurement as well as how to survey parcels of land. He was also one of the first men to be commissioned into the Massachusetts Regiment following the "shot heard round the world" at Lexington in April 1775. Putnam demonstrated his talents during the American Revolution and impressed George Washington so much that Washington appointed him chief engineer to the army.

Putnam also wanted squares, but his solution was to divide the 18 million acres of the Northwest Territory into "756 Townships of 6 miles square" and settle communities in each township in the traditional New England model.

The advantages of a square measuring "traditional miles by" was the ease of subdivision for someone using a Gunter's chain, a tool used by Putnam and thousands of surveyors since the 1600s. Each side of the township measured 480 chains, a number that could easily be halved, quartered, and so on, according to demand. In fact, this type of subdivision split the large square into 36 smaller squares, each measuring a square mile. Since 1 square mile contained 640 acres, or 6,400 square chains, a quantity that could in turn be halved no fewer than 7 times and still produce a whole number (5 acres or 50 square chains), the practical advantage for surveyors was obvious.



*Title page from a book written by Thomas Hutchins in 1778. According to The Thomas W. Streeter Collection prospectus, "Hutchins' work is one of the most valuable sources on the West during the British period." (Copyright 1998 David Rumsey Historical Map Collection; reprinted with permission under creative commons licensing agreement.)*

In May 1784, before Jefferson could present his version of the report on the Western Territory, he was appointed U.S. envoy to France. William Grayson, a fellow Virginian, was appointed the new chairman of the committee, and changes were made. What remained from Jefferson's original ordinance was the grid

pattern of squares with the east-west lines cutting the north-south at right angles. The dimensions that emerged, however, owed more to Putnam's push for using Gunter's chain than to Thomas Jefferson's mathematical theory.

On May 20, 1784 Congress passed an ordinance for "disposing of lands in the western territory." The 36 square-mile townships were to be divided into 1-square mile lots, 4 of which in each township were reserved to the government "for the maintenance of public schools." Every alternate township was to be sold whole and the intervening ones by square-mile lots—now for the first time called *sections*—at a price of \$1 per acre (Linklater 2002, 73). This scheme featured a different numbering system than that defined by the Land Ordinance of 1796 (see below). The 36 lots (sections) in a township counted northward from the southeast corner of the township, east to west.

## Thomas Hutchins Surveys Ohio

In 1785 George Washington appointed Thomas Hutchins geographer to the United States. His first task was to survey what was to be called the *seven ranges* in present-day Ohio, formerly part of the Northwest Territory acquired from the British after the Revolutionary War. The survey was not completed until June 1787, and the work was not only late but also shoddy. Lines did not run due west but dropped about two degrees to the south. Few of the east-west lines crossed the north-south ones at right angles, and as a result, the intended grid of squares proposed by both Jefferson and Putnam had become quadrilaterals.

Nevertheless, the unique advantage of the grid system was demonstrated when the very first patent was issued to one John Martin, who paid \$640 for a 1-mile square section of the Northwest Territory, identified as "Lot (section) 20, Township 7 Range 4" (Linklater 2002, 84). With that, descriptions of property ownership forever changed from a visual literal prose, such as "from a cherry sapling to the brook," to "being Section 29, Township 4 North Range 2 East of the ...." Division into squares caused land speculators to simply treat them as a commodity defined

by numbers. This uniform grid took no account of trees, springs, or hills; they were considered obstacles to efficient agriculture. To a financier or speculator, however, the Public Land Survey System was a great convenience.

The mistakes made and the lessons learned culminated in the Land Ordinance of 1796, which laid out the surveying and numbering scheme used for all remaining public lands. The ordinance called for the sections to be numbered respectively, beginning with section one in the northeast corner and proceeding west and east alternately through the township with progressive numbers until section thirty-six was reached at the southeast corner of the township. Successive additions to U.S. public lands all came under the 1796 ordinance.

