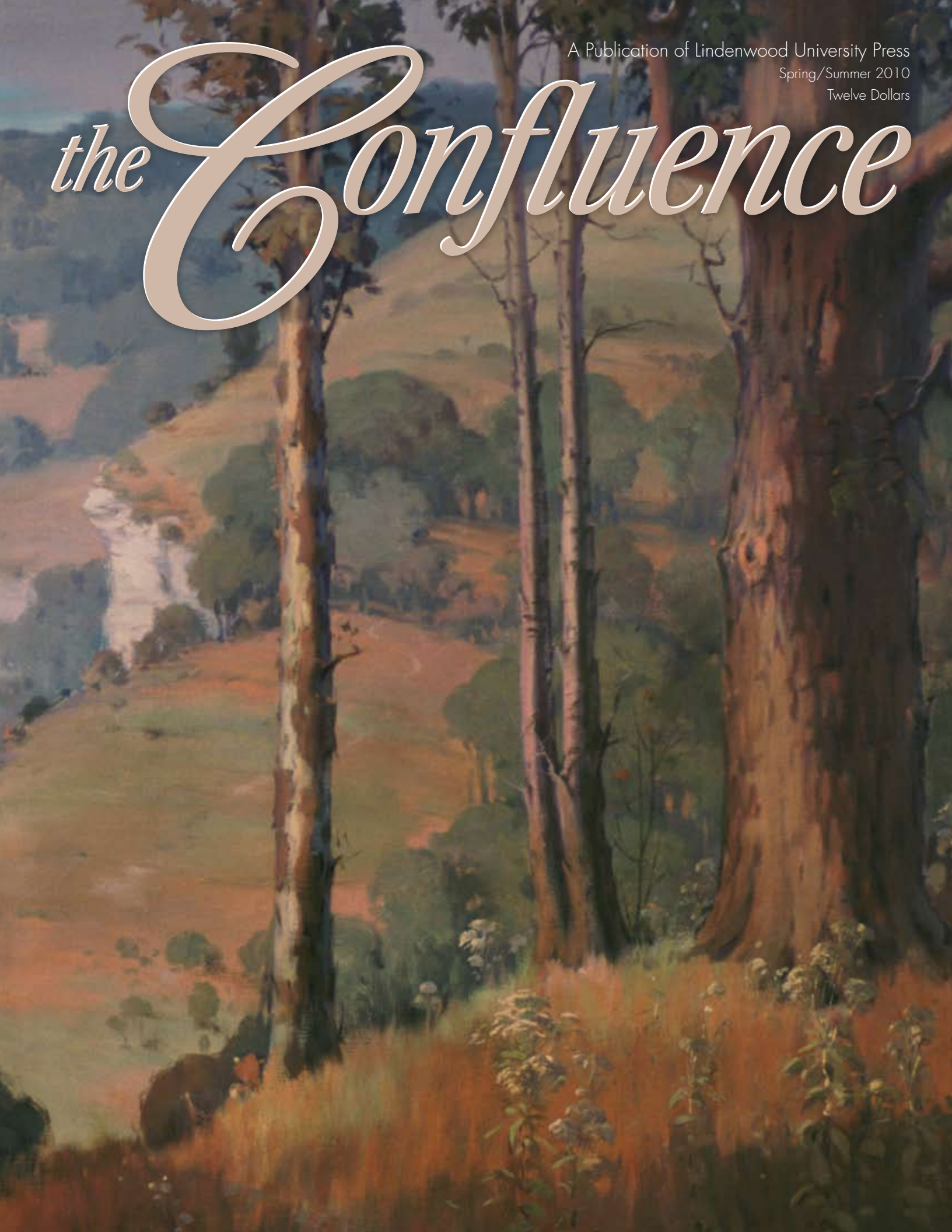


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Twelve Dollars

the Confluence



CONTENTS

COVER IMAGE

"Palisades of the Mississippi," c. 1909, by Frederick Oakes Sylvester. Oakes' portrayal shows the river, limestone bluffs, and extensive hill prairies covering the loess atop the bluffs. Today the forest surrounding the prairies has invaded the grasslands and most of the prairies are gone. For more on this, see "How Natural is Nature? The Effect of Burning on Presettlement Vegetation in West-Central Illinois." (Photo: The Frederick Oakes Sylvester Collection, The Principia, Elsah, Illinois)

IMAGE LEFT

Various colored flags and pennants flew on the streetcars and skyscrapers to announce aerial events and pilots during the 1909 Centennial Week. For more on early flight in St. Louis, see "St. Louis: Air Mail Pioneer." (Photo credit: Collection of David L. Straight)



- 4 America's First Interstate—The National Road and its Reach Toward St. Clair County, Illinois
By Andrew Theising

The National Road was to span from Maryland to the Mississippi River, but never made it—in part due to a political battle over the location of the new Illinois state capital in the 1830s.



- 16 Cash for Clunkers: Did It Work or Not?
By Anthony Clark, Annette Najjar, and Ralph Wiedner

The Consumer Assistance to Recycle and Save Act of 2009 (CARS) was supposed to stimulate the American economy with incentives to trade in old gas-guzzling cars for new, more efficient ones. Three economists examine the impact of this program that came to be called "Cash for Clunkers" on the St. Charles County, Missouri, economy.



- 28 The Journey of the Sisters of Charity to St. Louis, 1828
By Carole Prietto

In 1828, four Sisters of Charity left Maryland to establish a new mission in the frontier city of St. Louis. For the first time, herein is the diary of one of the travelers in this remarkable and dangerous journey.



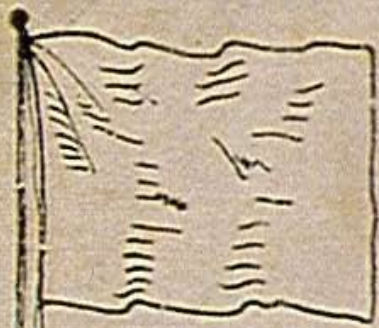
- 42 How Natural is Nature? The Effect of Burning on Presettlement Vegetation in West-Central Illinois
By Paul Kilburn and Richard B. Brugam

When the first Euroamericans arrived in North America, they thought they were seeing a "wilderness," unaltered by human hands. However, they were actually seeing highly managed environments. Kilburn and Brugam examine the impact of the burning of forests and prairies by Native Americans on the plant species in west-central Illinois.



- 56 St. Louis: Air Mail Pioneer
By David Straight

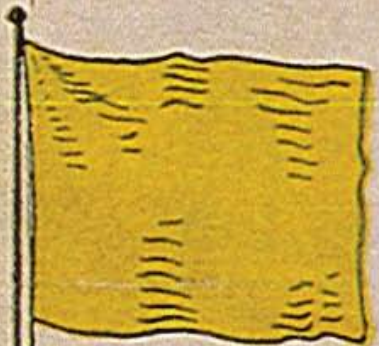
In the decades after the Wright Brothers launched their first plane at Kitty Hawk, St. Louis was an aviation hub. Within a decade after that flight, the first airmail left Kinloch Field in St. Louis, with people sending what they knew were historic letters.



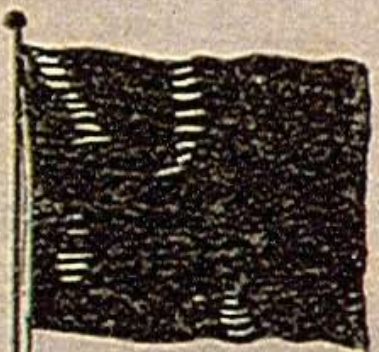
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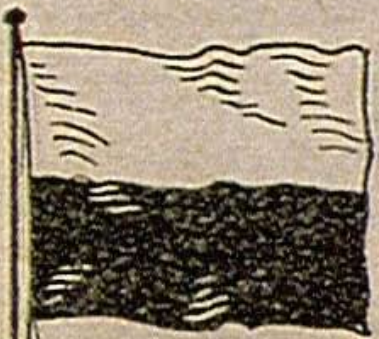
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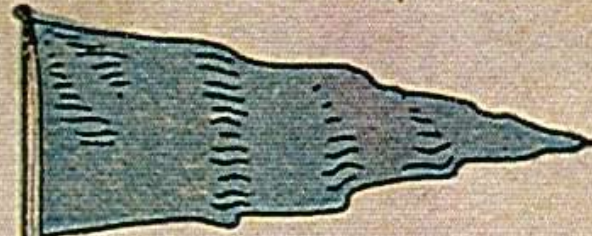
ALL FLIGHTS OFF FOR THE DAY



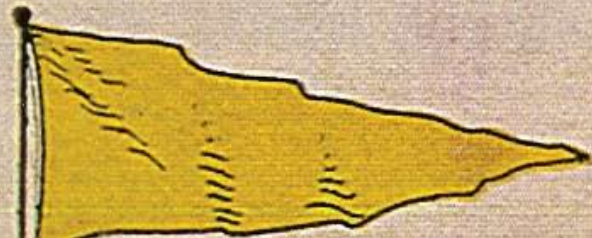
CANCELS PREVIOUS SIGNALS



CURTISS WILL FLY



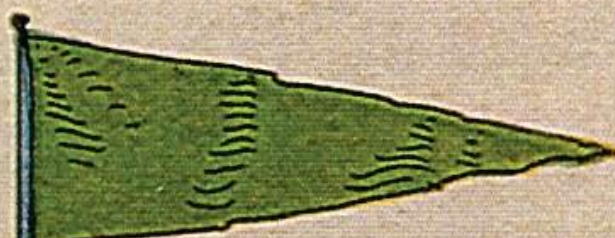
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KNABENSHUE WILL FLY



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FROM THE EDITOR

This summer will mark the 200th anniversary of the birth of one of America's best-known figures: Phineas Taylor Barnum (1810-1892). Born in Bethel, Connecticut, he was at various times a Jacksonian newspaper editor, traveling show operator, owner of Barnum's American Museum in New York, promoter of Jenny Lind ("the Swedish Nightingale") and the diminutive General Tom Thumb, local politician, temperance lecturer (and recovering alcoholic), proprietor of circuses, and unashamed creator of "The Great Show on Earth." It was a breathless life.

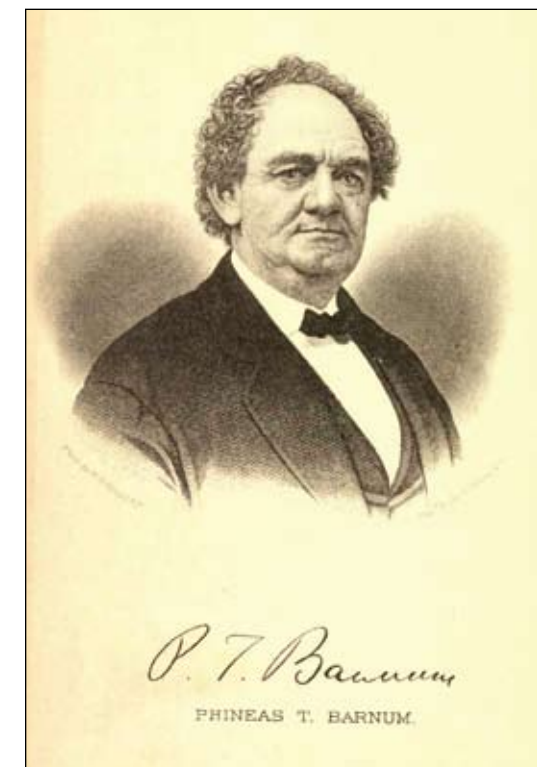
It's easy to dismiss Barnum as little more than a showman (a title he held with pride) notorious for bogus acts, flummery, gross exaggeration, and preposterous claims. Barnum is, after all, the man who brought us the Feejee Mermaid and centenarian slave Joice Heth (alleged nursemaid to a young George Washington—in the 1730s), bearded ladies, and dog-faced boys. But there's much more to Barnum than meets the eye. He is an emblem of the nineteenth century in many ways. He ranked among the great business innovators, marketing geniuses, philanthropists, lecturers, and even writers. In the end, Barnum is also an admirable figure.

P. T. Barnum was more than the windbag we think of. Barnum was profoundly interested in the exchange of ideas. His museum in New York, which made him a household name before ever entering the circus business, offered artifacts reflecting his interest in archeology, politics, art, ethnography, anthropology, and history. He sponsored the expedition to capture—and then display—the first live beluga whales ever seen. He brought the first live hippopotamus to America and purchased Jumbo the elephant from the London Zoo. He attended salons in New York and filled his theater with lecturers. He wrote prolifically about everything from animal species to Universalism to temperance to democracy.

But Barnum is also an inspiration for this publication. We are also in the business of connecting ideas and people. Like Barnum, we want to start those conversations in and about the region—conversations between disciplines and people, academic and popular, east and west, town and gown. The articles in our pages are, we hope, the start of the great conversation that creates a new mix of thinking and ideas. We hope they provoke conversations at the proverbial dinner tables and water coolers. You may agree or not, pursue the topic further, look something up, or merely say "who knew?," but we hope we stimulate what Agatha Christie's Poirot called "the little grey cells." It is, after all, what liberal arts universities are supposed to do.

Oh, and one last thing. Barnum is the one credited for saying, "There's a sucker born every minute." Barnum's leading biographer says that he almost certainly didn't say it. It is out of character, I think. Barnum had a great faith in people and the American mind. He figured that when Americans came to see either one of his legitimate shows or his "humbugs," they would try to figure out how he did it. People who attended his museum were, he thought, innately curious, so he featured animals and new machines and skeletons. He held a Jacksonian belief in the basic ability of people themselves. Like this journal, he was dedicated to the notion that we are truly inquiring minds, and really do want to know.

Jeffrey Smith, Ph.D.
 Editor



America's First Interstate:

The National Road and its Reach Toward St. Clair County, Illinois

BY ANDREW J. THEISING

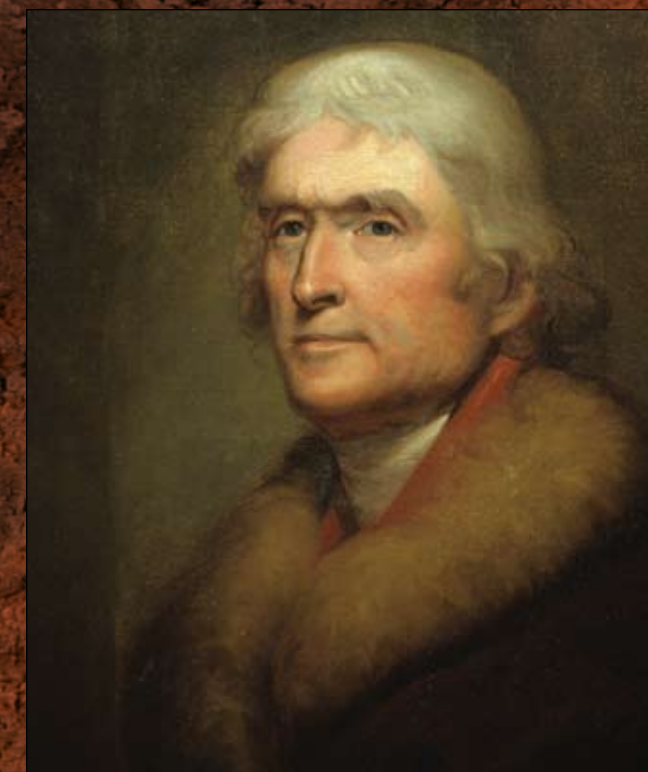
Today's interstate system makes it difficult for us to imagine a time when we were not all connected by a web of highways funded by state and federal governments. Yet some of them follow the same routes as the earliest roads built in America. These "internal improvements," as they were called, were designed to facilitate both commercial growth and population movement. Some were better roads than others, of course; the first legislation authorizing construction of the Boonslick Road in Missouri Territory, for example, mandated that tree stumps in the roadway could be no taller than eleven inches. The National Road, on the other hand, started as a projected state-of-the-art highway stretching from eastern Maryland to the edge of the frontier.

When the bill to create and build the National Road was approved by Congress on March 29, 1806, and signed by President Thomas Jefferson, it was envisioned to span from the established states of the Atlantic seaboard to the western frontier in Ohio. It was a fitting project for a time period defined by the Louisiana Purchase and the Lewis and Clark Expedition. The National Road, like so many initiatives of the national government at the time, was a new and experimental direction for public policy. Today, no one thinks a national infrastructure initiative is unusual. In 1806, though, Congress had not fully tested its constitutional powers to regulate interstate commerce and to do what is "necessary and proper" to carry out its work. With the authorization of the National Road, Congress was

testing the boundaries of its power.

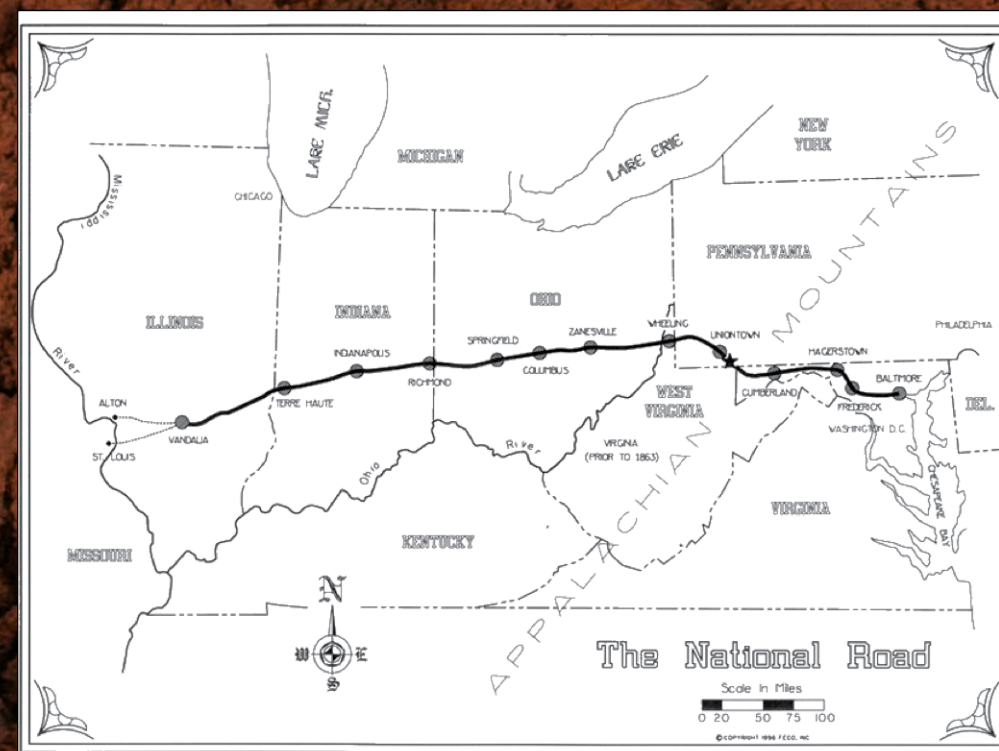
The motivation of Congress was simple: connect the country's great waterways by an overland road linking the Potomac River (at Cumberland, Maryland) to the Ohio River (at Wheeling, Virginia), and then link to the country's frontier (Ohio, admitted in 1803, was the most recent state added to the Union). The initiative was a solid economic concept that initially won widespread approval. It was recognition of the economic opportunity of the country and the rising importance of lands west of the original colonial settlements. The National Road was an important part of Illinois' experience because it recognized the frontier's importance to the growing national economy; it demonstrated the challenges of federalism, and it sparked a competition that, in the end, shaped the corridor's modern-day appearance.