### **Township Surveys Create Sections**

The surveys for the laying out of townships were performed by deputy surveyors appointed by the Surveyor General for the state or territory. The rectangular procedure called first for the deputy surveyor to establish an initial point as the origin of the numbering scheme for the major 6-mile by 6-mile grid. At least one state (California) has two such initial points. Some states have none, instead sharing one with an adjacent state. Then, from the initial point, the surveyors laid off parallels of latitude and meridians of longitude at normal intervals of 6 miles along the four cardinal directions. The parallels, running east and west, are the township lines; they are numbered from one north and one south, beginning at the initial point. Likewise, the meridians, running north and south, are range lines; they are numbered from one east and one west from the initial point. The 6-mile-square areas thus laid out were also called townships. Then the townships were surveyed into 1-mile square tracts called *sections*. This procedure creates nearly identical and nearly square parcels of land, called sections, of 640 acres more or less each. They are not absolutely identical or absolutely square for two reasons: one fundamental and one incidental and anecdotal.

The fundamental reason is the geometric requirement that meridians of longitude converge at the poles of the earth, causing the north line of each section to be shorter than the south line. And because of this convergence, sections in each tier become progressively smaller as the tiers advance northward, until a correction parallel is reached and the 1-mile interval along the latitudes is reestablished.

---

## ***The mistakes made and the lessons learned culminated in the Land Ordinance of 1796, which laid out the surveying and numbering scheme used for all remaining public lands.***

---

Sections in the same tier could be identically sized and shaped on the ground as they are in theory, were it not for the second reason, simple human error. The surveyors were allowed a reasonable tolerance for error in closure. To the extent that this tolerance was not exceeded, the surveys followed the basic pattern described in the law.

Nevertheless, as with any human undertaking, errors exceeding the tolerance sometimes occurred. Some section lines were in error by tens, hundreds, or, in a few cases, thousands of feet. To allay the inevitable litigation and hostilities, Congress refined the surveying ordinance in about 1805 to state that wherever the deputy surveyor set the section corner or quarter-section corner would thereafter be the true position of the corner, even if it could be shown later that it had been set in error. This tenet is fully in effect to the present.

The rectangular system can be likened to an assembly-line technique for surveying. Land can be surveyed by the mile and made ready for settlement faster and on a larger scale than by metes and bounds.

Settlers were as eager to move westward and begin occupying the land as the United States Government was to have them do so. The government not only was eager to realize the revenue from land sales, but also anticipated the expanded agricultural and economic base.

The metes-and-bounds system, as practiced at the time of the Ordinance of 1785, was based entirely on local references, against which time and nature have conspired to eliminate most evidence. Many older deeds contain calls to large, visible topographic features, such as ridge lines, roads, streams, and trees. Ridge lines do not move, but streams wander back and forth over time, roads are realigned or abandoned, and trees grow and eventually die or are cut down. And many topographic features upon which the entire deed and land description were based were not clearly and unambiguously described, thus yielding historical records that cannot be traced back to the land. By comparison, *land lines* are on a regional or perhaps statewide reference (the initial points) and have been much more thoroughly perpetuated by the built environment. Land is much simpler to describe and convey in a rectangular system, meaning that an expert is not necessary to interpret conveyances and descriptions that have been rendered by section, township, and range.

### **Westward Migration Surges**

They came pouring through the Cumberland Gap, men with the West in their eyes; they came across the Finger Lakes country of New York state and plunged into the heart of the Ohio country; some reached Fort Pitt (present-day Pittsburgh), where they could build rafts and flatboats on which to float down the river.

It was a mass migration difficult to account for. No one pursued these men. They had not been exiled from the East. Religious intolerance had not caused them to seek new homes, as had been the case with their forefathers. Some moved to the sunset side of the Appalachian Mountains for the same reasons that had prompted their ancestors to cross the Atlantic—they simply couldn't get along at home or they were fleeing from creditors or from officers of the law.



*Cumberland Gap, Steel engraving by S.V. Hunt after painting by Harry Fenn. Created circa 1872 Copyright by D. Appleton & Co. (Source: Library of Congress Prints and Photographs Division)*

Most of them probably did not know why they moved. They had not been victims of crowded conditions, because there was yet plenty of land to be developed in the East. Still, they took up their axes, guns, livestock, bags of seed, and shovels and headed west.

As people entered the newly opened public lands, they needed roads. These people were mostly farmers and needed transportation routes other than the rivers to get their crops, dairy products, timber, and livestock to market. New roads prompted more migration and settlement, thus the need for even more public land.

In 1790 a law creating the Southwestern Territory, which consisted of Tennessee and, after 1802, Alabama and Mississippi, required the land to be surveyed and sold on the same basis as the Northwest Territory. The United States now consisted of all land east of the Mississippi River. However, that was about to change in a major way.

## The Louisiana Purchase

Nothing terrified the American Republic in the first decades of existence more than the fear that somehow it would be dragged into the conflict of the great European powers and recolonized by one or even several of them. These for-

eign countries had been in conflict and war with one another for more than two centuries, and America knew it was no match for any military in spite of its success in gaining independence. America was growing and moving westward. In 1790, at the time of the first federal census, only 100,000 *white* settlers lived in the Western territory between the Appalachian Mountains and the Mississippi River. By 1800, the time of the second federal census, that number had quadrupled to 400,000.

The further westward over the Appalachians the farmers moved, the more remote they became from the Atlantic Coast markets—markets they needed both to sell to and to buy seed and supplies from. These western farmers now turned south, down the river valleys of the Ohio, the Cumberland, and the Tennessee to the Mississippi River, finally reaching the seaport in New Orleans. The hitch was that New Orleans did not belong to the United States. At that time it belonged to Spain, and that meant that a foreign power held a vital chokepoint in American commerce. Spain had acquired the Louisiana Territory in 1762, in a strange transaction that showed how unimportant these distant possessions could seem to those who reigned over some of the world's leading nations.

Louisiana had long belonged to France because early French explorers had claimed it for their king. Attempts to colonize it profitably had failed, and the territory was a drain on the French royal treasury. In 1762 the Spanish king, Charles III, accepted the territory as repayment for losses Spain had suffered a year earlier when it had joined France in a war against England. Napoleon Bonaparte in 1800 convinced the Spanish monarchy to sign it over to France. Napoleon's military escapades and victories intimidated the Spanish, and therefore all Napoleon had to do was order the return of the Louisiana Territory. On October 1, 1800 he signed the Third Treaty of San Ildefonso, which gave the province back to the French. Not only did France get New Orleans, but also it received the entire stretch of Spanish Louisiana.

Napoleon, in fact, intended to do much more than merely take possession of New Orleans. He wanted to resurrect the French colonial empire in North America that France had lost to Britain at the end of the French and Indian War. Napoleon had already taken the first step in the re-creation of this French Empire by dispatching troops under his brother-in-law to reestablish order in present-day Haiti and the Dominican Republic. He reasoned that if he could control "San Dominique," he would have a presence in the neighboring Gulf of Mexico and therefore unabated access to the Mississippi Valley.

To the surprise and shock of almost everyone, the French invasion of the island failed. Also, Napoleon's brother-in-law died from yellow fever. Since San Dominique was the key to the rebuilding of the French Empire in America, Napoleon's plans were stymied, and that, in turn, rendered Louisiana free from Bonaparte.

In the spring of 1803, Napoleon, burdened with debt from wars in Europe, decided to cut his losses. Thomas Jefferson had been vainly trying to protect American interests on the Mississippi by offering to buy the city of New Orleans and its districts from the French. He had even sent a special emissary, James Monroe, to join Robert Livingston to make an

offer to the French. Napoleon, perhaps not thinking everything through, offered to sell not only New Orleans but all of the Louisiana province to the Americans, approximately 830,000 square miles, for \$15 million in spot cash. That was \$5 million more than the representatives were authorized to spend. Both Monroe and Livingston were surprised and begged for time to consult with President Jefferson. However, the French demanded an immediate response, and so they agreed, signing a treaty on April 30, 1803 for the single greatest real estate deal in history.

To the relief of Monroe and Livingston, Jefferson was delighted with the deal because the Louisiana Purchase more than doubled the amount of territory available for settlement.

Now, Jefferson was a little troubled by the realization that the new Constitution gave him no enumerated authority to purchase new land for the United States. He even toyed with the idea of proposing an amendment to the Constitution that would grant the Federal Government the authority to acquire new land. Amending the Constitution was going to take time, and the French wanted a quick decision.

Jefferson sent the Louisiana Purchase Treaty, which ceded Louisiana to the United States, to the Senate with the private comment, "The less we say about constitutional difficulties the better." The Senate ratified the treaty in October 1803, and American officials took formal possession of Louisiana in ceremonies at New Orleans on December 20.