In 1790, Northwest Territory Governor Arthur St. Clair established the first county in what was called the Illinois country, and named it after himself. The county was enormous, taking up about two-thirds of the present state of Illinois and even parts of present-day Michigan and Wisconsin.¹ The Territory of Illinois was not created until 1809, and it did not achieve statehood until 1818.² At the time, St. Clair County took in what is now Fayette County and most of all other counties stretching to the Indiana border. Most important for the National Road, St. Clair County bordered the Mississippi River. Members of Congress—particularly those representing western



Despite his rhetoric about limited government, Thomas Jefferson (1743-1826) signed legislation for construction of the National Road in 1806 connecting the east with the trans-Appalachian West.

(Photo: Monticello/Thomas Jefferson Foundation)



The original National Road ran from Cumberland, Maryland, to Ohio, but was later extended east to Baltimore and west as far as Vandalia, Illinois. (Photo: National Park Service, Fort Necessity National Battlefield)

district interests—looked for the National Road to reach the Mississippi River too. Though the initial authorizing legislation ended at the Ohio state line, the vision of lawmakers reached all the way to St. Clair County.

What the National Road represented in vision, it lacked in practicality. Government had never used its power to build a road before, and it had little idea of the cost and logistics involved in building one. One point was clear, though—the future of the country was in the West, and the sooner people could get there, the sooner the United States could step into greatness.

Recognizing the Frontier's Economic Importance

Starting in the East • The National Road began on the Potomac River in Cumberland, Maryland. The route was to cut across the southwest corner of Pennsylvania, then into Virginia (now West Virginia), to reach the Ohio River at Wheeling. Eventually, it would be authorized to reach westward to connect the state capitals of Ohio, Indiana, and Illinois, all the way to the eastern shore of the Mississippi River “between St. Louis and the mouth of the Illinois River.”³ The route stretched as new states were added to the union—Indiana in 1816, Illinois in 1818, and Missouri in 1821. The plans were very clear about the standard to which the road would be built. The method of construction, initially, was to be “sturdy and strong.”⁴ A strip of land 66 feet wide was to be cleared of trees, brush, and stumps. Oxen and horses pulled mightily with chains to uproot large stumps. A thirty-foot strip down the center was leveled by pick and shovel to be the roadbed. Hills were cut down along the roadway, and culverts were filled. Construction crews worked in waves, with axe men going first, followed by “choppers, burners, graders, and stone crushers and finishers.”⁵

The sides of the roadbed were allowed to slope not more than thirty degrees (and there were arguments



The Macadam (or Macadamized) Road, pioneered by Scotsman John McAdam (1756-1836) became a standard surface for roads like the National Road after the 1820s. McAdam simplified earlier ideas about stone road construction by regulating the size of the stones atop a level earthen surface using progressive layers of smaller and smaller rocks with the top layer smaller than any wheel that would travel over them. Men broke them at the site, as shown here; the premise was that the action of road traffic would cause the rocks to rub together and create a hard, compact surface.

(Photo: U. S. Department of Transportation, Federal Highway Administration)

between surveyors and contractors regarding angles and degrees). Drainage ditches were cut alongside both sides of the roadbed to carry storm water away. Within the thirty-foot roadbed, twenty feet of earth was covered with stones twelve to eighteen inches deep. Base stone had to pass through a seven-inch ring. Surface stone had to pass

through a three-inch ring. Workers spent hours hammering stones to the correct size. Bridges were constructed by carpenters, while masons laid stone foundations for support. Bridge approaches were graded and imbedded with heavy logs for traction.⁶

As soon as a section of road was completed, travelers took advantage of it—creating even more havoc among the hectic scenes created by the gangs of workers. They traveled in large packs, setting up construction camps—“moving villages of rude shacks and time-stained canvas”—along the growing road.⁷ Timber and stump piles burned constantly. Sparks flew from blacksmith forges, always busy repairing tools and shoeing oxen and horses. Preparing food for workers and animals alike was a constant effort. Expenses mounted.

By December of 1813, two years after the first construction contracts were let and nearly seven years after congressional authorization, the National Road extended just ten miles—with eleven more nearing completion. The initial contracts, though, were to complete 39 miles. David Shriver, the superintendent overseeing the construction in Maryland, criticized the use of contractors to build the road and kept ratcheting up the cost estimates being supplied to Congress. His contractors briefly considered employing slave labor.⁸

Some 28 miles of road were completed by December 1816. Congress had allocated the massive sum of \$410,000

Markers like this were used as the early-nineteenth century version of the green highway signs we see today, telling directions and marking mileage. This marker, one of the few extant ones, is on East Broad Street in Columbus, Ohio. (Photo: Jeffrey Smith)



in 1815 (4.76 million in 2008 dollars).⁹ Sections of the road cost \$7,500 per mile. Shriver had to bargain with landowners along the leading edge of the road. He would not proceed until the landowner signed a release. Already, his earlier stretches of road required maintenance. Shriver blamed misuse by travelers and landowners—felling and dragging trees along the roadbed, constructing fences in the right-of-way, and digging out the banks. Congress allocated an additional \$10,000 for repairs to the first sixteen miles of road, but also another \$3,000 to survey the next section.¹⁰

Approaching Illinois • The ride toward the Vandalia terminus was rough. Stagecoaches were referred to as “shake guts.” An early traveler, having been bounced around extensively, noted that “[t]he great object was to prevent our heads coming in contact with the roof of the carriage”; and it was “difficult to imagine any poor human beings more in the situation of shuttle cocks.”¹¹ The western end of the National Road, by 1841, looked nothing like its thoughtfully constructed eastern end. “Parts of [the road] ended in swamps and other sections were full of stumps. No effort was made to surface the road with crushed stone or gravel. Ruts in the center were leveled by a plow. Sometimes farmers ‘blocked the pike with fences, not caring that such antics forced travelers to detour through wet and spongy fields which sucked at wagon wheels and sapped the strength of horses.’”¹² The poor standard of road construction found beyond Vandalia is readily explained by the lack of funding for road construction in this part of the state. While there were certainly travel links beyond Vandalia, and despite the fact that the route was surveyed through to St. Louis, improvements were not necessarily maintained, and the road did not enjoy popular support across Illinois.

On May 15, 1820, Congress approved the extension of the National Road from Vandalia, the Illinois capital at the time, across southern Illinois to St. Louis, and on March 3, 1825, authorized further extension from St. Louis to Jefferson City, Missouri.¹³ Congress approved funding in excess of \$30,000 in 1830 to construct and open the Illinois section of the road. Additional appropriations were made in subsequent years, but the money was restricted for clearing, grading, and bridging.¹⁴

Progress was slow. By the time the National Road was built to Vandalia in 1839, America was already experiencing the rise of the railroads. The national government was already starting to divest some of its interest in the National Road as early as 1831, years before the route to Vandalia was even surveyed.¹⁵ St. Clair County was caught in the middle of a great national debate over transportation infrastructure. The county’s location across from St. Louis ensured its importance as a transportation center, but the county government had little say about what kind of transportation would serve it.

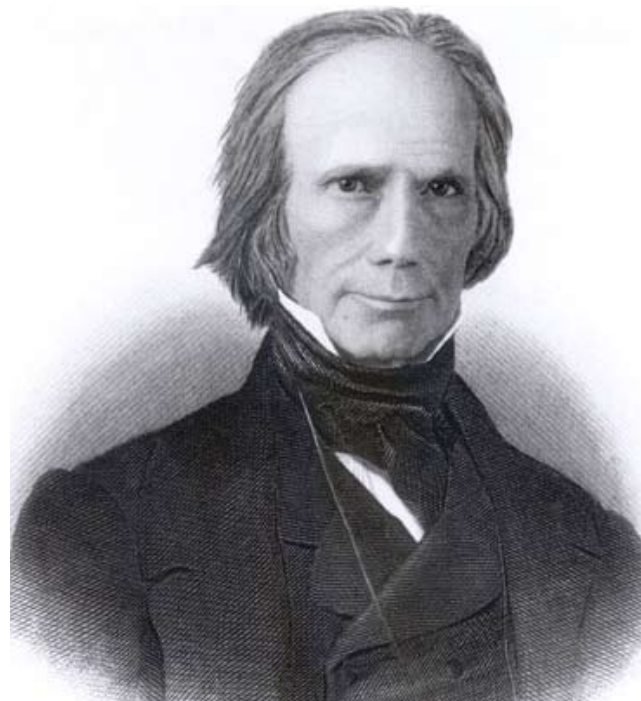
Fiscal mismanagement and construction problems forced a change in management of National Road construction. Previously, private contractors had done the work. The Army Corps of Engineers assumed

Bonds such as this were issued by the Board of Public Works in Illinois to fund infrastructure construction—“internal improvements,” in the parlance of the day—like the National Road. (Collection of the author)



responsibility for building the Illinois portion of the road in 1834. Though the road was opened about 1839 to Vandalia, much of the Illinois section had an unfinished surface. Only 31 miles of grading and masonry paving had been completed.¹⁶

Not only were there construction and management problems, but Congress was not appropriating additional funding. The Panic of 1837 caused tremendous fiscal stress on Congress. Though the road was surveyed to Jefferson City, Missouri, Congress funded construction only to Vandalia. The road arrived there at a time when Illinois was in an enormous infrastructure-induced financial crisis of its own. St. Clair County would have to wait even longer for the National Road to reach it.



Henry Clay (1777-1852) of Kentucky saw internal improvements like the National Road as central to his "American System" to connect regions of the growing nation and facilitate economic growth through federal support of internal improvements, a national bank, a protective tariff, and a national currency. Despite being one of the most powerful and influential political leaders in Washington for four decades, Clay never won the presidency.

(Photo: State Historical Society of Missouri Photo Collection)

The Challenges of Federalism

Presidential Concerns and State Initiatives • The National Road never had lasting support in Washington, D. C. Its legality was challenged in the 1820s, and it was

losing its national status by 1840. States were dissatisfied with congressional maintenance of the road. Congress was leery about the ever-growing expense; as a matter of policy, the National Road brought out regional divisions in the legislature—pitting old country against new, west against south.

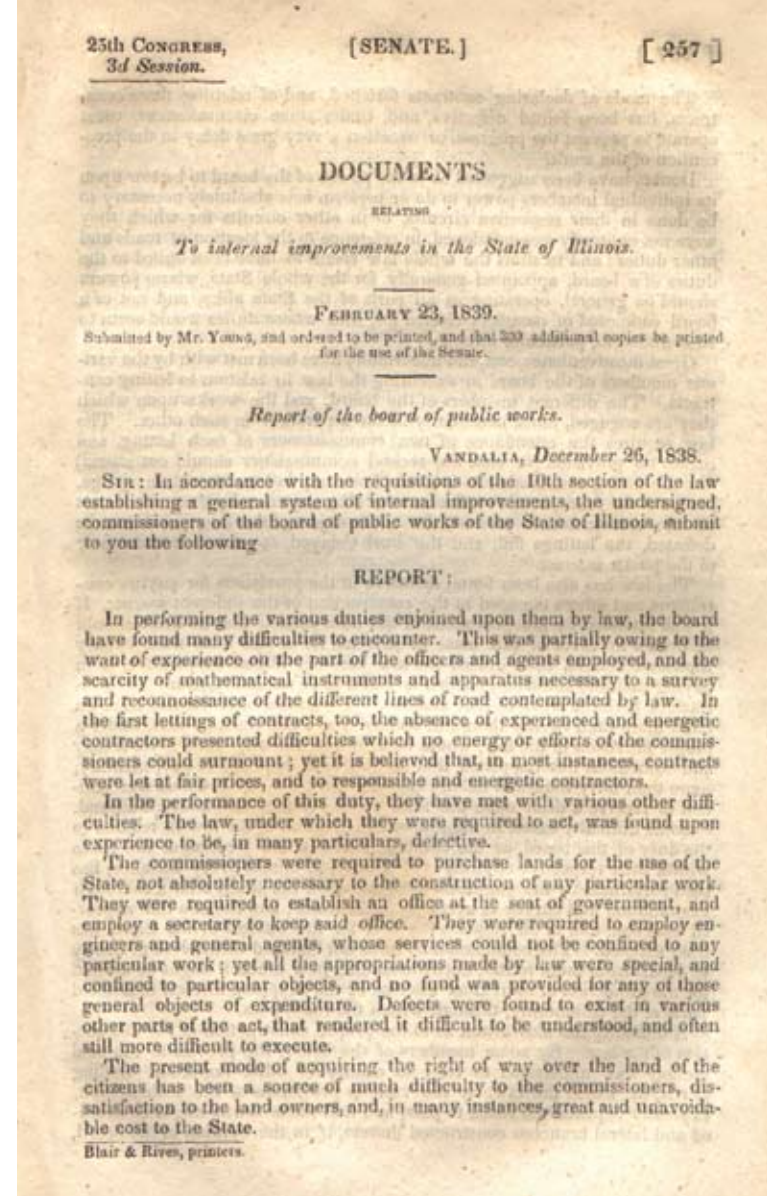
Presidents were inconsistent in their support. Thomas Jefferson, with his vision of exploring and settling the great west, was a supporter. James Monroe challenged the legality of the road in 1822, vetoing a repair bill. He felt Congress had no power to build infrastructure and that a constitutional amendment was required.¹⁷ John Quincy Adams spoke eloquently in favor of the Road, but he was the last presidential supporter of the project. Andrew Jackson saw the National Road as a violation of states' rights. Martin Van Buren vetoed National Road legislation, and John Tyler proclaimed "we will not barter the Constitution of this land for any boon which may be offered [by the promise of the National Road]."¹⁸

The State of Ohio, still developing and eager to exploit the benefits of the National Road, chose to take matters into its own hands. The Road was far too important to leave in the hands of a bickering Congress. On February 4, 1831, the Ohio state legislature authorized state maintenance of the National Road funded by levying tolls at various points across the state.¹⁹ Congress readily approved the measure. Similar acts by the legislatures in Maryland and Pennsylvania were approved by Congress in 1832, and Virginia's was approved in 1833.²⁰ Illinois and Indiana—two young states west of Ohio—grew nervous at the thought that the National Road might not extend to the Mississippi River as earlier envisioned. Indeed, Congress ended regular appropriations for the Road in 1838, and actually attempted to cede the entire road to the states in 1846.²¹

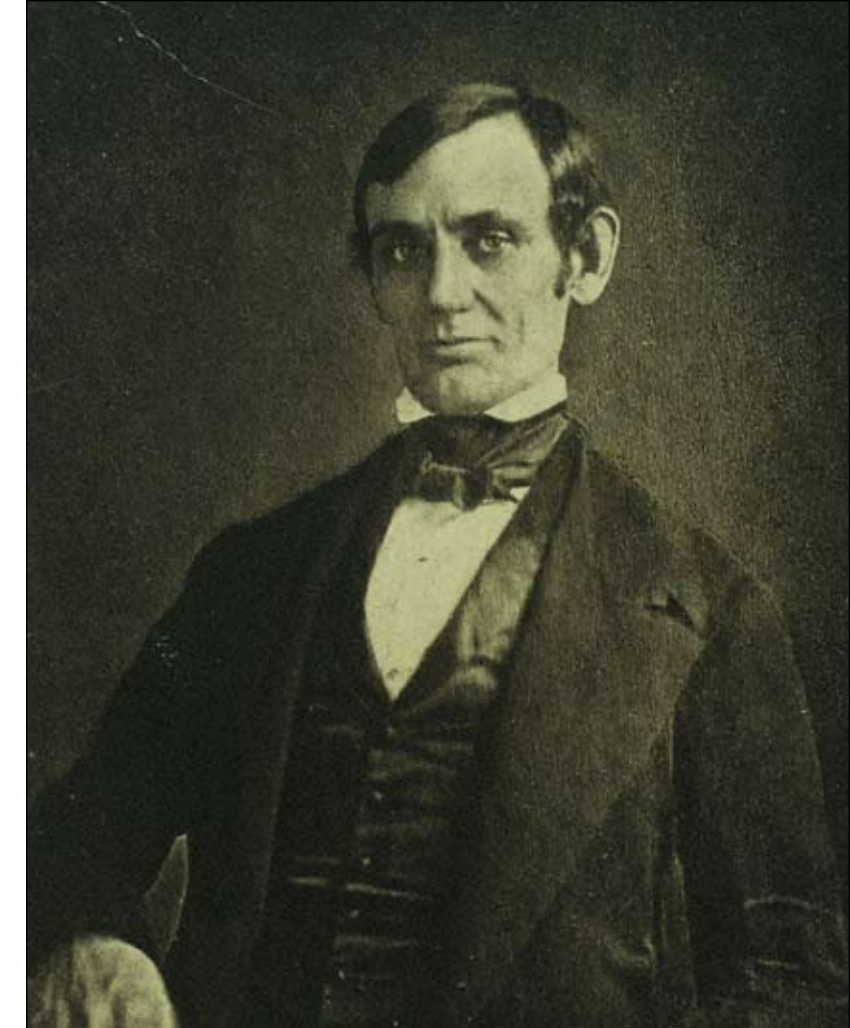
Tollgates stood every eighteen to twenty miles in Pennsylvania, and about every ten miles in Ohio. Tollgate keepers were allowed to skim collections for a total annual salary of \$180 in 1832, which was raised to \$200 in 1836. Returns were required on the first Monday of every month.²² Ohio engaged a state superintendent to oversee maintenance and tolls. All users would pay the toll; people going to religious services, military muster, funerals, or common marketplaces were exempt, as were coaches carrying the U.S. mail, U.S. property, or any coach related to military service.²³

Congress passed a law ceding control of the portion of the National Road in Indiana to the State of Indiana on August 11, 1848. Slowly, the National Road was becoming less "national" than ever before. (Congress would fully relinquish its control over the National Road in 1879, when it gave permission to Ohio and Maryland to make the road free, provided that it not create or recognize "any duty or liability whatever on the part of the United States.")²⁴

Illinois Infrastructure Crisis • The State of Illinois, undoubtedly prompted in part by conjecture surrounding the National Road construction, went on an aggressive



Internal Improvements report for Illinois charting progress on the National Road. (Collection of the author)



Abraham Lincoln (1809-1865) in the earliest known photo of him, at about the time he was a state legislator. Lincoln was a rising attorney in Springfield and a member of the Illinois House of Representatives during the controversy over moving the state capital. He served his first terms as a legislator in Vandalia, spanning both capitol buildings.

(Photo: Abraham Lincoln Presidential Library and Museum)



Vandalia became the second capital of Illinois in 1820, after state legislators thought it should be farther into the interior of Illinois than its current site of Kaskaskia, on the Mississippi River. In an attempt to head off efforts by leaders like Abraham Lincoln, this capital was constructed in 1836 at a cost of \$16,000; the legislature was unimpressed, and still moved the capital to Springfield just three years later. (Photo: Jeffrey Smith)



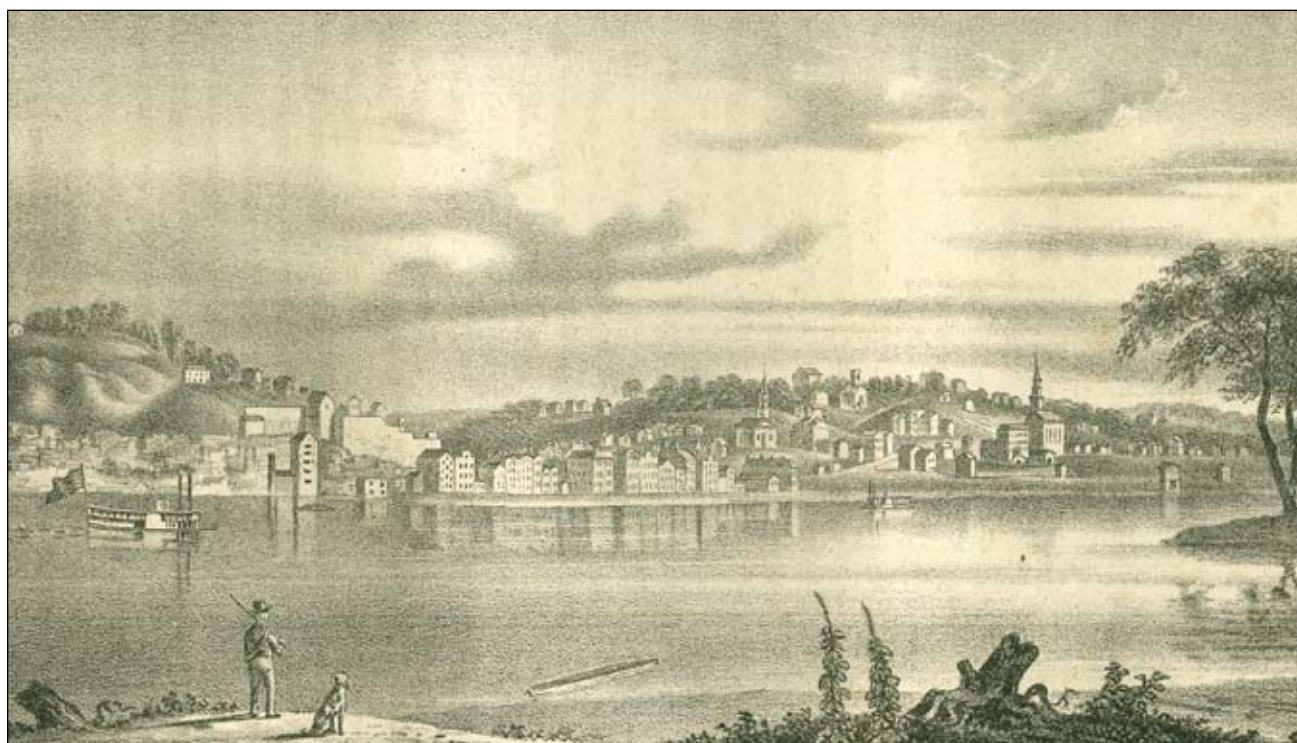
August Leimbach, "Madonna of the Trail," 1928. This ten-foot-tall granite monument, designed by St. Louis sculptor August Leimbach, was commissioned by the Daughters of the Revolution in 1927. It was part of a broader effort to commemorate pioneer women along routes such as the National Road and the Santa Fe Trail. (Photo: Jeffrey Smith)

streak of infrastructure investment. Unfortunately for St. Clair County, the program's agenda pushed the county's infrastructure needs even further behind schedule. Under the leadership of Governor Joseph Duncan (1834-1838), the state undertook the Illinois Internal Improvement System. It became a boondoggle and nearly bankrupted the state. However, statehouse leaders envisioned a web of roads, ports, and rails that would push the Illinois economy to the forefront of the nation.²⁵ The land speculation that was common along the National Road route began happening across the state—wherever the Internal Improvement System would touch. (Such speculation certainly was not unique to this case; it happens around all types of infrastructure and continues to this day.) Cities and towns seemingly sprang up overnight and land values skyrocketed.²⁶ Between 1819 and 1837, land sales in Illinois exceeded \$10.5 million (197.4 million in 2008 dollars).²⁷



In a statewide election in 1833, Illinois voters elected to choose Alton as its new capital over several other choices, but the vote was too close and small to be binding. Thanks to efforts by lawyer Abraham Lincoln and others, the capital was moved to Springfield in 1839. (Photo: State Historical Society of Missouri Photo Collection)

Founded in 1818, Alton, Illinois, began thriving almost immediately. It was located between the confluence of the Illinois and Missouri rivers on the Mississippi, with an active ferry crossing into present-day St. Charles County, Missouri. By the 1830s, Alton was a thriving river town that had aspirations for greatness that included becoming the new state capital, replacing Vandalia. (Photo: State Historical Society of Missouri Photo Collection)



Historian Clarence Walworth Alvord noted that the Internal Improvement System was a watershed event in state history. "Indeed the great speculative land sales of 1834-1837 may be regarded as the decisive cause of the more-than-speculative internal improvement scheme on which the state embarked in 1837. That system and the state's later attempts to extricate itself from the ruin it brought divided the pioneer period of the state's history from the era of transition."²⁸ So many people were profiting from the land deals that politicians were reluctant to end the project. This is wholly consistent with the state's individualistic political culture described well by Daniel Elazar in his landmark work, *American Federalism: The View from the States*, and, in fact, may be a significant event in shaping that political culture. Individualistic political cultures thrive on building relationships that deliver political favors and patronage.²⁹

After only a few years, the State of Illinois could no longer afford the program its politicians had begun. The state racked up \$14 million in bonded debt (or 298.5 million in 2008 dollars)—far too much debt for a population of only 476,000 to bear.³⁰ The state had exhausted its credit limit and faced financial crisis in trying to keep day-to-day operations going. The Internal Improvement System collapsed under the weight of its own debt.

Internal improvement programs existed in other states (examples include Florida, Connecticut, and

Pennsylvania), but there was a peculiar provision in the Illinois legislation that had great effect on infrastructure decisions and drastically affected St. Clair County. The infrastructure created by the program could not benefit cities outside of Illinois. Railroads built by the program must have both terminals within Illinois boundaries.³¹ This effectively cut off any construction headed toward St. Louis and left St. Clair County with very little public infrastructure of any kind.

Stalemate at Vandalia • There was a short-lived but significant rivalry between the cities of Alton and St. Louis for dominance as the primary river port of the Mississippi. The provisions of the Internal Improvement System required that infrastructure investment favor Alton, since St. Louis was outside of the state boundary and any development in East St. Louis would surely benefit St. Louis. This question carried over to the National Road. Alvord points out that "notice has already been paid to the meteoric rise of Chicago in the commercial field; but the city which showed the steadiest commercial development [at the time] was Alton. Alton had been hampered at the beginning of its career by litigation over the title to its site, and its aspirations to rival St. Louis had led it into a long, drawn out, and fruitless struggle to procure the passage of the Cumberland Road through it rather than through St. Louis."³² Alton boosters had hoped that, by dominating St. Louis in river trade, the course of the National Road would



Although the route of the National Road through St. Clair County was surveyed, it was never used for the road. Later, the approximate route was adopted by railroads through the county spanning to the Mississippi River.
(Collection of the author)

be diverted away from St. Clair County and come along a northerly route through Madison County—even though Congress had already authorized and surveyed the St. Louis path.

At the time of this heated rivalry, Governor Duncan was busy implementing the Internal Improvement System. Since the state system could not benefit outside cities like St. Louis, the St. Clair County route for the National Road was inconsistent with state investment priorities. There was agreement about the National Road's location in Vandalia, but deep division existed over its route to the Mississippi. This was the political debate happening in Vandalia when the National Road opened there in the late 1830s.

In a last-ditch effort to secure the National Road route out of Vandalia, the City of Alton made a bold move. Vandalia had been given the privilege of being the state capital only for twenty years, and in 1839 a new capital would have to be chosen; Alton jumped into the competition.³³ The city believed that if it could secure state capital status, the National Road route would undoubtedly follow. This was logical thinking, as Congress had already approved routing the National Road to the Illinois capital of Vandalia before 1820, and to the Missouri capital of Jefferson City in 1825. Unfortunately, time ran out for both Alton and the National Road. Springfield won the competition to become the state capital in 1837, when a bloc of Illinois senators and representatives called “the Long Nine” (that advocated for Springfield and included

prominent residents and neighbors Abraham Lincoln and Ninian Edwards) agreed to back the Illinois Improvement System in exchange for a bloc of Illinois Improvement System votes that would support the capital's move from Vandalia to Springfield.³⁴

Congress ended regular funding for the National Road in 1838. The debate in Congress moved to railroads, led by the voices of Thomas Hart Benton and Henry Clay, who had once spoken in favor of the National Road. In 1840, Congress voted to stop building the National Road. No one will ever know if the bickering among Illinois leadership wasted precious time that could have been used to secure additional funding. St. Clair County was assured that the original National Road would never reach there. It is important to keep in mind that the National Road was used to bring traffic to Vandalia, and that these people did not stay in Vandalia, but instead pressed forward to St. Clair County toward St. Louis by way of other routes. St. Clair County was indeed to be linked to the rest of the continent—not by road, but by rails.

Sparking Competition that Shaped the Corridor

The Arrival of the Railroad in St. Clair County • The Baltimore and Ohio Railroad began in 1827 as a response to the opening of the Erie Canal through New York State to the north.³⁵ The business leaders of Baltimore felt threatened by the infrastructure improvements to its north, and sought to create a new infrastructure that would help

secure its economic advantages—building a railroad. Work commenced on July 4, 1827, and, interestingly, the path chosen for this new route was parallel to the National Road. First, though, the track had to transect the Allegheny Mountains. By 1842, it reached Cumberland. Ten years later, it reached Wheeling.³⁶ Though fifteen years in the making, this stretch of railroad diminished the significance of and reliance on the original National Road.

Through mergers and acquisitions, the Baltimore and Ohio Railroad grew at a dizzying rate. Within five years of reaching Wheeling, the B&O (under the name Ohio and Mississippi Railroad) reached Cincinnati and then the eastern shore of the Mississippi River at St. Clair County, directly across from St. Louis. The first eastern train arrived in East St. Louis in 1857, and transportation there would never be the same.³⁷ On that day, the railroads achieved what Congress could not—create a land link between the Potomac, Ohio, and Mississippi rivers.

Within a generation of that first train's arrival, St. Clair County would become a major national railroad hub, with 22 separate rail lines terminating at East St. Louis by 1874.³⁸ St. Clair County would become home to the industrial suburbs of St. Louis, and it would experience economic and demographic growth on a massive scale. Factories in the area would work around the clock processing materials such as ore, oil, and steel that made the American economy work.

Meanwhile, on May 9, 1856, Congress transferred the National Road in Illinois, along with all rights and privileges connected with it, to the state.³⁹ The last National Road segment from Vandalia to East St. Louis was never built.⁴⁰ It would be a job that would have to be done in a different time by different roads. For the time being, the federal government had given up on the National Road in Illinois.

Finishing the Job: U.S. 40 and I-64 • The impact of the National Road on St. Clair County took time. In the early 1800s, the National Road never reached the place. By the late 1800s, St. Clair County was a railroad hub of mid-America, a prominence that would last well into the twentieth century. However, the establishment of U.S. Route 40 marked the rise of automobility and the beginning of the end for the golden age of rails.

The current U.S. Route 40 winds its way through St. Clair County and crosses into downtown St. Louis over the mighty Mississippi River. As the Route travels through St. Clair County, it passes through the once-great industrial center of East St. Louis and the surrounding industrial communities that housed the National Stock Yards, oil and metal refineries, steel mills and iron works, and countless taverns that had sprung up along the National Road from its beginning.⁴¹

U.S. 40 was established as a national route in 1925.⁴² Its designation and extension finally brought a modern version of America's National Road to St. Clair County—fulfilling the dream that began with Thomas Jefferson more than a century before. Interstate 64, which would not be designated an Interstate until 1961 and is still being built today, overlays U.S.40 in St. Clair County.⁴³

Certain realignments were made to U.S.40 that deviated from the original surveyed route of the National Road to St. Louis. Douglas Meyer notes the current U.S.40 and interstate system are not the best markers of



Macadam roads were still being built in the twentieth century, as seen in this photo from Oregon.
(Photo: Oregon Department of Transportation, History Center)

the intended route, “but rather the old St. Louis, Vandalia, and Terre Haute Railroad [Penn Central], which... ‘was intended to follow the exact line that the National Road was supposed to take between St. Louis and Vandalia, and would have overlaid the earlier 1820s road connection. The original U.S. 40 runs parallel to the Penn Central tracks.’”⁴⁴ The current road, Meyer notes, though in the same corridor as the original path, has been smoothed and straightened in the post-World War II era and is therefore deviated.

The End of the Road

St. Clair County marked the end of the road in more ways than one. The competition between road and rail was one of the key themes running through the history of the county at this time, and ultimately the road won. Just as East St. Louis was on a precipice, in a sense so was all of America. The innocence of the 1950s would soon be gone, and America's cities would be forever changed. Technological and economic change, as well as social change, would forever alter the way America operated. By the end of the twentieth century, the remnants of the National Road carried travelers by the old and the new, by the past and the future. There are many more choices today than back in the days of the National Road, but people still travel the route regularly to a variety of destinations. In fact, Meyer notes that St. Clair County is more than just the end point of the National Road—it is a symbol of America as well. The Road shows what the country was, what it became, its successes, its failures, its prosperity, and its poverty. “Here, in ensemble, lies America at the end of the Road.”⁴⁵



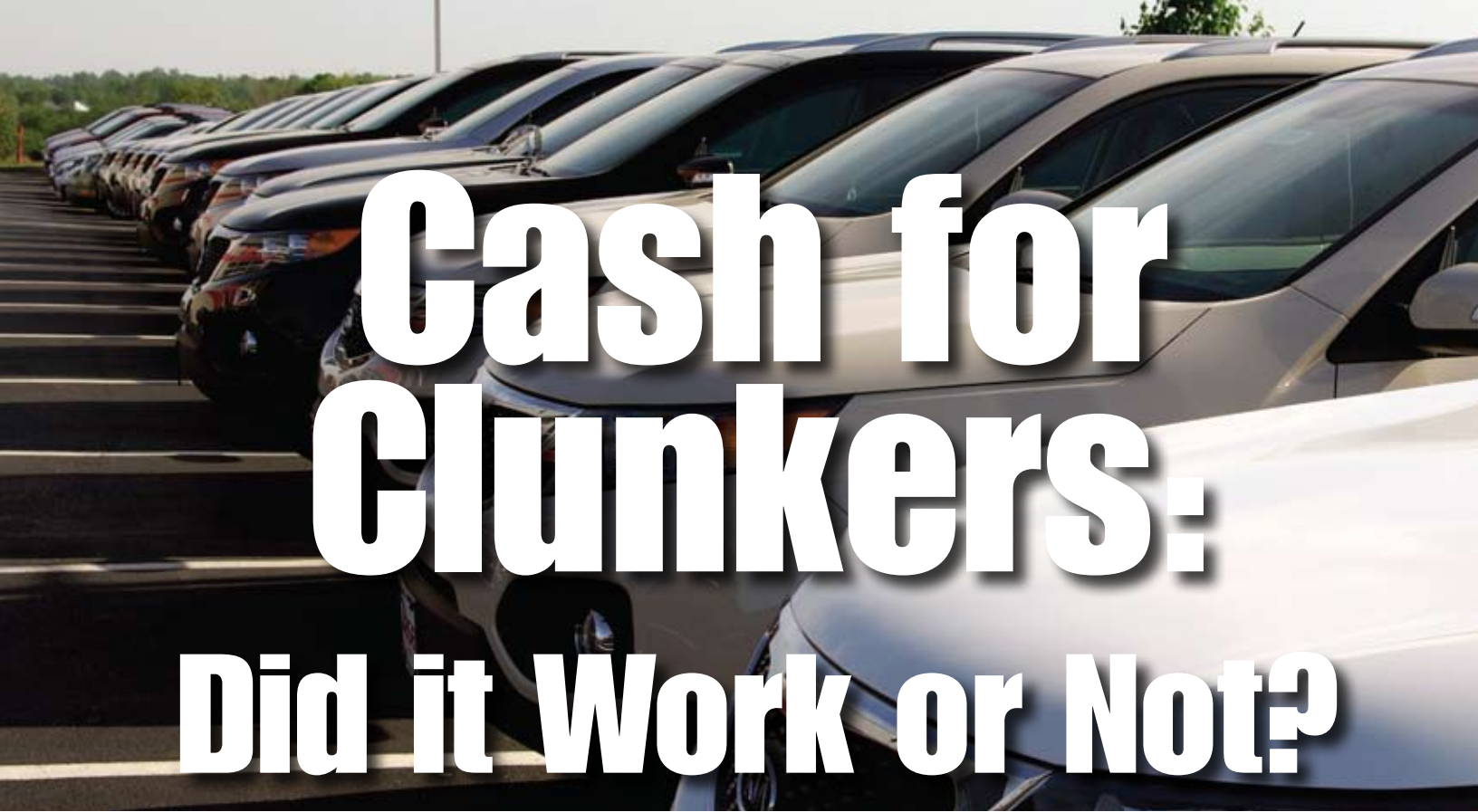
This brick edifice is the oldest remaining Illinois state capitol. Most famously, it is where Abraham Lincoln served as a member of the House of Representatives starting after the 1834 election. (Photo: Jeffrey Smith)