---

***Many settlers bypassed the process of purchase entirely and simply crossed the Appalachians and "squatted" on federal lands, hoping to make good their title to the land by the simple fact of occupation.***

---

Two important details of the Louisiana Purchase, however, had been overlooked in the hasty process of sale: the bound-

aries of the Louisiana Territory and its contents. The French descriptions of the boundaries of Louisiana were deliberately vague, because the French had not held title long enough to explore it all for themselves once the Spanish had been compelled to yield it to Napoleon.

### **The Lewis and Clark Expedition**

Consequently, it was not clear whether the purchase included the Spanish province of what today is the Florida Panhandle, today's state of Texas, or the Oregon Territory on the Pacific. Since this vast area was largely unexplored, it gave Jefferson a reason to ask Congress for \$2,500 to finance an expedition by Captain Meriwether Lewis and William Clark into the Louisiana Territory to thoroughly map the region and, among other things, determine whether the Missouri River might not actually run all the way to the Pacific. Even Thomas Jefferson, 300 years after Columbus, could not miss one last attempt to discover that futile dream of the first European explorers, a northwest passage to China.

The Lewis and Clark expedition disappeared for two years until it suddenly turned up in St. Louis in September 1806. The explorers made only one major mistake in judgment, stating that even though the territory beyond the Missouri was rich in natural resources, it "would never be fit for white settlement."

Settle it did. The explorers were, in turn, followed by entrepreneurs and trappers. Following them were the middlemen. Then, because the American republic was dominated by an agrarian culture, this region became the draw for cultivators. This immigration was part of an immense movement of people out of Europe in the nineteenth century, especially out of the British Isles. Part of the reason was that British capitalism was shifting from an agrarian mode to an industrial mode, driving people off the farmlands they had tilled for generations and into the already overcrowded cities. By 1830, 6,000 Scottish farmers were being forced out of the Highlands every year, and by 1832, 50,000 Protestant and Catholic Irish from British-ruled Ireland were on their way to America. The heavy burden of taxation, as the British Govern-



Map of United States territorial acquisitions including the Louisiana Purchase. (Source: *The National Atlas*)

ment sought to pay off immense debts it had contracted during the Napoleonic wars, also drove people to America.

As if taxation weren't enough, the European winters between 1825 and 1829 were horrendously cold and triggered famines and food shortages in Ireland and Germany. In contrast, America offered a mild climate, taxation rates that were only one-tenth of those of Great Britain, and *lots* of public land.

Federal laws dating back to the Northwest Ordinance in 1787 mandated the sale of federally owned land in sections of 640 acres; these were to be sold at \$2 per acre. However, that acreage and price was still out of reach for most individuals. On the other hand, land speculators, who had cash in hand from investors, willingly bought up the 640-acre sections of land, subdivided them, and then sold the land to individual settlers or immigrants in much smaller parcels. Congress fueled this land bonanza still further in 1819 when it dropped the price of federally owned land from \$2 per acre to \$1.25 per acre. It also reduced the minimum acreage that could be purchased from

640 acres to 80 acres. Even lowering the requirements was not enough for many individuals. Many settlers bypassed the process of purchase entirely and simply crossed the Appalachians and "squatted" on federal lands, hoping to make good their title to the land by the simple fact of occupation.

## An Early American Tradition—Squatting

Although early migrants were mainly British and obeyed English law, once they moved to America a different reality set in. In England, occupying a plot of land for a long period without a title, squatting, was against the law. In the newly formed United States of America, with no initial resistance and many opportunities, squatting on available land quickly became a common practice. Squatting in America is older than the nation itself. Even before the arrival of the Massachusetts Bay Company in New England, settlers without charter of grants were living at various places within the limits of the Bay. Some based their rights only on occupation and purchase from the Indians. These