NOTES

- ¹ H. William Nunes, *East St. Louis, Illinois Year-by-Year Illustrated History* (Dexter, Michigan: Thompson-Shore, 1998), 9; W. C. Walton, *Centennial History of McKendree College*, 1928, Chap. 3 (online version, <http://www.rootsweb.com/~ilstclai/chap3.htm>, posted: n/d. accessed July 5, 2006).
- ² Nunes, *East St. Louis*, 9-10.
- ³ Archer Butler Hulbert, *Historic Highways of America*, vol. 10, *The Cumberland Road* (Cleveland: Arthur H. Clark Company, 1904), 73.
- ⁴ Philip Jordan, *The National Road* (Indianapolis: Bobs-Merrill Company, 1948), 83; Thomas Searight, *The Old Pike: A History of the National Road* (Uniontown, Pennsylvania: privately published, 1894), 1-27.
- ⁵ Jordan, *The National Road*, 84.
- ⁶ *Ibid.*, 100-101.
- ⁷ *Ibid.*, 85-86.
- ⁸ *Ibid.*, 87.
- ⁹ The Inflation Calculator. 2010. (<http://www.westegg.com/inflation/>. Posted: n/d., last accessed February 23, 2010).
- ¹⁰ Jordan, *The National Road*, 88.
- ¹¹ *Ibid.*, 198.
- ¹² Quoted in Harry Hansen, ed., *Illinois: A Descriptive and Historical Guide*, new rev. ed. (New York: Hastings House, 1974), 694-695.
- ¹³ Hulbert, *Historic Highways of America*, vol. 10, *The Cumberland Road*, 194.
- ¹⁴ Illinois State Historical Society, *Illinois State Historical Markers: National Road in Illinois* (1968) (<http://www.historyillinois.org/frames/markers/235.htm>, posted: n/d, accessed June 27, 2006).
- ¹⁵ Timothy Crumrin, "Road through the Wilderness: The Making of the National Road," *The Magazine of the Open-Air Museum Coordinating Council*, online version (<http://www.connerprairie.org/historyonline/ntlroad.html>, posted: 1994, accessed June 27, 2006).
- ¹⁶ *Illinois State Historical Markers: National Road in Illinois*.
- ¹⁷ Jordan, *The National Road*, 159-160.
- ¹⁸ *Ibid.*, 162.
- ¹⁹ *Ibid.*, 170-171.
- ²⁰ *Ibid.*, 170.
- ²¹ *Ibid.*, 175.
- ²² Hulbert, *Historic Highways of America*, vol. 10, *The Cumberland Road*, 105.
- ²³ Jordan, *The National Road*, 167-169.
- ²⁴ *Ibid.*, 175.
- ²⁵ L. E. Robinson and Irving Moore, *History of Illinois* (Chicago: American Book Company, 1909), 112-113, 118.
- ²⁶ Andrew Theising, *Made in USA: East St. Louis—The Rise and Fall of an Industrial River Town* (St. Louis: Virginia Publishing, 2003), 67; Hansen, ed., *Illinois: A Descriptive and Historical Guide*, 692.
- ²⁷ Hansen, ed., *Illinois: A Descriptive and Historical Guide*, 692; and The Inflation Calculator, www.westegg.com/inflation
- ²⁸ Clarence Walworth Alvord, ed., *Centennial History of Illinois*, vol. 2, *The Frontier State 1818-1848* (Chicago: A. C. McClurg and Company, 1922), 188-189.
- ²⁹ See Daniel Elazar, *American Federalism: The View from the States* (New York: Harper & Row, 1984).
- ³⁰ Theising, *Made in USA: East St. Louis*, 67; The Inflation Calculator, www.westegg.com/inflation
- ³¹ Theising, *Made in USA: East St. Louis*, 67.
- ³² Walton, *Centennial History of Illinois*, vol. 2, 188-189.
- ³³ Douglas Meyer, "From Vandalia to East St. Louis and Alton, Illinois," *A Guide to the National Road*, Karl Raitz, ed. (Baltimore: Johns Hopkins University Press, 1996), 310.
- ³⁴ Andrew Bresnan, *The Long Nine* (<http://www.cam.k12.il.us/hs/teachers/bresnan/longnine.htm>, posted: 1998; last accessed February 23, 2010).
- ³⁵ *The Baltimore and Ohio Railroad: Linking Thirteen Great States with the Nation* (<http://www.american-rails.com/baltimore-and-ohio.html>, posted: 2007, last accessed February 23, 2010).
- ³⁶ *Ibid.*
- ³⁷ H. William Nunes, *East St. Louis, Illinois*, 17; *The Baltimore and Ohio Railroad*.
- ³⁸ Theising, *Made in USA: East St. Louis*, 64.
- ³⁹ *Illinois State Historical Markers: National Road in Illinois*.
- ⁴⁰ Meyer, "From Vandalia to East St. Louis and Alton, Illinois," 347.
- ⁴¹ See the extensive discussion in Thomas Searight, *The Old Pike: A History of the National Road* (Uniontown, Pennsylvania, 1894).
- ⁴² Frank X. Brusca, *Route 40* (<http://www.route40.net/history/alignments.shtml>, posted 2002, last accessed July 5, 2006).
- ⁴³ "Interstate 64," *AARoads Interstate Guide* (<http://www.interstate-guide.com/i-064.html>, posted August 17, 2008, last accessed February 23, 2010).
- ⁴⁴ Meyer, "From Vandalia to East St. Louis and Alton, Illinois," 311.
- ⁴⁵ *Ibid.*, 347.
- ⁴⁶ Created from data Jordan, *The National Road*, 94; based on National Archive, R.G. 56 Records of the Bureau of Accounts, page from the volume *Receipts and Expenditures of the U.S., 1789-1846*.

TABLE 1
Congressional Outlays for the National Road, 1825-1846 in actual dollars⁴⁶

Year	Construction, Cumberland	Maintenance, Cumberland	Construction, Cumberland to Zanesville	Construction in Ohio, west of Zanesville	Construction, Indiana	Construction, Illinois	Maintenance, existing length
1825	35,850						
1826	125,469						
1827	163,720	25,510					
1828	188,108	5,000					
1829			42,624	50,213	14,600		100,000
1830			64,977	115,500	34,700	12,155	
1831			2,700	77,765	57,365	33,361	950
1832			56,000	112,275	102,080	27,500	5,830
1833				122,747	101,000	40,000	253,440
1834				210,600	111,693	51,752	250,000
1835				241,387	213,562	109,000	385,195
1836				169,488	144,040	42,232	12,597
1837				210,017	130,488	58,453	7,777
1838			9,000	96,506	162,472	84,000	
1839				52,100	46,000	128,520	
1840				11,902	10,200	99,027	
1841					2,856	4,700	
1842					40		
1843							
1844							
1845				130		1,420	
1846							



Cash for Clunkers: Did it Work or Not?

BY ANTHONY CLARK,
ANNETTE NAJJAR, AND
RALPH WIEDNER

The voluntary vehicle trade-in program that passed into law under the Consumer Assistance to Recycle and Save Act of 2009—also known as the Car Allowance Rebate System or CARS—has been among the more widely discussed and debated government spending programs in recent years. Referred to in the popular media as Cash for Clunkers, the program offered consumers a rebate for trading in used vehicles for qualifying new vehicles. The program had two purposes: first, to increase spending and employment during a time of recession by stimulating the automobile industry; and second, to address environmental concerns by increasing the average fuel efficiency of the U.S. auto fleet (NHTSA 2009).

This case study focuses on the first point. Analyzing survey data collected from 22 new-car dealers in St. Charles County, Missouri, our research team estimates the initial direct impact of Cash for Clunkers on sales of new motor vehicles in the county. We then use output multipliers from the regional economic model IMPLAN (Minnesota IMPLAN Group, Inc.) to estimate the total economic impact of Cash for Clunkers on the county's output after taking multiplier effects (explained below) into account. Utilizing data from the Council of Economic Advisers (CEA), along with estimates of direct government spending in the county on CARS vouchers, we also estimate the total change in employment in the county attributable to the Cash for Clunkers program.

Even though most of the economic impact of Cash for Clunkers occurred through new-car sales, we also briefly

discuss how Cash for Clunkers affected used-car sales. Additionally, we consider whether Cash for Clunkers created a true stimulative effect or if, as some analysts have argued, the program merely caused consumers to move their car purchases forward into the CARS rebate period (see, for example, Edmunds.com 2009). This research represents the first assessment of the impact of Cash for Clunkers on a regional economy. It is also the only study, to our knowledge, that surveyed automobile dealers regarding their experience with and attitudes toward the program.

An Overview of the CARS Program

Although Cash for Clunkers was a novel concept to many Americans, voluntary vehicle trade-in programs—more commonly referred to in the academic literature as vehicle scrappage programs—are certainly not new. The Swedish government implemented the first such program in 1976, and other EU nations have done so since (Allan, et al. 2009). The first vehicle scrappage program that appeared in the U.S., dating back to 1990, was actually a private sector initiative. Instituted in the Los Angeles area by UNOCAL,¹ the Southern California Retired Automobile Program (SCRAP) offered owners of pre-1971 cars \$700 to voluntarily relinquish their vehicles for scrapping. SCRAP was deemed a success because, during a four-month period, UNOCAL removed 8,736 “dirty” vehicles from the streets of Los Angeles (Shaheen, et al. 1994). Following SCRAP's success, similar programs

were implemented in other states, including Delaware (1992), Illinois (1993), and Colorado (1993-1994) (Allan, et al. 2009). Early vehicle scrappage programs in the U.S. and elsewhere generally focused on reducing criteria pollutant emissions, while recent programs (those starting in 2009) have been primarily aimed at stimulating the automobile industry (Allan, et al. 2009).

Cash for Clunkers, launched on July 27, 2009, was one of a number of stimulus programs whose purpose was to “shift expenditures by households, businesses, and governments from the future to the present” (CEA 2009). Congress initially appropriated \$1 billion for the program. Because consumers responded in much greater numbers than expected, that entire sum was exhausted within three days. This prompted Congress to allocate additional funds to the program. By the time the CARS rebate period ended on August 24, 2009, a total of 690,114 vehicles had been traded in under the program, with a final count of 677,842 paid vouchers. The average rebate was \$4,209 per traded-in vehicle, and the total dollar amount of rebates issued through the program nationwide was \$2.85 billion (NHTSA, Report, 2009). According to the National Highway Traffic Safety Administration (NHTSA), the agency that administered the program, participation in Cash for Clunkers on a per-capita basis was highest in the Midwestern states and several Northeastern and Atlantic seaboard states and much lower in most Southern and some Western states (NHTSA, Report, 2009).

Cash for Clunkers offered consumers a rebate of \$3,500 or \$4,500 per traded-in vehicle, depending on the vehicle category and the fuel-efficiency rating of the new vehicle compared to the trade-in vehicle. Table 1 outlines the basic credit allowances under the program.

The program had other key requirements. The new vehicle had to carry a base manufacturer's suggested retail price of \$45,000 or less, traded-in vehicles had to be registered and insured for the year prior to the trade-in date, and the engines of all the traded-in vehicles had to be disabled by a prescribed method. Dealers were required to store the traded-in vehicles until they were disabled at the dealership or a property under the control of the dealership; dealers were required to use salvage facilities or salvage auctions approved by the NHTSA; and the salvagers that received the traded-in vehicles were instructed to shred them within six months (NHTSA, Rule, 2009). Dealers were required to disclose to buyers the best estimate of the scrappage value of the traded-in vehicles, less a \$50 administrative fee. Additionally, dealers were not allowed to use the CARS credit to offset any other rebates or discounts (NHTSA, Rule, 2009). Dealers were asked to submit all the necessary paperwork to the NHTSA through a dedicated website (www.CARS.gov) that also served as an information center for auto dealers and consumers.

Prior Analyses of the Program

Analyses of the Cash for Clunkers program appear to be ongoing, but to date there has not been a comprehensive independent analysis of the total economic impact of



The Survey Questionnaire

The survey questionnaire for new-car dealers asked a series of questions related to sales before, during, and after the CARS rebate period. Among other questions, new-car dealers were asked how many \$3,500 and \$4,500 vouchers they turned in; the average price of cars sold through the CARS program; the average Manufacturer's Suggested Retail Price (MSRP) of the vehicles sold through CARS; the number of vehicles they had sold during the same time period in 2008; the number of vehicles that came in under CARS that were not eligible, but that the dealer accepted for trade anyway; and what number of vehicles the dealership believed that it sold due to Cash for Clunkers that would not have sold without the program. In addition to these questions, dealers were asked a series of questions related to the operational aspects of the program: the average length of time in days the dealer had to wait to receive payment on traded-in clunkers; whether the dealer's business operations were impacted by delays in receiving payment from the government; whether sales during the CARS rebate period were hampered by issues with depleted inventory; and the average net amount received by the dealership for the disabled clunkers. The survey also solicited qualitative data, asking respondents what recommendations they would make regarding changes to the program's structure if another program like Cash for Clunkers were ever considered again in the future.

the program. Much of the analysis by independent (i.e., non-government) economists has been in the form of commentary and estimates of the type often referred to as “back-of-the-envelope.” The most comprehensive analyses to date are both government agency reports: one by President Barack Obama’s CEA in September 2009 and the other by the NHTSA in December 2009. Non-government analyses of the program that are more sophisticated than back-of-the-envelope estimates include a study by economic consulting and modeling firm REMI (2009), a study by the automotive website Edmunds.com (2009), and various estimates of the program’s impact on industry sales and/or national GDP by J.D. Power and Associates (2009), IHS Global Insight (2009), and Macroeconomic Advisers (2009). Most of these analyses—government and non-government—are not truly comprehensive because most overlook the potential impacts of Cash for Clunkers on the used-vehicle market and the market for auto salvage. Only one, the study by NHTSA, directly addresses, albeit minimally, the program’s impact on these after-markets.

With respect to estimating the stimulative impact of Cash for Clunkers, the CEA’s report aptly frames the essential research questions.

The first step in our analysis is to estimate the effect of the CARS program on motor vehicle sales, because sales are the ultimate driver of production and employment. But in calculating the effect of the program, we must know not just how many sales occurred, but how many sales would have occurred anyway (even without the program); the CARS program can be credited with an effect on sales only for those sales that would not have taken place in its absence. We also need to make assumptions about the extent to which the CARS-induced sales were borrowed from sales that would have occurred in the near future (CEA 2009).

The phenomenon described by the CEA, sales “borrowed” from the near future, is called the “pull-

forward” or “payback” effect (see “The Payback Effect,” p. 22), and it is a critical issue in estimating the true stimulative effect of a vehicle scrappage program such as Cash for Clunkers. Common sense dictates that some portion of new-car sales during the rebate period must have been borrowed or pulled forward from a near-future period. However, anecdotal evidence suggests that some sales transactions also took place that would not have occurred until a much later time period in the program’s absence.

What the payback or pull-forward effect really boils down to is consumer motivation or, more precisely, how Cash for Clunkers may have altered the behavior of American consumers. One can imagine there being five basic types of consumers that would purchase a motor vehicle during the CARS rebate period due to the existence of the program. Table 2 defines the five consumer types in relation to CARS and specifies whether the vehicle purchases of each would contribute to an economic stimulus during a time of recession.

The Edmunds.com study contends that the large majority of consumers who purchased new vehicles during the CARS rebate period belonged to either the Type 1 or Type 2 categories listed in Table 2. Note that to the extent Type 4 consumers participated in the program, Cash for Clunkers effected used-car sales in a negative fashion (discussed in greater detail below); however, such consumers definitely contributed to the economic stimulus intended by the government. To the extent Type 5 consumers were affected by the program, the government enjoyed a bonus effect from tax dollars spent on the rebates.

The CEA uses a different approach to estimate the size of the payback effect and concludes that roughly 440,000 new vehicles were sold due to Cash for Clunkers with a payback ranging from 20,000 to 90,000 vehicles in September 2009. In its three scenarios—pessimistic, baseline, and optimistic—the CEA assumes that all car

Is 22 Dealers Enough?

Even though the survey yielded a 59 percent response rate, the survey population is relatively small, just 22 dealers. A high response rate from a small population still yields a small sample size, and there are well-known caveats associated with making inferences from data based on small sample sizes. It is possible that the dealers who responded to the survey are unrepresentative of the dealers who elected not to respond? For example, perhaps dealers that sold substantially more than the average number of vehicles through Cash for Clunkers were still too busy processing paperwork and playing “catch up” to take time to complete the survey. Or, perhaps, dealers that sold substantially fewer than the average number of vehicles through the program ignored the survey out of some feeling of chagrin.

Although either of the above situations is possible—as well as other potential reasons that respondents are unrepresentative of non-respondents—we believe the concern over small sample size in this study is mitigated by several facts. First, our estimates are in the form of ranges that take into account an appropriate margin of error given the sample size. Because of the small sample size, our estimated ranges are relatively large by necessity. Second, we used state-level NHTSA data as a check against our estimated ranges. Third, although only thirteen (59 percent) of 22 new-car dealers in the county responded to the survey, those dealers who responded represent the vast majority of sales in the county. In fact, we estimate that the respondents to the survey account for at least 75 percent of new-vehicle sales that occurred in St. Charles County through the Cash for Clunkers program.

TABLE 1
NHTSA Final Rule: Determining Eligibility of Trade-in Vehicles and New Vehicles

Vehicle Categories	Description	Trade-in Eligibility (1)	New Vehicle (2) Eligibility	Credit Amounts
Passenger automobiles	Vehicles manufactured primarily for transporting persons.	A combined fuel economy value of 18 mpg or less	A minimum combined fuel economy level of 22 mpg	If new vehicle has a combined fuel economy that is 4-9 mpg higher than the trade-in: \$3,500. If new vehicle has a combined fuel economy that is at least 10 mpg than the trade-in: \$4,500
Category 1 trucks	Vehicles not manufactured primarily for transporting persons, including all SUVs, minivans, small and medium pickup trucks, and certain vehicles that permit expanded use for cargo-carrying purposes, including vehicles designed to transport more than ten persons.	A combined fuel economy value of 18 mpg or less	A minimum combined fuel economy level of at least 18 mpg	If new vehicle is a category 1 truck, and trade-in is a passenger vehicle, category 1 truck or category 2 truck, a gain of 2-4 mpg=\$3,500 and a gain of at least 5 mpg=\$4,500.
Category 2 trucks	A large van or a large pickup truck	A combined fuel economy value of 18 mpg or less	A minimum combined fuel economy level of at least 15 mpg	For a category 2 truck traded-in for a new category 2 truck, a gain of 1 mpg=\$3,500 and a gain of at least 2 mpg=\$4,500.
Category 3 trucks	Very large pickup trucks and very large cargo vans rated between 8,500 and 10,000 pounds gross vehicle weight.	No minimum fuel economy requirement	No minimum fuel economy requirement	A category 3 truck traded-in for a new category 2 truck=\$3,500 without fuel gain restrictions. A category 3 truck traded for a new category 3 truck of smaller of similar size=\$3,500 (3)

(1) The first three criteria are the same for all categories—be in a drivable condition, have been continuously insured.
(2) Purchased or leased (not less than 5 years). For all categories, vehicle must have a manufacturer’s suggested retail price (base price) of \$45,000 or less.
(3) Credits for category 3 trucks limited to 7.5 percent of the total funds appropriated for the program.

owners purchasing a vehicle through Cash for Clunkers would have replaced their clunkers anyway within three, five, and seven years, respectively. Altogether, CEA estimates that Cash for Clunkers caused new-car sales in 2009 to increase by about 210,000 vehicles in the pessimistic scenario, 330,000 vehicles in the baseline scenario, and 560,000 vehicles in the optimistic scenario. This translates to GDP growth in the third quarter of 2009 of about 0.1 percentage points under the pessimistic scenario, 0.2 percentage points under the baseline scenario,

and nearly 0.4 percentage points under the optimistic scenario. The CEA notes, however, that “[t]he boost to the level of GDP is temporary, and is followed by a drop that slightly more than reverses the increase, reflecting the slightly lower level of sales in the ‘payback’ period” (CEA 2009). Regarding job growth, the CEA estimates that Cash for Clunkers created around 20,000 job-years in the second half of 2009 under the pessimistic scenario, 35,000 job-years under the baseline scenario, and 60,000 job-years under the optimistic scenario (CEA 2009).