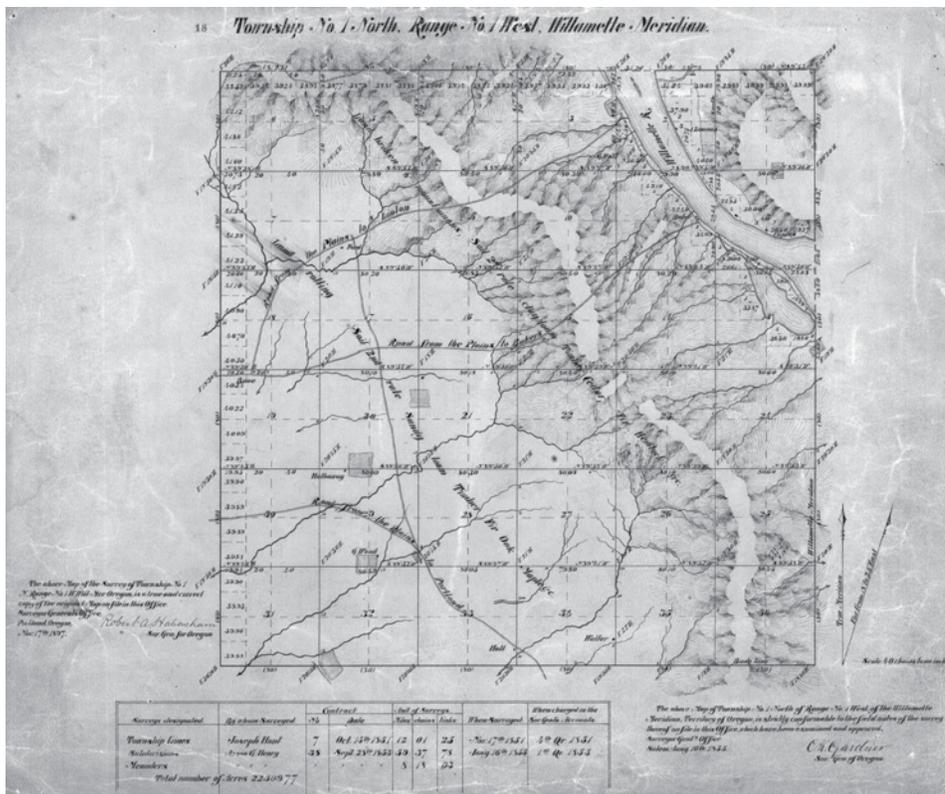
early colonial Americans squatters had already occupied and improved 100,000 acres of land without, as one historian put it, a "shadow of a right." British laws were becoming increasingly irrelevant to the way many people lived and worked.

Squatters then began inventing their own species of property titles known as *tomahawk rights*, *cabin rights*, and *corn rights*. Tomahawk rights were secured by making slashing cuts or initials of the person proclaiming the tree as a boundary line. Cabin rights and corn rights meant staking out land by building a log cabin or raising a crop of corn. These rights, for the most part, helped reduce quarrels over property lines with neighbors. They were also accepted in the early American frontier communities and became the source of legal title years later.

*Preemption* would become a principal key to the integration of extralegal property ownership into American law over the next 200 years. By the end of 1828, two-thirds of the population of Illinois was squatters, and in 1841, Congress yielded to pressure and legitimized their titles by the process of preemption. Preemption was a means by which a squatter could buy out the title to land in his use, though it could not really be called possession, but up to 180 acres that the squatter was actually farming could be purchased retroactively at Congress's price of \$1.25 per acre.

## The Jefferson/Putnam Grid

In the immortal words of John Lennon, "in the mist of planning, life happens." So it was with the Jefferson/Putnam grid system of surveying and selling public lands. Once it belonged to the United States, the Louisiana Purchase needed to be surveyed and sold off. The land beside the Mississippi River was divided into the Orleans Territory (the region around New Orleans) and the Louisiana Territory (modern-day Arkansas and Missouri). However, there were problems here as there had been east of the Mississippi. The United States had undertaken to honor property registered with the French and Spanish authorities, even if it conflicted with the 640-square section. In the Orleans Territory, the long lots of French farmers measured 960 feet



General Land Office map, circa 1855, showing Township No 1, Range No 1 West, Willamette Meridian in the Territory of Oregon. (Source: University of Oregon, Knight Library. Accessed online at [http://libweb.uoregon.edu/map/GIS/Data/Oregon/GLO/Quadrant\\_1.htm](http://libweb.uoregon.edu/map/GIS/Data/Oregon/GLO/Quadrant_1.htm).)

by 7,800 feet and ran back from creeks, therefore making it impossible to hold a square grid. Also, wherever there was good land, squatters claimed to have French or Spanish land grants. Some of these squatters even forged the records in the registry office. As Silas Bent, the surveyor-general of the Louisiana Territory, wrote,

*There has been leaves cut out of the books and others pasted in with large plats of surveys on them... the dates have been evidently altered in a large proportion of the certificates. Plats have been altered from smaller to larger. Names erased and others inserted and striking difference in colour of the ink... (Linklater 2002, 159)*

Not only was some of the frontier territory already “owned” or at least occupied, a situation that called for adjustments in the survey grid, but also there was the problem of converging meridians. The curvature of the earth brings lines of longitude gradually together as they run toward the pole, so that in most of the United States the northern end of a township is 30 to 40 feet narrower than the southern. To adjust for that, “correction lines” were created. While the townships were not cookie-cut at exactly 640 acres apiece, the beauty of the Public Land Survey System was that it made buying land simple, whether by squatter or land speculator. The grid system gave a parcel of virgin ground a unique identity, beginning with the township. Its name might be “Township 4 North, Range 10 West of the Second Principal Meridian.” Within the township, the 36 sections were numbered in an idiosyncratic fashion established by the 1796 act, beginning with Section 1 in the northeast corner and continuing first westward, then eastward, back and forth in what is called a *boustrophedonic* fashion, that is, like an ox pulling a plow, until Section 36 was reached in the southeast corner.

Each square-mile section had its own identity, and as Congress shrank the minimum purchase size, its identifier simply grew more specific. By 1832 the smallest area for which a would-be farmer could bid at a government land auction was reduced to a quarter of a quarter-section, or 40 acres. It would become “the

modular unit of settlement.” It was also considered the minimum area needed to support the average family. Railroads sold land by the 40-acre lot. It also had a nice ring to it: being the Southeast quarter of the Southwest quarter. This size of tract also helped people be “more neighborly.” In an 1893 article for the *Atlantic Monthly*, concerning the one-mile sections, Smalley wrote that,

*...each family must live mainly by itself, and life, shut up in the little wooden farmhouses, cannot well be very cheerful...An alarming amount of insanity occurs in the new prairie states among farmers and their wives.*

---

**Since 1785 the land mass of the United States has grown to 2.3 billion acres, and of that total, 1.8 billion acres spread across 32 states have been transferred to individual ownership.**

---

What Smalley blamed was the square section, which encouraged settlers to build their houses near the center of their holdings, so that no field was too far away. As a result, on two neighboring 160-acre claims, there would often be a half-mile, as the crow flies, between farmhouses. And the isolation was intensified by the failure of the Public Land Survey System to allocate land for roads. The federal laws governing the surveys initially made no mention of roads as such, except that in 1796, follow-up federal legislation declared all navigable streams to be public highways. Some states, however, passed laws early on defining sections as state roads. Inevitably these developed along the section lines, and so in practical terms, for one family to reach another required a journey down the track to the section line, along the section line, and up the neighbor’s track,

a distance closer to a mile. What Smalley proposed was that more villages be created, thus attracting people “of such a sociable, neighborly disposition as would open the way to harmonious living.”

Since 1785 the land mass of the United States has grown to 2.3 billion acres, and of that total, 1.8 billion acres spread across 32 states have been transferred to individual ownership. In economic terms alone, it has represented the greatest orderly transfer of public resources to the private sector in history.

## **Manifest Destiny**

Manifest Destiny was the belief that the United States was destined to expand from the Atlantic Seaboard to the Pacific Ocean; it has also been used to advocate for or justify other territorial acquisitions. Originally a political catch phrase of the nineteenth century, it eventually became a standard historical term, often used as a synonym for the expansion of the United States across the North American continent. A treaty with Spain, properly known as the Adams-Onís Treaty of 1819, ceded Florida to the United States.

The Oregon Treaty, officially known as the Treaty with Great Britain, in Regard to the Limits Westward of the Rocky Mountains, was signed on June 15, 1846 and ceded present-day Oregon, Washington, and Idaho to the United States. The Mexican Cession is a historical name for the region of the present-day southwestern United States that was ceded to the United States by Mexico in 1848 under the Treaty of Guadalupe Hidalgo, which ended the Mexican-American War.

In all these acquisitions the grid system of land ownership and conveyance prevailed.