What About Used Cars?

To our knowledge, the analysis by NHTSA is the only study to date that even mentions the impact of Cash for Clunkers on the used-car and salvage markets. NHTSA only briefly addresses the used-car market in its report to Congress; the entirety of its analysis of that market is contained in the following paragraph:

Used vehicle prices increased for the six-month period prior to the start of the program. This trend in price increase has been sustained since. While the CARS program further restricted the supply of secondary market vehicles, the majority of vehicles traded in were older and had higher mileage than the average vehicle in the secondary market. In the case that the trade-in vehicle was not high mileage, they were likely to have been in poor condition or in need of repairs exceeding their value, indicating that their net worth was less (sic) likely less than the maximum \$4,500 credit allowed under the CARS program. Overall, used vehicle prices have increased over the past 9 months while used vehicle pricing in the lower price tiers (\$5,000 and below) has remained steady in September 2009 (NHTSA, Report, 2009).

We intended, as part of this study, to more formally analyze the impact of Cash for Clunkers on used-car sales in the study area. Unfortunately, due to low response from used-car dealers, and due to inconsistencies in the data set, the evidence regarding the impact of the program on the used-car market is inconclusive. Our a priori assumption, based on economic theory, was that used-car sales in the study area would be adversely affected by the program’s implementation. This comports with the notion that, at least to some extent, new and used motor vehicles serve as substitutes for one another. An incentive that encourages new-car purchases should thus cause a reduction in spending on used vehicles.

Some used-car dealers who responded to the survey reported decreased sales during the CARS rebate period, as was expected. However, contrary to our assumption, nearly an equal number of respondents reported that sales of used cars at their lots actually increased during the rebate period. The only plausible explanation for this result is that demand for all vehicles increased as the announcements and advertisements associated with the Cash for Clunkers program created a kind of “car-buying mindset” among consumers (as is consistent with Type 5 consumers in Table 2).

There is another manner in which used-car dealers may have been affected by the Cash for Clunkers program, and which NHTSA alludes to in its statement above. Under ordinary circumstances, vehicles traded in at a new dealership are generally sold into the after-market and eventually make their way to used-car lots. Vehicles traded in through Cash for Clunkers were disabled, thereby reducing the number of used cars sold into the after-market. More than one used-car dealer reported that its operations were adversely affected by the reduction in after-market vehicles. Several used-car dealers reported that sales decreased immediately after the CARS rebate period, although it is not clear whether their sales declined due to the cessation of the car-buying mentality among consumers or due to a lack of available inventory.

Because responses we received from used-car dealers were so widely divergent, the overall impact of Cash for Clunkers on the used-car market cannot be reliably estimated from our data set. However, the survey responses do point out some obvious areas for future inquiry. In assessing the overall economic impact of a vehicle scrappage program such as Cash for Clunkers, the used-car market cannot simply be ignored (as almost all prior studies have done). Analyzing the impact on the used-car market is especially important in evaluating the redistributive effects of the program. If, as economic theory would suggest, vehicle scrappage programs cause clunker prices to increase, then drivers of clunkers (who may be assumed to be lower-income consumers) are harmed by such programs. Any such impacts have to be carefully weighed against perceived benefits from the program, such as economic stimulus or reductions in emissions.

TABLE 2
Consumer Types in Relation to CARS

Consumer Type	Motivation	Contributed to Stimulus?
1	Was already planning to purchase a qualifying new vehicle during the CARS rebate period	No
2	Would have purchased a qualifying new vehicle in the near future (i.e., during recession) but was enticed into moving up purchase to CARS rebate period	No
3	Would have purchased a qualifying new vehicle in the distant future (i.e., post recession) but was enticed into moving up purchase to CARS rebate period	Yes
4	Would have purchased a used vehicle (in any period) but was enticed into trading up to a qualifying new vehicle	Yes
5	Enticed by “car-buying mindset” into purchasing a used vehicle or non-qualifying new vehicle during CARS period	Yes

Other industry experts weighed in on the size and timing of the payback effect. Ford’s President of the Americas, Mark Fields, “estimated about thirty percent to forty percent of its [Ford’s] clunker sales were ‘truly incremental,’ meaning that they came from consumers who had no plans previously to buy a car. The rest, he said, came from people who were going to buy a car later on” (Strumpf and Fowler 2009). GM’s Executive Director of Global Market and Industry Analysis, Michael DiGiovanni, estimated that only “about 200,000 of the 700,000 sold under the clunkers program were pulled ahead from future months” (Welch and Kiley 2009). Moody’s Investors Service estimated that “About sixty percent of the vehicles sold with clunker rebates were purchased by consumers who were not otherwise intending to buy” (Bennett 2009). Economic consulting firm IHS Global Insight estimated that Cash for Clunkers increased motor vehicle sales by about 600,000 units for 2009 (IHS Global Insight 2009). J.D. Power and Associates estimated a net increase of 300,000 new vehicles sold in 2009 due to Cash for Clunkers, but the industry forecaster also lowered its projection slightly for new-car sales in 2010 due to the program (J.D. Power and Associates 2009). Leading economic consulting firm Macroeconomic Advisers, advancing a viewpoint similar to that of Edmunds.com, argued that “almost all the sales under

this program just moved forward transactions that would otherwise have taken place over the next several months” (Macroeconomic Advisers 2009).

The most comprehensive analysis of Cash for Clunkers to date is the study by NHTSA published in December 2009 as a report to Congress. Because NHTSA administered the program, the agency had access to data not (yet) readily available to other analysts. The NHTSA study concluded that Cash for Clunkers added \$6.8 billion to GDP, contributing significantly to GDP growth in the third quarter of 2009 and leading to more than 60,000 jobs created or saved (NHTSA, Report, 2009).

In calculating the size of the payback effect, NHTSA relied on survey data gathered from consumers who actually participated in Cash for Clunkers. In principle, data collected directly from consumers participating in the program should provide the best insight into the size and timing of the payback effect. However, one of the results of the NHTSA’s consumer survey casts significant doubt on the survey’s validity. The surprising result is that 35 percent of the respondents, all of whom traded in clunkers, indicated that they would not have replaced their vehicles in the absence of the CARS incentive. We can assume only that participants who responded this way meant that they would not have traded in their vehicles in the absence of the government incentive but rather sold them with the



The Payback Effect

The size and timing of the payback effect associated with Cash for Clunkers became a major point of contention between the White House and analysts at Edmunds.com in the fall of 2009. Edmunds.com argued that of the roughly 690,000 vehicles sold nationally through Cash for Clunkers, only 125,000 represented true incremental sales; that is, sales above and beyond what would have ultimately occurred without the incentive program (Edmunds.com 2009). Edmunds.com examined the historical relationship between the sales trend for luxury (and other non-qualifying vehicles) as a percentage of the sales growth rate for motor vehicles overall. Examining sales of non-qualifying vehicles during the CARS rebate period, the Edmunds.com analysts derived estimates of what sales for CARS-qualifying vehicles would have been if Cash for Clunkers had not been instituted. The Edmunds.com team concluded that, although sales of new cars in July and August were substantially higher than would have been the case without Cash for Clunkers, sales in the last four months of 2009 were actually lower than they would have been if CARS had not existed. More succinctly, the Edmunds.com study concluded that consumers shifted a sizable portion of their spending on new cars forward from the latter part of the year into the CARS rebate period.

Through its blog site, the White House disputed the results of the Edmunds.com study, pointing out that “[t]he Edmunds’ analysis rests on the assumption that the market for cars that didn’t qualify for Cash for Clunkers was completely unaffected by this program. . . . This analysis ignores not only the price impacts that a program like Cash for Clunkers has on the rest of the vehicle market, but the reports from across the country that people were drawn into dealerships by the Cash for Clunkers program and ended up buying cars even though their old car was not eligible for the program” (Weisenthal 2009).

expectation that the sale price of the vehicles would be greater than the trade-in values or continued to drive them. Such respondents may still have purchased a new vehicle in the near future, and so this group of responses to the NHTSA survey provides little useful information regarding the size or the timing of the payback effect.

Initial Impact on New Vehicle Sales

We estimate that between 307 and 701 new motor vehicles were sold in St. Charles County during the CARS rebate period that would not have been sold in the program’s absence. The range is necessarily large because of the small sample size; however, our best estimate is that new-car dealers in the county sold a total of about 504 vehicles during the CARS rebate period due to the program. The average price of a new vehicle sold as a result of Cash for Clunkers in St. Charles County was \$22,549. Based on these figures, new-car sales in the county were between \$6.9 million and \$5.8 million higher during the CARS rebate period than they would have been without the program. Our best estimate is that new vehicle sales in the county were \$11.4 million higher than what they would have been in the program’s absence. Additionally, new-car dealers in the county netted, on average, about \$73 per disabled clunker (disposal costs subtracted from salvage revenues). This translates into estimated additional revenues for new-car dealers ranging from \$39,135 to \$89,360 for selling the disabled clunkers.

These estimates represent the initial direct impact of the Cash for Clunkers program on new-car sales in the county. Due to the multiplier effect associated with an increase in spending, the ultimate impact on the county’s economy is larger than the stated amounts. We estimate that the county’s output increased between \$11 million and \$25.2 million—after taking the multiplier effects into account—due to the initial round of incremental spending associated with Cash for Clunkers. Additionally, due to the program’s implementation, between 25 and 56 jobs were added in the county, although, as NHTSA points out, “[w]hile hiring of both dealer sales personnel and manufacturer production staff would be likely responses to the sales spike that resulted from CARS, it is not clear whether added jobs created by this activity will be temporary or permanent” (NHTSA, Report, 2009). In our view, any job creation attributable to CARS was likely only temporary in nature, diminished by the payback effect. In fact, to the extent auto dealers and firms in related industries anticipated a payback effect, the predicted job creation may not have occurred at all, and may instead have taken the form of overtime for current employees.

Table 3 summarizes the estimated economic impacts on St. Charles County of the Cash for Clunkers program.

It is important to bear in mind that the estimates in Table 3 only represent the one-time spike in new-car sales that occurred over the CARS rebate period (and are attributable to the program’s existence); the estimates do not take into consideration the payback effect discussed above. Although some used-car dealers in the survey reported an increase in sales immediately following the

rebate period, none of the new-car dealers reported an increase. On average, new-car dealers indicated a drop in normal sales levels of 23 to 30 percent in the months following the Cash for Clunkers rebate period. The surveys were distributed approximately three months after the end of the rebate period, which means that new-car dealers experienced lower-than-normal sales for at least that number of months. Based on the average decline in sales reported by new-car dealers in the survey, we estimate that between 51 percent and 67 percent of the new vehicles sold in St. Charles County due to Cash for Clunkers were pulled forward—or paid back—from the three-month period immediately following the rebate period. In other words, at least half, and as much as two-thirds, of the vehicle sales that occurred through the program would have taken place anyway before the end of 2009.

The Relevance of St. Charles County

St. Charles County, selected as the study area primarily due to its proximity to the research team, has an unemployment rate (8.5 percent) that is marginally less than the state’s rate of 9.2 percent (December 2009 reported figures, not seasonally adjusted), although the unemployment rate in the St. Louis Metro Area has hovered near the national rate through the better part of the recession (U.S. Bureau of Labor Statistics 2010a and 2010b). In other words, the recession that began in December 2007 has resulted in an unemployment profile for St. Charles County similar to that of the rest of the state and not drastically different from the national average. In the months leading up to the implementation of Cash for Clunkers, the St. Louis region suffered a number of plant closings and mass layoffs similar to those that have occurred in other parts of the country. These negative economic factors have affected residents of the study area, particularly the layoffs and temporary closing of the General Motors assembly plant located in the county, which occurred in the summer of 2009.

There is no reason to believe St. Charles County residents’ preferences with respect to new versus used automobiles differed greatly from those of similarly situated consumers in other suburban areas of the country. Yet it is important to note that the county does differ from the average suburban county in two important ways. First, according to Census Bureau projections, St. Charles County has been one of the nation’s fastest growing counties in recent years, with an estimated population growth rate of 23 percent from 2000 to 2008 (U.S. Census Bureau 2010a). Second, St. Charles County is the wealthiest county in the state, with a median household income in 2007 of approximately \$68,000 compared to a median household income for the state of \$45,000 and the nation of approximately \$51,000 (U.S. Census Bureau 2010a and 2010b).

One other noteworthy difference between the study area and the average U.S. suburban county is the presence of the aforementioned General Motors assembly plant in the city of Wentzville. To the extent persons affiliated with the GM plant demonstrate a preference for GM



Photo: Missouri State Archives, Commerce and Industrial Development Collection

The Multiplier Effect and Job Creation

The general idea of the multiplier effect is that a dollar spent in the regional economy ultimately translates into more than a dollar’s worth of spending. For example, the auto dealership that sells more cars—due to a government incentive program or otherwise—must purchase more supplies such as fuel, stationery, etc. A portion of those purchases will be from other firms in the region. In turn, those firms that supply inputs to the auto dealer must purchase more inputs for themselves, and so on. Also, beyond some threshold, more direct spending will necessitate firms hiring more workers, and those workers will spend part of their incomes in the region, further contributing to the multiplier effect.

We used the output multiplier for the motor vehicle retail sales sector from the regional economic model IMPLAN (Minnesota IMPLAN Group, Inc.) to estimate the total economic impact of the increase in direct sales in new motor vehicles. We also derived estimates for direct government expenditures on CARS vouchers in the county. According to NHTSA, “The CEA estimates that \$92,000 of direct government spending creates one job-year” (NHSTA, Report, 2009). Applying this ratio to the estimated direct government expenditures in the county for CARS vouchers, we calculated estimates for the number of jobs created in the county due to the Cash for Clunkers program.

products, the results of the survey may be skewed, but only with respect to the mix (as opposed to the volume) of new vehicles sold under Cash for Clunkers. Then too, the mere presence of auto manufacturing in the county implies that the final impact on output and employment of Cash for Clunkers will be greater than would be the case for a county that has no auto manufacturing presence. However, because of the EPA fuel-efficiency ratings of the particular van models assembled at the Wentzville plant (the Chevrolet Express and the GMC Savana), the impact of Cash for Clunkers on auto production in the county was likely modest.

Methodology

Twenty two new-car dealerships in St. Charles County participated in Cash for Clunkers. The research team hand-delivered surveys (described in greater detail below) to managers at each of these dealerships. We asked dealers participating in the survey not to identify their personal names or their companies. We distributed the surveys approximately three months after the conclusion of the rebate period, allowing respondents time to assess the impacts of the program on their sales in the period immediately following the CARS rebate period.

A few weeks later, the research team paid each dealer a second visit. During these follow-up visits, the research team asked if the manager had completed the survey. If not, we left another copy and again asked for the manager’s participation. Twelve dealers responded in the initial round. One additional dealer responded after

the follow-up visits. There was no follow-up round of surveys for used-car dealers. Out of 47 new- and used-car dealers in the study area that received surveys, 23 of them responded for an overall response rate of 49 percent. More important, though, is the response rate for new car dealers since the primary economic impact of vehicle scrappage programs such as Cash for Clunkers occurs through sales of new vehicles. Of the population of new-car dealers in the county that participated in Cash for Clunkers, 59 percent completed and returned surveys.

In calculating the total direct impact of Cash for Clunkers on new-car sales in the county, we added new-car sales reported by the survey respondents to estimated new-car sales of non-respondents. To arrive at an estimate of new-car sales for non-responding dealers, we devised a method for attributing sales figures to non-respondents while maintaining the anonymity of respondents. Survey responses representing sales due to Cash for Clunkers were adjusted to account for respondent size (i.e., number of cars on the lot). The adjustment might be viewed as something akin to the per capita GDP calculation. For example, if a dealership that carries 100 vehicles on the lot on average reported that it sold 50 vehicles through the CARS program, its “per capita” sales volume would be 0.5 vehicles. This figure was determined for all new-dealer respondents and an average was calculated. Applying a margin of error that is consistent with a ninety percent confidence interval, we derived a range for the estimated total number of vehicles sold in the county due to the Cash for Clunkers program. Using the weighted-average

sales price per new vehicle sold, along with the estimated number of new vehicles sold, we calculated a range for the estimated total sales in the county attributable to Cash for Clunkers.

Conclusion

The results in Table 3 make it appear as though the federal government achieved its primary goal of stimulating economic activity. Direct government spending in the county in the amount of \$3.7 million led to an increase in economic output of \$18.1 million. However, as noted in the previous section, the output estimate represents a one-time spike in economic activity. If the payback effect continued into 2010, then it might ultimately be the case that the spending on CARS vouchers generated little economic activity above and beyond what would have occurred in the program’s absence.

We estimated that approximately 880 CARS vouchers were turned in by new-car dealers in the county, but that possibly 376 new vehicles would have sold during the rebate period anyway. For the 504 vehicles that sold during the CARS period due to the incentive, the federal government paid about \$7,300 per traded-in clunker—not the average voucher amount of \$4,209 reported by NHTSA. Using the most conservative estimate of the payback effect, based on the survey data, 51 percent of the 504 vehicles—or 257 vehicles—would have sold anyway in the three months following the rebate period. The sales of those 257 vehicles did not contribute to an economic stimulus because they were pulled forward from a time period when the economy was still in recession. For the remaining 247 vehicles, the government paid about \$14,980 per traded-in clunker. The true cost per clunker purchased by the government could be even higher if the payback effect continued into the early months of 2010. (Edmunds.com [2009] estimated that the government ultimately paid around \$24,000 per clunker, which is close to the \$22,290 per clunker figure we calculated using our least conservative estimate of the payback effect.)

Accurately quantifying the payback effect is, in our view, the most important issue in assessing the true stimulative impact of vehicle scrappage programs such as Cash for Clunkers. Even though NHTSA collected data from consumers who participated in the program, the questions regarding the payback effect on the national level remain unanswered, at least in our minds, due to apparent problems with the NHTSA survey. Our estimates of the payback effect for St. Charles County are more in line with those of Edmunds.com and Macroeconomic Advisers than with the NHTSA. There is still much disagreement among experts regarding this issue, and so it is clearly a key area for further study.

We did not attempt to assess the environmental impact of Cash for Clunkers on the study area. Moreover, it is clear that the government’s environmental goal was secondary to that of stimulating the auto industry. We also did not attempt to analyze the impact on sales tax revenue or fuel tax revenue even though both are important public policy issues.

As mentioned in a previous section, the survey solicited suggestions for improving the Cash for Clunkers program. Several auto dealers, both new and used, expressed concern that the clunker rebates were available for foreign-made vehicles. Several used-car dealers expressed frustration that the program failed to provide help to small independent businessmen. Some new-car dealers indicated that the program was unduly burdensome from an administrative standpoint. One dealer’s comments sum up this attitude well: “It would have been better if the paperwork and processing burden wouldn’t have been put on the dealership. Maybe a prequalified voucher system would have been better. It was very stressful for us and was a huge burden that caused massive overtime to complete.”

Other data from new-car dealers support the claim that the program was replete with administrative problems. The average length of time new dealerships waited to receive voucher payments from the federal government ranged from eighteen days to sixty days, and nearly all of the new-car dealers who responded indicated that their business operations were effected by delays in receiving payment (a few respondents even stated that delayed payments created cash-flow problems). The majority of new-car dealers also indicated that their sales were hampered by issues with depleted inventory, which implies that dealers did not have adequate time to ramp up for the program, and/or the cash-flow problems associated with delayed voucher payments prevented them from replenishing inventories in a timely manner.

In spite of these administrative problems, the NHTSA claims that Cash for Clunkers was a success. Based on our results, it appears that the program increased economic activity in St. Charles County, but there is evidence that the economic activity may not have been sustained. Any job creation in the county due to the program was likely of limited duration. To the extent there were Type 3 and Type 4 consumers (see Table 2) purchasing new vehicles during the rebate period, new-car dealers in the county benefited. To the extent there were Type 5 consumers making purchases, new- and used-car dealers benefited (although the presence of Type 4 consumers in the market harmed used-car dealers). It is assumed that all consumers who participated in the program benefited, otherwise they would not have taken advantage of the rebate. However, as we have already pointed out, the cost of the program on a per-voucher basis, at least for St. Charles County, was much greater than the government-issued statistics reveal. It is these costs that must be considered when weighing the ultimate costs and benefits—and thus the overall success or failure—of the Cash for Clunkers program.

TABLE 3
Economic Impacts of CARS on St. Charles County

Variable Impacted	Estimated Range	Best Estimate
New motor vehicles sold due to CARS program	307 to 701	504
Increase in direct sales (new motor vehicles) due to CARS program	\$6.9 million to \$15.8 million	\$11.4 million
Net salvage revenues for disabled clunkers	\$39,135 to \$89,360	\$64,248
Total CARS vouchers submitted	536 to 1,224	880
Total direct government spending on CARS vouchers	\$2.3 million to \$5.1 million	\$3.7 million
Total initial increase in output due to CARS program (i.e., with multiplier effects)	\$11 million to \$25.2 million	\$18.1 million
Total increase in employment (number of jobs added) due to CARS program	25 to 56	40

SOURCES

Allan, Alexander, Rachel Carpenter, and Geoff Morrison, 2009. "Abating Greenhouse Gas Emissions through Cash-for-Clunkers Programs." Institute of Transportation Studies, University of California Davis, Research Report UCD-ITS-RR-09-26. http://pubs.its.ucdavis.edu/publication_detail.php?id=1321 (accessed January 2010).

Bennett, Jeff. "Car Makers Upbeat as Sales Rebound," *Wall Street Journal*, September 2, 2009, p. B1. Council of Economic Advisers, Executive Office of the President. September 10, 2009. "Economic Analysis of the Car Allowance Rebate System ("Cash for Clunkers")." http://www.whitehouse.gov/assets/documents/CEA_Cash_for_Clunkers_Report_FINAL.pdf (accessed January 2010).

Edmunds.com. October 28, 2009. "Cash for Clunkers Results Finally In: Taxpayers Paid \$24,000 per Vehicle Sold." <http://www.edmunds.com/help/about/press/159446/article.html> (accessed January 2010).

IHS Global Insight, August 31, 2009. "Forecast and Analysis: Industry and Production Outlook – Light Vehicles: Outlook for Light Vehicle Production." J.D. Power and Associates, Press Release by J.D. Power and Associates, August 20, 2009. "Strong Consumer Response to CARS Program Expected to Lift August New-Vehicle Retail Sales to Highest Level in the Past Year."

Klier, Thomas, July 10 2009. "'Clunkers for Cash' Sells Cars, Hikes Fuel Economy." http://midwest.chicagofedblogs.org/archives/2009/07/cash_for_clunke.html (accessed December 2009).

Macroeconomic Advisers. September 3, 2009. "Outlook Commentary." Minnesota IMPLAN Group, Inc., IMPLAN System (data and software), 1725 Tower Drive West, Suite 140, Stillwater, MN 55082 www.implan.com.

National Highway Traffic Safety Administration, U.S. Department of Transportation. Consumer Assistance to Recycle and Save Act of 2009. "Report to the House Committee on Energy and Commerce, the Senate Committee on Commerce, Science and Transportation and the House and Senate Committees on Appropriations," December 2009. <http://www.cars.gov/files/official-information/CARS-Report-to-Congress.pdf> (accessed January 2010).

National Highway Traffic Safety Administration, U.S. Department of Transportation. Consumer Assistance to Recycle and Save Act of 2009. Final Rule: "Requirements and Procedures for Consumer Assistance to Recycle and Save Program." <http://www.cars.gov/official-information/theRule.pdf> (accessed December 1, 2009).

REMI (Regional Economic Models, Inc.), WebEx recording, Seminar first presented August 11, 2009. <https://remi.webex.com/cmp03061/webcomponents/docshow/docshow.do?siteurl=remi&setupStatus=1> (accessed September 2009).

Shaheen, Susan, Randall Guensler, and Simon Washington, January 1994. "Vehicle Scrappage Programs: Are Some Sectors of Society Paying More For Clean Air?" Environmental Ethics/Equity, Session 3C. Reference Number: UCD-ITS-RP-94-46. Series: Presentation Series. <http://transaq.ce.gatech.edu/guensler/publications/others/NAEP94shaheen.pdf> (accessed December 2009).

Strumpf, Dan and Bree Fowler. Associated Press, August 28, 2009. "Ford Exec Sees U.S. Auto Sales Rising in August." U.S. Bureau of Labor Statistics. Local Area Unemployment Statistics, Unemployment Rates for Large Areas. <http://data.bls.gov:8080/PDQ/outside.jsp?survey=la> (accessed January 2010).

U.S. Bureau of Labor Statistics (a), Labor Force Statistics for the Current Population Survey. http://data.bls.gov/PDQ/servlet/SurveyOutputServlet?data_tool=latest_numbers&series_id=LNS14000000 (accessed January 2010).

U.S. Census Bureau (b), State and County Quickfacts (a). <http://quickfacts.census.gov/qfd/states/29/29183.html> (accessed January 2010).

U.S. Census Bureau, State and County Quickfacts (b). <http://quickfacts.census.gov/qfd/states/00000.html> (accessed January 2010).

Weisenthal, Joe. *Business Insider*, October 29, 2009. "The White House Stupidly Goes To War With Car Web Site Edmunds.com." <http://www.businessinsider.com/the-white-house-stupidly-goes-to-war-with-car-website-edmundscom-2009-10>, (accessed January 2010).

Welch, David and David Kiley. "After the Clunker Party, an Auto Sales Hangover," *Business Week*, posted on September 1 2009, 6:00 PM, accessed January 2010 at http://www.businessweek.com/print/bwdaily/dnflash/content/sep2009/db2009091_796652.htm.

NOTES

- ¹ UNOCAL was once a major oil exporter and marketer that in 2005 merged with Chevron Corporation.
- ² Unlike Cash for Clunkers, the SCRAP program did not require participants to purchase a replacement vehicle (Shaheen, et al. 1994).
- ³ Vehicle scrappage programs initiated in 2009 in France, Italy, Portugal, Spain, Luxembourg, Cyprus, the United Kingdom, and the U.S. had the stated goals of stimulating the auto industry and reducing greenhouse gas emissions (Allan, et al. 2009).
- ⁴ 12,272 transactions that did not meet CARS program criteria were cancelled by the dealers or NHTSA (NHTSA 2009).
- ⁵ The base MSRP is the price on the window sticker before any dealer accessories, optional equipment, taxes, or destination charges are added.
- ⁶ Car buyers in New Hampshire and Wisconsin were exempted from this rule, as those states have no insurance requirement under state law.
- ⁷ Salvagers were permitted to strip and resell all parts of the traded-in clunkers except for the engines.
- ⁸ Consumers who purchased luxury vehicles or other non-qualifying vehicles during the rebate period and were already planning to do so are not considered in this classification scheme. Clearly purchases in this category cannot be attributed to Cash for Clunkers.
- ⁹ In order to estimate the incremental or CARS-induced sales, the CEA calculated a figure for normal monthly clunker-replacement in the absence of Cash for Clunkers. The CEA assumptions about the payback effect were based on information from multiple sources, including Ford Motor Company, General Motors, J.P. Morgan, Moody's Investors Service, Goldman Sachs, IHS Global Insight, and the Federal Reserve Bank of Chicago. The CEA further analyzed the payback effect by examining two prior periods in which new vehicle sales were boosted through financial incentives programs: the zero-percent financing and other incentive programs offered following the September 11, 2001, terrorist attacks in New York and the expiration of employee discount pricing incentives in 2005 (the idea of the latter being that the period just prior to the expiration of employee pricing incentives would see a CARS-type increase in new-car sales) (CEA 2009).
- ¹⁰ NHTSA acknowledges the improbability of this result and makes an adjustment for it (NHTSA 2009). Still, this surprising and unlikely result casts significant doubt on the validity of the survey instrument and/or the method of collection.
- ¹¹ This figure represents a weighted average (weighted by number of vehicles sold as a result of CARS).
- ¹² This figure represents a weighted averaged, with the number of clunkers accepted for trade serving as the weight.
- ¹³ As a check of our estimates, we compared the total CARS vouchers submitted in the county using our estimation method with the total CARS vouchers submitted using a "top-down" estimation method. For the top-down method we multiplied the ratio of St. Charles County's population to the state's population by the number of CARS vouchers submitted in Missouri from the NHTSA database. The top-down method yields an estimated number of vouchers submitted for the county that is very close to the 880 vouchers we estimate using our "bottom-up" method.
- ¹⁴ Bureau, but most residents would likely consider it more suburban in nature.
- ¹⁵ Given that our survey was anonymous, we did not solicit data from auto dealers regarding the specific makes and models of vehicles sold through CARS.
- ¹⁶ Our estimation technique captures any added production and employment that occurred at the Wentzville GM plant due to CARS-induced sales that took place in the county. But CARS-induced sales of the particular models produced at the Wentzville plant that occurred outside the county are not captured in the results. This impact is likely to be small; Chevrolet and GMS together accounted for only about fourteen percent of total sales of all the makes of vehicles of sold through Cash for Clunkers. Moreover, Category 2 and Category 3 trucks only accounted for about 7 percent of the vehicle types sold through CARS.
- ¹⁷ With the exception of one dealership, whose manager was not available at the time of the research team visits.
- ¹⁸ For the purposes of this study, cars sold as part of Cash for Clunkers includes vehicles for which consumers received the CARS rebate, as well as new vehicles that did not qualify for the rebate but for which the dealer chose to grant the rebate anyway (out of the dealer's own profits).
- ¹⁹ This figure does not include the NHTSA's administrative costs.
- ²⁰ The output multiplier used from IMPLAN is "Retail Stores – Motor Vehicle and Parts," Industry Code 320.
- ²¹ This was achieved by calculating the ratio of submitted vouchers to cars sold due to Cash for Clunkers for the sample and then applying that ratio to the estimated number of cars sold by all new-car dealers due to the rebate. The average voucher amount was around \$4,200, according to our survey as well as the NHTSA data.

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The Journey

of the Sisters of Charity
to St. Louis,

1828



BY CAROLE PRIETTO

At five-thirty in the morning on October 15, 1828, four Sisters of Charity of St. Joseph's—Sisters Francis Xavier Love, Martina Butcher, Rebecca Dellone, and Francis Regis Barrett—left St. Joseph's Provincial House in Emmitsburg, Maryland, bound for a new mission in St. Louis, where Bishop Joseph Rosati had asked the community to establish a hospital. Sr. Francis Xavier kept a diary of their 1,500-mile trip, "writing many things that happened to us, to let our Sisters know what they may expect, should they travel some time hence."¹ After the Sisters reached St. Louis, the diary was sent back to Emmitsburg. It was later copied and deposited in the Daughters of Charity Archives in St. Louis, where it resides today. With the following article, the St. Louis copy of the diary is published in its entirety for the first time.

The diary contains vivid details about long distance travel in the 1820s. The Sisters, along with eight other passengers, began their journey in a stagecoach described by Sr. Francis Xavier as "the most formidable looking vehicle I had ever seen." When the Sisters reached St. Louis on November 5, the bishop was out of the city, the hospital was not ready for them, they had no place to stay, and they needed medical care themselves. The Sisters stayed with Mother Rose Philippine Duchesne and the Sisters of the Sacred Heart until the end of November, when their hospital was finally ready

to accept its first patients.

The years following the American Revolution witnessed the expansion of the Catholic Church in the United States. The Constitution separated church and state, making religion more a matter of individual choice. The number of churches doubled between 1770 and 1790. Older state churches with Old World connections—Anglican, Congregational, and Presbyterian—were supplanted by new religious denominations and sects—Baptists, Methodists, Universal Friends, Universalists, Shakers, and others.² Wives and mothers often led the way in joining a church, and women outnumbered men in most antebellum congregations, regardless of denomination. A related trend was the rise of benevolent associations: missionary societies, temperance societies, societies devoted to the care of the poor, and many others. Participating in benevolent associations gave women an opportunity to become more involved with the world outside their households.³

In 1790, the Catholic population numbered approximately 35,000, yet Catholics were still a tiny minority in all the states. Even in Maryland, which had the largest proportion of Catholics, they numbered only about 15,000 out of a Maryland population of nearly 320,000 at the time. While discrimination against Catholics did not go away entirely, the Revolution



Above, St. Louise de Marillac (1591-1660), co-founder of the Daughters of Charity, was the illegitimate daughter of a wealthy French family. After her husband's death she found her calling through her collaboration with Vincent de Paul in his ministry of serving the poor. (Photo: Daughters of Charity Archives, St. Louis)

Below, St. Vincent de Paul (1581-1660) was a priest, servant of the poor, church reformer, founder of the Congregation of the Mission (Vincentians), and co-founder, with Louise de Marillac, of the Daughters of Charity. (Photo: Daughters of Charity Archives, St. Louis)



created an atmosphere of greater tolerance. In 1783, for example, Rhode Island repealed its 1719 statute preventing Catholics from voting and holding office.⁴

In the late eighteenth century, the Vatican experienced a loss of power and control over national churches, which did not revive until the second half of the nineteenth century. The influence of Rome on the American church was minimal because of the impact of the French Revolution on the Church in Europe. For a time the church in France ceased to function as monasteries were closed, buildings were destroyed, priests executed, and the

THE ORIGINS OF THE DAUGHTERS AND SISTERS OF CHARITY

The Daughters of Charity was founded in France in 1633 by Saints Vincent de Paul (1581-1660) and Louise de Marillac (1591-1660). Saint Elizabeth Ann Seton founded the Sisters of Charity of St. Joseph's in 1809. Mother Seton's community followed a modified form of the Daughters of Charity's community rules, but was independent of the Daughters of Charity. The Sisters who went to St. Louis in 1828 were members of the Sisters of Charity of St. Joseph's. In 1850, the Sisters of Charity of St. Joseph's merged with the Daughters of Charity, assuming the name "Daughters of Charity," along with the Daughters of Charity's habit, rules, and community practices.