## **Capitalism and Surplus Value**

Private ownership of land in the United States is important. Without the tools of formal property, assets could not be used for everything they accomplish in the United States. And the county land record/property system in this country is the center of a complex web of connections that equips its citizens to form ties with both the government and the private sector. This connection allows individuals and corporation to obtain additional

goods and services, thus creating what is called surplus value. How else could financial organizations identify trustworthy potential borrowers on a massive scale if they did not own property? How could physical objects like timber in Maine or Oregon secure an industrial investment in Chicago if the owner of the land cannot be identified? How could tax collection work without land ownership?

---

**Land ownership and the formal property system draw out the surplus value—the abstract potential from land and buildings—and fixes it in representations that allow individuals to go beyond passively using their homes only for shelter.**

---

Land ownership and the formal property system draw out the surplus value—the abstract potential from land and buildings—and fixes it in representations that allow individuals to go beyond passively using their homes only for shelter. Here *property system* is used to connote the three recognized phases of authenticating ownership and value:

- First, the county register of deeds office maintains a record of real estate ownership as well as the other deeds that provide people other than the owner of a property with the privilege to review an owner's real estate rights over the property.
- Second, the land records/mapping office records ownership and maps the property boundaries on the county cadastre.
- Third, the local assessor establishes the assessed value of the property.

Land ownership and the formal property system constitute a network in

which all property records (titles, deeds, maps, and so on, which describe the economically significant aspects of real estate assets) are continually tracked and reassessed. The county land/record property system is therefore the steward of what this country represents. Public recordkeepers administer protocols that contain all the economically useful descriptions of assets in land and improvements. These property records alert anyone eager to use an asset about circumstances, such as encumbrances, easements, and mortgages, that may restrict or enhance the realization of that usage. This system also ensures that assets are adequately and accurately represented in appropriate formats that can be updated and easily accessed by everyone. Therefore, the combination of land ownership and the formal county property system takes on another life when someone focuses attention on the title of land, and not on the land ownership itself. At that moment, the transaction moves from the material world into the conceptual universe where capital and surplus value live.

Property ownership then is not mere paper deeds but a mediating device that captures and stores most of the elements required to make a market economy run. Property seeds the system by making people accountable and assets fungible, thus providing all the mechanisms required for the monetary and banking system to work. The connection between capital and modern money runs through land ownership, and the United States has a 400-year-old history of land ownership. ■

## Bibliography

De Soto, H. 2003. *The mystery of capital: Why capitalism triumphs in the West and fails everywhere else*. New York: Basic Books.

Guelzo, A.C., G.W. Gallagher, and P.N. Allitt. 2003. *The history of the United States*, 2nd ed., Parts I–VII (The Great Courses Course Guidebook). Chantilly, VA: The Teaching Company.

Hughes, S. 1979. *Surveyors and statesmen: Land measuring in colonial Virginia*. Richmond, VA: Virginia Surveyors Foundation, Virginia Association of Surveyors.

Jefferson, T. 1784. Some thoughts on a

coinage. In J. P. Boyd, Ed., *The papers of Thomas Jefferson*. Princeton, NJ: Princeton University Press, 1952–1992. Quoted in Linklater 2002, 71.

Linklater, A. 2002. *Measuring America: How an untamed wilderness shaped the United States and fulfilled the promise of democracy*. New York: Walker & Company.

Meinig, D.W. 2006. *The shaping of America. A geographical perspective on 500 years of history*. New Haven, CT: Yale University Press. Quoted in Linklater 2002, 44.

Smalley, E.V. 1893. Isolation of life on prairie farms. *Atlantic Monthly*, September. Quoted in Linklater 2002, 230.

Richard Norejko, CMS, is a planner for the Buncombe County Planning Department in Asheville, North Carolina. He is a past member of the IAAO Executive Board and an IAAO senior instructor. He is also a member of TEAM Consulting. He is a regular contributor of articles to *Fair & Equitable*.



## What's Your Story?

IAAO is collecting stories from members about their experiences and remembrances of IAAO events, activities, education programs, and friendships—contribute your story today for the 75th anniversary celebration.

If you have a recollection of a memorable event or story related to IAAO then please consider sharing it.

For more information or to submit a story, e-mail or call Leann Ritter, [ritter@iaao.org](mailto:ritter@iaao.org) or 816/701-8161.