In addition, communities of religious women known as Sisters of Charity but not connected with either the Daughters of Charity or the Sisters of Charity of St. Joseph's were established as early as 1812. The Sisters traveling to St. Louis encountered one such community on their trip: the Sisters of Charity of Bardstown, Kentucky, known today as the Sisters of Charity of Nazareth. Today, eleven Sisters of Charity communities in North America, along with the American provinces of the Daughters of Charity, make up the Sisters of Charity Federation, a voluntary organization representing more than 4,000 members who recognize their character and spirit in the tradition founded by Saints Vincent, Louise, and Elizabeth Ann.

church's very existence called into question. Napoleon's troops kidnapped Pope Pius VI, who died a prisoner in exile. Then Napoleon kidnapped Pius' successor, Pius VII, and kept him prisoner for nearly six years. Events in the United States mattered little in the larger picture of Vatican affairs. The political turmoil affecting Rome, combined with the spirit of democracy present in the early republic, combined to radically alter the manner in which authority operated in the American church, beginning with the appointment of the United States' first bishop, John Carroll, in 1789. Carroll was elected by the American

clergy, not appointed by the Vatican; at the time, there were just 22 priests in the United States.⁵

By the time Carroll became bishop, the Catholic Church in America had begun to adapt to the republican climate of America. In the 1780s Carroll had worked to make the Catholic Church an independent national church rather than simply a Catholic mission dependent on the Vatican. He established a Catholic college in Georgetown, created a Sulpician seminary in Baltimore, promoted the use of English in the liturgy, and urged the publication of an English translation of the Catholic version of the Bible. At the same time Catholic laity began to participate actively in the organizing and running of their churches, replicating the process of many of the Protestant denominations. The practice of laymen forming trusteeships elected by people in the parish began in the cities but soon spread to the frontier areas. Without benefit of clergy, Catholics banded together and formed religious societies, elected their leaders, purchased land for churches, and assumed responsibility for governing their churches. Catholics were coming to accept the idea of separation of church and state and to think of themselves as just another Christian denomination—a position that the Catholic Church as a whole did not formally endorse until the Second Vatican Council of 1962. Carroll believed that religious liberty, “by giving a free circulation to fair argument, is the most effectual method to bring all denominations of Christians to a unity of faith.”⁶

The Catholic population grew rapidly. Bishop Carroll secured the creation of four new dioceses by 1808 in Boston, New York, Philadelphia, and Bardstown, Kentucky, and two more (Richmond and Charleston) in 1819. By 1820, the Catholic population numbered around 160,000, a number surpassed only by the Methodists and Baptists. Immigrating Catholic orders built three seminaries, four men’s colleges, and ten women’s academies. Clergy numbered 122, 88 of whom were diocesan priests; the rest belonged to religious orders such as the Jesuits, Augustinians, Dominicans, Vincentians, and Sulpicians, all of whom had either come from Europe as missionaries or had come to America fleeing the turmoil in Europe. The Napoleonic era on the Continent had suppressed hundreds of religious orders, and America represented an opportunity for these orders to begin a comeback. By 1820, five communities of religious women had been founded and 208 Sisters were serving in the United States. Ten years later, eleven Catholic religious communities functioned in the United States; one of them was unique because it was not a European transplant but founded in America by an American. The community was the Sisters of Charity of St. Joseph’s, later known as the Daughters of Charity, and their foundress was Elizabeth Ann (Bayley) Seton.⁷

Mother Seton’s life was remarkable because during her life she was wealthy and poor, Protestant and Catholic, socially prominent and an impoverished social outcast, mother of five children and a widowed single parent, and foundress of a Catholic religious community. For Mother Seton and the women who joined her community, the

decision to enter a religious life represented a radical choice. Taking religious vows cut them off from marriage, family, and the place in society that came with being a married woman. At the same time, their vows freed them to dedicate themselves to a life of service. In St. Louis and elsewhere, Catholic religious women have left an indelible stamp on American life by their service in hospitals, schools, orphanages, and other works.⁸

In 1803, the Louisiana Purchase doubled the size of the United States. With the acquisition of Louisiana and the addition of the diocese of New Orleans, Spanish and French Catholics became part of the United States. St. Louis became the focal point for the extension of the American Catholic church. When the Louisiana Territory came under American control, the papacy charged the fledgling American church with administering the area. In 1812, Bishop Carroll appointed Fr. Louis DuBourg as ecclesiastical administrator and sent him to New Orleans to minister to the area. DuBourg was well qualified for the post. He was born in Santo Domingo in 1766, educated in France, and then driven out of France by the revolution. Prior to his appointment, DuBourg served as President of Georgetown College and founded St. Mary’s College. When DuBourg arrived in New Orleans, the rector of the

Although Italian-born, Joseph Rosati (1789-1843) was among the priests who arrived in the Missouri Territory in 1818 from Kentucky. He was among those who built the first chapel in Perrysville. (Photo: Special Collections and Archives, DePaul University Libraries, Chicago)



Elizabeth Ann Bayley was born into a prominent Episcopalian family in New York City, August 28, 1774, the second of three daughters of Dr. Richard Bayley and Catherine Charlton Bayley. Elizabeth married William Magee Seton, scion of a wealthy New York mercantile family with international connections, January 25, 1794. Elizabeth bore five children between 1795 and 1802: Anna Maria, William, Richard, Catherine, and Rebecca. As a young society matron, Elizabeth enjoyed a full life of loving service to her family, religious development in her Episcopal faith, and a life of service caring for the indigent poor through involvement in a benevolent society, the Society for the Relief of Poor Widows with Small Children, in which she served as treasurer. In March 1803 she and other officers from the Society petitioned the New York State legislature for permission to conduct a lottery to raise \$15,000 for low-rent housing for the widows and a school for their children.²⁵ She and her sister-in-law, Rebecca Mary Seton, became known as the “Protestant Sisters of Charity.”

As the eighteenth century drew to a close, two tragedies visited Elizabeth. Political and economic turmoil resulted in the bankruptcy of William Seton’s business and took a severe toll on his health. He became increasingly debilitated by the family affliction, tuberculosis. Hoping to arrest the disease, Elizabeth, William, and Anna Maria embarked on a voyage to Italy. On their arrival in Livorno (Leghorn), they were placed in quarantine; soon after, December 27, 1803, William died. At age twenty-nine, Elizabeth had become a widow with five children. While waiting to return to their family to the United States, Elizabeth and Anna Maria spent several months with the Filicchi family of Livorno, who were business associates of her husband. The Filicchis were devout Catholics, and for the first time Elizabeth experienced Roman Catholic piety in her social equals. She was deeply impressed by the Catholic faith and began to study Catholicism with the help of the Filicchis. Elizabeth returned to New York in June 1804, and in March 1805 she and her children were received into the Catholic Church.

Elizabeth’s conversion triggered three years of financial struggle and social discrimination. John

Henry Hobart, the Episcopal priest who had influenced Elizabeth’s spiritual life during her years as an Episcopalian, was especially critical. When Elizabeth, attempting to support her children, opened a school in New York City, Hobart sought to discredit both Elizabeth and the school by spreading false rumors that Elizabeth was seeking to convert her students to Catholicism; these rumors contributed to the school’s eventual failure.

In 1806, Elizabeth was confirmed by John Carroll, Bishop of Baltimore. Bishop Carroll had welcomed the Sulpician priests, displaced by the French Revolution, to begin St. Mary’s Seminary in Baltimore for the training of priests. One of the Sulpicians who came to Baltimore was Fr. Louis DuBourg, later the bishop of Louisiana and Florida who would have such a profound impact on the church in St. Louis. Another important Sulpician was Fr. Simon Gabriel Bruté, who later became president of St. Mary’s Seminary, the first Sulpician superior of the Sisters of Charity, and Elizabeth Seton’s spiritual director.

At the invitation of Fr. DuBourg, Elizabeth moved with her family to Baltimore to open a school in June 1808. Soon Catholic women from along the East Coast came to join her work. The women soon moved to Emmitsburg, Maryland, where they formally established the Sisters of Charity of Saint Joseph’s on July 31, 1809. Elizabeth Seton was named first superior and served in that capacity until her death. As the community took shape, Elizabeth, now known as Mother Seton, directed its vision. Fr. DuBourg introduced her to the rule of the French Daughters of Charity, and she adapted the rule of the French sisters to better suit conditions in America. A novitiate was conducted, and the first group of sisters, including Mother Seton, made annual vows—service to the poor, poverty, chastity, and obedience—for the first time July 19, 1813.²⁶

During her years in Emmitsburg, Mother Seton suffered the loss of two of her daughters to tuberculosis, Anna Maria in 1812 and Rebecca in 1816. By that time Elizabeth herself was weak from the effects of the disease. She spent the last years of her life directing St. Joseph’s Academy and her growing community. She died of tuberculosis January 4, 1821.

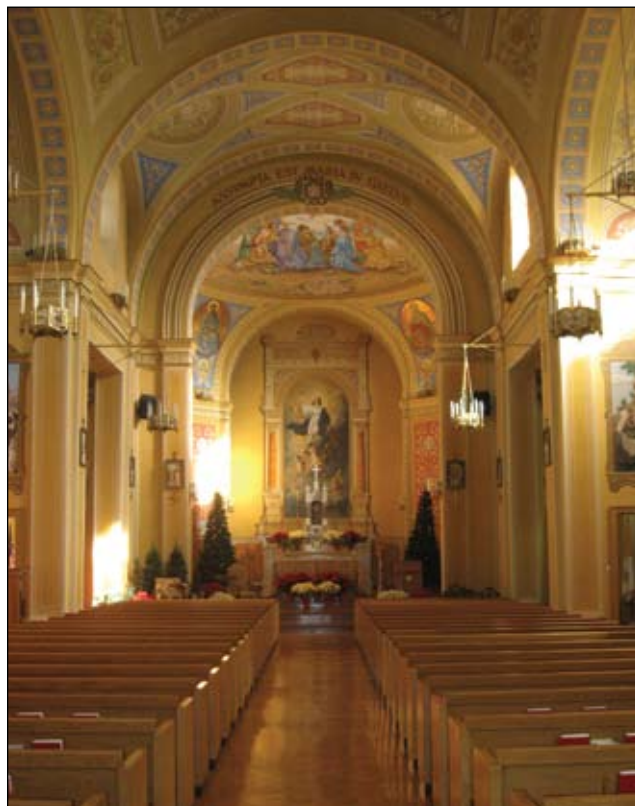
cathedral challenged Carroll's right to send DuBourg, and in 1815 DuBourg traveled to Rome to settle who would govern the diocese. While in Rome DuBourg recruited several Vincentian priests to serve in his diocese. Five Vincentian priests, four brothers, and four seminarians arrived in Baltimore on June 12, 1816. Fr. Felix de Andreis was their superior, and Fr. Joseph Rosati was his assistant.

Prior to 1828, works of the Sisters of Charity had been confined to the East Coast—Emmitsburg, Baltimore, Philadelphia, and Washington, D.C. The hospital in St. Louis marked the first time the Sisters of Charity ventured into the western frontier. The West into which the Sisters traveled differed in significant ways from the world the Sisters left behind in the East.

One difference was the religious environment. Protestant denominations began appearing in St. Louis after the Louisiana Purchase, when the Spanish lifted restrictions against Protestantism; Presbyterians arrived in 1817, Baptists in 1818, and Episcopalians the year after. As in the East, women played prominent roles in new benevolent societies in St. Louis. Over the next fifteen years, immigrant benevolent societies emerged such as the Erin Benevolent Society (1818), the Missouri Hibernian Relief Society (1827), and "The Female Charitable

Chapel at St. Mary's of the Barrens in Perryville, Missouri. The seminary received its charter to confer degrees from the Missouri legislature in 1823. The original portion of the chapel sanctuary, pictured here as it appears today, was completed in 1837.

(Collection of the Author)



Society" (1824). The city of St. Louis petitioned the legislature in 1826 for funds to build a poorhouse, primarily for destitute immigrants. In 1834, the St. Louis Association of Ladies for the Relief of Orphan Children (later incorporated as the St. Louis Protestant Orphan Asylum) opened.⁹

Bishop DuBourg was an energetic, visionary leader who was skilled at working with city officials and the emerging Protestant population. Two days after his arrival in January 1818, he asked for a new brick church to replace the existing log structure, and immediately set about raising money for its construction. On March 29, 1818, the cornerstone was laid for what is known today as the Old Cathedral. Two days later he went to Perryville; in an area known as the Barrens because of its lack of trees, some eighty Catholic families offered DuBourg 600 acres of fertile land on which to build a seminary for the diocese and offered to pay some of the cost of the start-up. DuBourg accepted the offer, and the seminary, known as St. Mary's of the Barrens, became the first American novitiate of the Vincentian order.¹⁰ In 1818, he was given the use of the house of a Mrs. Alvarez, located on the north side of Market Street, between Second and Third, to build a college to accompany the cathedral and seminary. It opened as an academy for boys, high school age or younger, but quickly became a college when DuBourg moved some of his seminarians from Perryville to St. Louis to complete their educations. Today we know it as Saint Louis University.¹¹

DuBourg's method of spreading institutions anchored religious life around them rather than the usual parish/priest structure. The southern portion of the St. Louis area would be anchored by the seminary at St. Mary's. The new convent at St. Charles would anchor the St. Charles/Florissant western area. St. Louis would have the cathedral and a college. DuBourg viewed this dispersal as a means to support and minister to large rural populations.¹²

The bishop recruited nuns from the Society of the Sacred Heart to minister to Indian tribes. The order sent five Sisters, including Mother Philippine Duchesne, to St. Louis. Before they arrived, DuBourg decided to send the Sisters to St. Charles to educate white girls rather than to work in the Indian missions. The Sacred Heart Sisters opened the first free school for girls west of the Mississippi on September 14, 1818, in St. Charles. John Mullanphy, a prominent merchant and St. Louis' first millionaire, donated money to open their St. Louis city house in 1827, located at the present corner of Chouteau and Broadway.¹³ When the Sisters of Charity arrived in St. Louis and found the bishop out of town and their hospital not ready for them, Mother Duchesne took them in at her city house, even though the only spaces she had were small sacristy rooms. The Sisters of Charity did not forget the favor; when the superior of the Sacred Heart Sisters died in 1833, four Sisters of Charity helped carry the coffin at her funeral.¹⁴

DuBourg enjoyed many successes in St. Louis, but continued to experience difficulties in Louisiana. In December 1825, DuBourg submitted his resignation,



George Caleb Bingham, "Watching the Cargo" (1849). The men who served as the crews on river craft were not always the most cultivated, as portrayed by Bingham here or described by Sr. Francis Xavier Love on her trip. (Photo: State Historical Society of Missouri Photo Collection)

and was replaced by his assistant, Fr. Joseph Rosati, who formally took over the position in March 1827.

On June 23, 1828, Rosati wrote to the Fr. Simon Gabriel Bruté, Sulpician superior of the Sisters of Charity, saying:

How admirable is Providence! Without having said a word, a very rich man offers me a beautiful piece of ground, with two houses in the city of St. Louis. He will give besides another lot with other houses that will bring a revenue of six hundred dollars a year; he will give one hundred and fifty dollars for the journey of the Sisters, and three hundred and fifty to furnish the house. But he will not leave it in the hands of mercenaries; if we do not get the Sisters of Emmitsburg, this establishment will fail, for I see too many difficulties to obtain any from France and those of Kentucky do not understand hospitals. Will the Daughters of St. Vincent have the courage to deprive the poor of this city and its environs of an establishment which is so necessary and which will not be established if they refuse to come! ... For the love of God, speak, pray, exhort, do all that is in your power that this great work may not fail. Answer me as soon as possible.¹⁵

The "very rich man" was John Mullanphy. Rosati's approaching the Sisters of Charity was based on the French experience. Unlike the French Daughters of Charity, the American Sisters had little experience with hospital ministry in 1828; the majority of their works were schools and orphanages.¹⁶

Rosati had good reason to characterize the proposed hospital as "an establishment which is so necessary." Rapid growth and the economic downturn caused by the Panic of 1819 meant that St. Louis did not have the infrastructure to provide even basic city services.¹⁷ The city depended on the river and a few wells and cisterns for its water supply. It had no sewage system; on rainy days water cascaded from the overhanging eaves, found what drainage it could in the streets, and collected in sinkholes which developed unsightly scum and pungent smells in hot weather. The city streets were narrow, crooked, mostly unpaved and full of holes; the filth that accumulated in them created health hazards.¹⁸ Health care in St. Louis in the early 1820s consisted of a single small hospital under private auspices.

Mother Augustine and the leadership of the Sisters of Charity of St. Joseph's acted on Rosati's request on July 27, 1828: "Bp. Rosati's application of Srs to take charge of an Hospital [*sic*] admitted. He is to be informed that four Sisters are to be sent as soon as he is ready to receive them."¹⁹ On September 8, the Sisters who would make the



“Comfort” is a relative term, especially when applied to stagecoach travel, as the Sisters discovered as they made their way to St. Louis. (Photo: State Historical Society of Missouri Photo Collection)

journey were chosen. On the 21st, another letter from Fr. Bruté to Mother Augustine arrived in Emmitsburg. Bruté’s letter read:

Coming home I received a letter from Bishop Rosati at the ‘Seminary of St. Mary, Perry County, Missouri, 29th of August’ I copy it, as it is in French. ‘What pleasure your letter has caused me in giving the happy results of your negotiations which assures to the city of St. Louis an establishment so important and necessary. God be blessed! I immediately communicated this news to Mr. Mullanphy, the founder of the hospital, who awaited it with impatience. We are well pleased at receiving four instead of three! The selection of a Sister who speaks French could not be more happy.’²⁰

When the Sisters got off the stagecoach in St. Louis on that November day in 1828, they found a rapidly expanding city; a city in the midst of becoming an important commercial center for the middle of the country, and a city greatly in need of both basic sanitation and a hospital. St. Louis experienced a population boom following the Louisiana Purchase in 1803 and again following the War of 1812. Between 1810 and 1820, the population of St. Louis rose from 1,400 to nearly 5,000. In the fifteen years between 1820 and 1835, the town of 5,000 grew to 8,316. Statehood in 1821 and the resulting migration signaled the beginning of the city’s recovery from the Panic of 1819 and a permanent transition to a broader-based economy rather than one based primarily on fur trading.²¹

The Sisters’ superiors in Emmitsburg were 1,500 miles away, and Rosati was often absent from St. Louis, so they were often on their own. They had to learn, day by day and on the job, about working with city officials, managing money, paying taxes, hiring and firing staff, procuring food and supplies, and all the other aspects of running a hospital, in addition to caring for patients.

Their hospital in a three-room log cabin received its first patients on November 26, 1828. The following day, Rosati wrote to Mother Augustine in Emmitsburg:

The hospital is on the footing of all the institutions of our state. It is but in embryo ... I have no doubt it will grow into perfection ... in the beginning the Sisters will experience many of the inconveniences of a new establishment in a new country. The buildings are poor, the furniture is not brilliant, everything bespeaks of the poverty of a new country. But the Sisters give me great courage, and I have no doubt that such beginnings will meet with the particular blessings of heaven.²²

It did not take long for the hospital to begin growing, nor did it take long for the Sisters of Charity to demonstrate their commitment and their courage to both Rosati and the people of St. Louis. Within four years the hospital had outgrown the log cabin and needed a larger site. With help from John Mullanphy they acquired one. In February 1832, Rosati reported to Mother Augustine that “the new house is now finished; the number of patients increases ... Mr. Mullanphy has bought and given an

adjacent lot and is now making arrangements to buy the balance of the square so that it will belong entirely to the hospital.”²³

In October of that year, St. Louis was struck by a serious outbreak of Asiatic cholera. The Sisters offered their hospital, their services, and even their own quarters to care for cholera patients. Sr. Francis Xavier Love wrote a letter to Mother Augustine describing conditions at the hospital:

[October 26] was a communion day for us ... I went with the sacred host yet in my mouth and was soon followed by my beloved Sisters from that time until the 30th and the 31st we heard nothing in both the hospitals but the feeble groans of the dying and the louder cries of the newly attacked, who were brought to us from the streets, from their houses, and from their workshops. We saw large, strong-bodied men suddenly struck and expire in a few hours, and before we could remove one corpse, a second, third, and a fourth were ready ... Our Sisters here are true Daughters of St. Vincent de Paul; they have nursed day and night, never taking the least rest until exhausted nature forced them to do so ... Everyone who had health ran away from us; the washer-women went off leaving the tubs full of wet clothes, nor could we prevail upon them to wash even the Sisters’ clothing in their own houses ... Only one person stood his ground like a true Soldier of the Cross ... a brother of the order of St. Vincent. He brought the sick to both hospitals on his back and remained with us day and night to help in nursing them. It is he who removed the dead bodies for us. When the corpse is not too heavy he takes it in his arms and carries it out of our way, and when it is too weighty, two or three Sisters assist him.”²⁴

In 1833, Sr. Ellen Pigot, who had come to St. Louis from Emmitsburg in 1832, died while caring for cholera patients, the first Sister of Charity to die in St. Louis. In gratitude for the work of the Sisters’ Hospital during the cholera epidemics, city officials designated the Sisters’ Hospital to be the official city hospital. When the city constructed its own City Hospital in south St. Louis, the Sisters renamed their institution Mullanphy Hospital. When it was seriously damaged by the tornado of 1927, the Sisters built a new hospital located at Kingshighway and Wabada Avenue on the near north side. They called it DePaul Hospital. In the mid-1970s, DePaul moved to its current location in Bridgeton. In 1995, the Daughters of Charity sold DePaul Hospital to the SSM Health Care System; it is now known as SSM DePaul Health Center. The Daughters of Charity’s ministry in St. Louis continues to this day in the areas of health care, education, and social welfare ministry.

WHO WERE THE FIRST DAUGHTERS OF CHARITY TO TRAVEL TO SAINT LOUIS?

Diaries like this one are more than adventure stories. They are windows through which we can glimpse a particular place and time. It is important, then, to place the diary in its historical context, beginning with the Sisters themselves. Who were these women and what do we know about them? Surviving records for the Sisters are scant but some details about the Sisters do emerge. The birth date of Sr. Francis Xavier Love has not survived (she was an orphan; her adopted name was Mary Ann Love). The only known reference to her age comes from a superior of the Sisters of Charity who noted that she was, “I would say,” 44 years of age when she died in 1840, placing her birth around 1796.⁵² When she entered the Sisters of Charity August 21, 1820, Sr. Francis Xavier was living in Baltimore and had recently converted to Catholicism. She died in St. Louis in 1840.

Sr. Martina Butcher had been a Sister the longest time when they left Baltimore. Born Eliza Butcher in Philadelphia in 1800, Sr. Martina’s parents died during her childhood, leaving her to be raised by an uncle. She entered the Sisters of Charity in 1817 and was the niece of Mother Augustine Decout, superior of the Sisters of Charity at the time of the journey to St. Louis. Sr. Martina served in St. Louis for five years, then went on to missions in Louisiana, Washington, D.C., Virginia, Maryland, and finally, Mobile, Alabama, where she died of yellow fever on August 7, 1849.

Sr. Rebecca Dellone was born in 1801. She entered the Sisters of Charity in 1821, made vows for the first time in 1823.⁵³ Sr. Rebecca served in St. Louis until 1843, when she went to Detroit to help establish another hospital. She died there five years later.

Sr. Francis Regis Barrett, the youngest of the four, was born in Cuba on October 11, 1804. The circumstances of her coming to the United States are unknown. Sr. Francis Regis served in St. Louis until 1835, when she was sent to New Orleans to serve in an orphan asylum. From there, she went on to missions in Emmitsburg and Philadelphia, then back to New Orleans, where she died on April 23, 1862.

The diary

of the Journey of the Sisters of Charity to St. Louis, 1828

October 15, 1828. Half-past five in the morning left St. Joseph's for St. Louis. When seated in the carriage, while Mother, Sister Betsy, and others were arranging our baggage, I took a last affectionate look at my dear spiritual nursery, and each beloved Sister and friend passed in rapid succession before my mental vision. I felt that I should never see them again. At that moment the driver cracked his whip. It was the signal for departure. We enveloped ourselves in our cloaks, and as the carriage rolled down the lane I saluted for the last time the Guardian Angels²⁷ of St. Joseph's. We remained in profound silence till near Frederick,²⁸ God alone witnessing what passed in our hearts. We dined with Sister Margaret,²⁹ who was very kind to us, and procured for each of us a pair of over-socks, and gave us two old shawls, which she said she could easily spare—we found them very comfortable under our cloaks. After dinner we saw Rev'd. Father McElroy who gave us his blessing and a bottle of holy water. Then we went to church, recommended ourselves to Almighty God and His holy angels, and from there to Mr. Jamison's³⁰ to meet the stage. Truly, it was the most formidable looking vehicle I had ever seen! Passengers, eight in number, had already taken their places. We had the back seat, where we kept ourselves quiet while gentlemen and ladies looked at us, then at each other, wondered and looked again. There was one amongst the company whom I took to be a protestant minister. After we crossed the first two mountains, poor Sister Martina looked out of the carriage, and said: "How far are we from home?" The sun began to disappear behind the high mountains; the air became unpleasantly cold; passengers closed the curtains which, to our great relief rendered the carriage dark, so we could once more hold up our heads without encountering the inquisitive gaze of strangers. We supped at Hagerstown,³¹ people much astonished to see such odd looking folks. One of the ladies who was traveling with us could restrain her curiosity no longer, but asked in a loud voice: "Ladies, where are you traveling?"

"To St. Louis, Madam," replied I gravely. Lady looked another question, but did not propose it. The minister then began to explain to his next neighbor that we were Sisters of Charity, and that he had seen us in Baltimore. He then leaned his head upon his hands, and muttered something about "we clergy"...

Thursday morning, October 16. We breakfasted in Cumberland.³² As we were about to start again, a kind looking young man approached smiling, and asked us if we could not come to see his wife, saying his name

was Mattingly. I thanked him, declined, but told him his good sister³³ was well. We re-entered the stage, and were followed by the minister, and a very sickly looking man. Scarcely were we seated when the minister became very restless. At last addressing himself to the stranger:

"Your health it seems is not good?"

"No, Sir."

I hope your lungs are not affected?"

"Yes, sir, they are."

"Does your profession oblige you to make much use of your lungs?"

"No, sir."

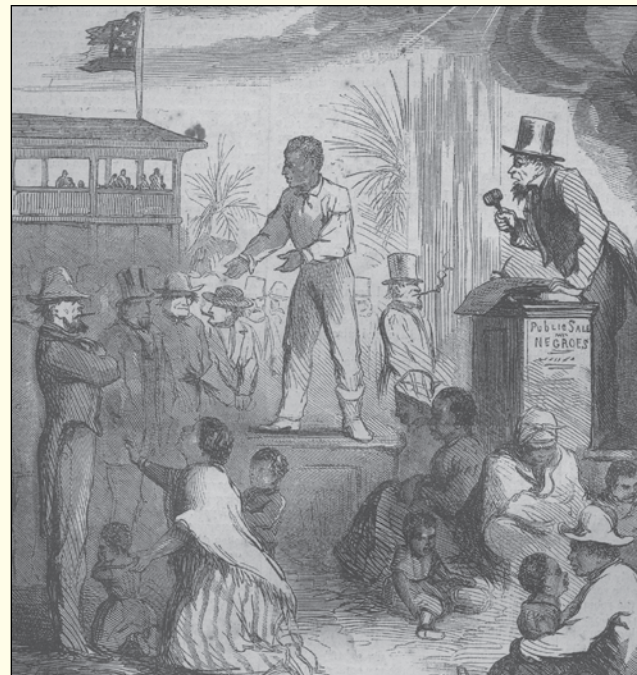
"Well, it is not the case with me; I have to preach the Gospel." The stranger looked very much pleased, which gave the minister new courage; he set to, and gave us quite a sermon, after which he said to Mr. Jamison: "You, I suppose, sir, will style us heretics?"

Good Mr. Jamison, who had been silently listening to all that had been said, now answered minister's questions. A long argument ensued. The poor minister finding Mr. Jamison too strong for him, grew warm, and wished to fly the point in question. Mr. Jamison would not consent; Minister said he was hoarse, and must get out of the stage; he wished to take a little [word indecipherable]. He returned in a few moments, and turned the conversation.

Between Cumberland and our dining place, we saw on one side of the road, huddled together like beasts, nearly a hundred blacks; numbers of them chained together, half-

The Sisters of Charity were startled by the sight of slaves chained by the side of the road, but after their arrival in St. Louis they would find that other cruelties of the "peculiar institution" were also commonplace, including slave auctions like this one.

(Photo: State Historical Society of Missouri Photo Collection)



naked, shivering with cold—men, women and children. Some were standing, others sitting half-double, leaning on each other in mute distress. As the stage passed slowly by, they looked after us with a kind of wild despair, enough to touch the hardest heart. I asked what it meant, and one of the gentlemen answered some daring seller of human flesh had left them there until he should get another supply.

Friday morning, 17th October. Delightful weather; hoisted the curtain of the stage so we had a view of the country. The surrounding prospect was beautiful beyond description, mountains rising above mountains far off as the eye could reach, immense steeps on one side, an awful abyss yawning as if to receive the first victim on



Besides chaining slaves in transit together as the Sisters saw on their trek, whippings were not uncommon either, as seen here.

(Photo: State Historical Society of Missouri Photo Collection)

the other. Here and there the lofty pine seemed to boast its deep verdure, while the passing breeze was seeping from neighboring trees their yellow sickly foliage.

In the evening, about sunset as we were passing a chasm, we were on the point of being precipitated. The affrighted driver gave a sudden and powerful jerk to the reins, and turned his unruly horses towards the eminence. Good Mr. Jamison, who was always on the watch, saw our danger, and sprang from the carriage; the gentlemen all followed him, while the driver was calling for help, they succeeded in checking the wheels, then helped out the ladies. We walked a considerable distance. Night came on, and we had still two mountains to cross before we would reach our place of destination. We all got into the carriage again, and went on very well until we reached the top of the second mountain. The gentlemen all got out to assist the driver in guiding his horses past the abyss. Minister refused to stay with us, saying it would be boldness in him to run such a risk.

"Well, Ladies," said one of the gentlemen, "we leave you to your fate!"

It was dark in the stage, and we did not see our danger, and could only judge of it by the many cautions given to the driver by our friends outside. The horses set off and in a moment every human sound died away. How

happy, thought I at this moment are our dear Mother and Sisters, while we are here in danger of instant death! But, well I knew your united prayers had been offered for us, even before the hour of danger. Almighty God heard and accepted them, and through your prayers, served your children at a time when no human aid could reach them.

Poor Mr. Jamison almost killed himself running; I believe he would have given his life to preserve ours. The horses stopped at the foot of the mountain; our friends came up full of joy to find us all safe.

Saturday 18th. Traveled all day, and all night very quietly. Arrived in Wheeling³⁴ Sunday morning, 19th Oct. The atmosphere is rendered so thick and heavy by the smoke of the coal, that the place wears a constant aspect of gloom. In summer, they say, it is not so bad, as then they need not so much fire. We went to see the church, and the neglected state in which we found it, was truly painful to us. Each ancient spider seemed to have chosen his corner, and judging from the length and breadth of the well spun web, they have remained for years uninterrupted proprietors of this house of God. The desolate altar covered with dust, and the empty tabernacle expressed to our hearts the length of time it had been since the divine Victim of our redemption had been offered there. We were all penetrated by the same feeling. Sister Rebecca proposed saying our chaplet;³⁵ we did so, and on raising my eyes, I perceived that some poor Catholic woman had joined us. The church has a place for an organ; it has no pews, but a number of rough planks are placed on supporters. I could not help remarking that even the spiders kept a respectful distance from the holy altar. As we left the church a crowd of Catholic mothers, some of them holding an infant in arms and another by the hand, were there as if to show us the necessity of having a priest to instruct their children. They all began at the same time to utter their bitter complaint at not being able to teach their children by example the meaning of the word religion. "We are willing," they said, "to pay a priest; we are sure he would not want for anything; we would have the church finished if we met with any encouragement. We wrote to the Archbishop but he has not given us any hope.³⁶ O Sister, you write to him for us!"

I said: "Yes, I will!" One poor woman asked me to christen her child! We told her we could not, as it was not sick. I never saw such large families of fine children. I am certain our good Archbishop would have cried like a baby had he seen and heard them. Do, Mother, speak to the Rev. Mr. Hickey, Father Deluol,³⁷ and even to the Archbishop.

Do for God's sake intercede for them. You are my Archbishop—therefore, my promise is fulfilled.

Tuesday, October 22. On board the steamboat.

Sunday, October 27. We are here on the Ohio River, yet I am at liberty to write as much as I please, for we often stand still. I do not think that St. Theresa³⁸ ever had these kinds of difficulties—this boat has run aground six times. The first time, we remained eighteen hours, the poor sailors, several times for hours, up to their waists in the river, with buckets, ropes, etc., endeavoring to [pry?] the boat out of the sand. They labored without success, then



went and rested at night and in the morning, to work again. They desperately plunged in the river, swearing in the most awful manner by all that was sacred, they “would lift her out or split her to pieces!” Poor Sister Martina joined her hands and began to pray so fervently in an audible voice. I could not help smiling, though much frightened. The poor fellows worked and swore a long time, but could neither move nor split the boat. Next morning, after removing first baggage and then gentlemen passengers, we were freed. Then all taken on board again, and we set off well pleased. In half an hour we found ourselves in another difficulty; a steamboat up the river had gone aground, and the channel was too narrow for us to pass, so we remained another tedious night. Next morning, our captain and crew went and set our distressed neighbors free, then procured a large flat boat on which we were all placed: men, women, children, black and white, boxes, baskets, trunks, and even the nuns, as they were pleased to call us. “Really,” said one of the gentlemen, “this is a fine excursion!”



Cargo and people traveled on inland rivers like the Mississippi, Missouri, and Ohio rivers on a variety of vessels. Even after the arrival of steamboats, unpowered flatboats like these and keelboats (which had a center keel) were in common use.

(Photo: State Historical Society of Missouri Photo Collection)

It reminded me of Noah’s Ark. We were landed in the woods. We hid ourselves among the trees at some distance from the company; said our beads,³⁹ dinner prayers, and took our reading. Then, seating ourselves on an old log, began to talk of home. Sister Rebecca cried: “If they could see us now, I think they would cry! and our Rules, where are they?”

“All in the trunk safe,” said I drily, “not one of them wrinkled or broken!” This made them laugh a little. Steamboat ready once more, must go.

Monday 28th. Run aground only once, and once the boat struck with great force against a rock. It gave a terrible jar. The ladies gave proof of the strength of their lungs by their shrieks, jumped up from the table, one ran one way, and another the other. I looked quickly at the dear Sisters lest fright might cause them to lose presence of mind, but they all did honor to St. Vincent de Paul by their modesty.⁴⁰

Tuesday, Oct. 29. Tuesday morning in Cincinnati;

remained only two hours. The Rev. Mr. Mullen⁴¹ and his sister Susan came to see us, and take us to church.

According to my taste the church had a simple grandeur which appealed more forcibly to the heart than any I had ever seen. In the Sacristy hangs a large picture representing St. Francis Xavier dying. The picture looked so much like the face of an old friend that it brought many recollections to my mind, and tears to my eye. I saw nothing of the fine things Rev. Mr. Mullen was showing the Sisters. We called to see Ellen Reilly. She was at home, quite alone; she went to the steamboat with us. Captain Reilly hearing we were there came to see us—gave us some apples for ourselves and ten dollars for the hospital, asked us to pray for him and expressed a great wish to have Sisters in Cincinnati. He intends building an Orphan Asylum for them.

Wednesday Oct. 30.⁴² At Louisville, where we were obliged to remain until Friday for the stage. Friday crossed the Ohio, and continued our journey in the state of Indiana. Everything looked very poor in this state. Between Albany⁴³ and Hindoostan [*sic*]⁴⁴ we saw several families encamped in the woods where they had built themselves large fires—cooking, sleeping, apparently very happy, no houses within miles of them.

Friday night Oct. 31. Staid [*sic*] all night at Hindoostan; slept in a log house. It has doors, but no kind of fastening whatever. We put a chair against the door in the night. The hogs came grunting and rubbing themselves against the house. Sister Rebecca called to them, and these four-legged gentry were kind enough to be quiet.

Rained all day Saturday; the stage was open in front and nearly so, on each side; we were very uncomfortable indeed, and the roads were dreadful. It was All Saints,⁴⁵ and be well assured St. Joseph’s was not forgotten by us. Many times did we contrast our situation with that of our Sisters and wonder if we were thought of.

Saturday night in Vincennes. Heard there was a priest in town. Good Mr. Jamison went early next morning to find him for us. He soon returned, and informed us that not only a priest but four Sisters of Charity from Kentucky⁴⁶ were there and that one of them would conduct us to the church. Went to Confession, to the Rev. Mr. Champierri.⁴⁷ He gave me a long instruction in French. We heard High Mass and went to Holy Communion. It was the first time since we left home. After Mass the Sisters took us home with them. I knew not what kind of feeling overpowered them, but it was some time before they could speak. I did not know what to make of them. They looked me full in the face for some time without speaking. At last one said I looked like Mother Agnes, and another said: “Well this is a happiness I never expected!”

We said Dinner Prayers, dined in silence, had reading as at home, had long grace after dinner and a short prayer on their knees; then recreation, during which time the conversation became general and the good Sisters quite at their ease. Rev. Mr. Champ. [*sic*] came and joined us in our recreation, he was very friendly, spoke frequently and respectfully of Sister Elizabeth,⁴⁸ said he had seen her in New York. The Sisters spoke of dear Sister Agnes;⁴⁹ said



she had sent them the hymn of St. Vincent which liked very much. I sang it for them as they did not know the tune.

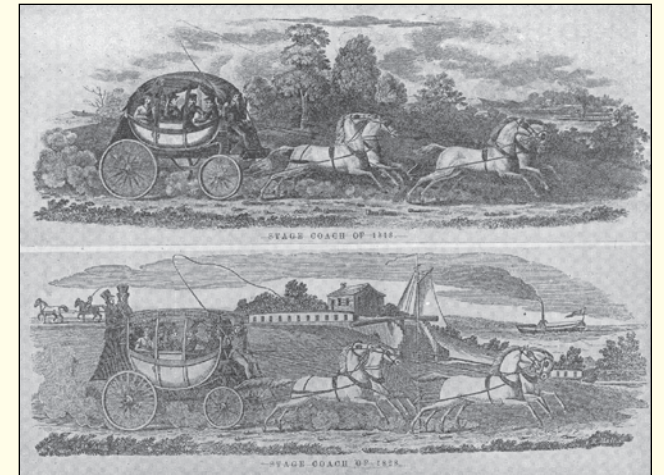
The stage came for us before Vespers.⁵⁰ We were all sorry as it was the first time we had enjoyed ourselves since we left home. Each one made her sacrifice and again we set out. We crossed the Wabash, and another small stream called L’embarras;⁵¹ we were then in the state of Illinois. We slept very comfortably that night.

Monday we had a very bad road to travel; the first part of it is called “Hell,” and the last “Purgatory.” We passed through both without accident, but were much fatigued by the heavy jolts we received at every step made by the poor horses. However, we were much consoled to hear that now we would have excellent roads to St. Louis. Through the course of the day we saw many miserable cabins or huts in the woods, full of children born and brought up in sin, obscurity and ignorance. They ran about half-naked in their native woods with the squirrels which appeared to be almost as tame as themselves, and to know quite as much of God as they do. An old man traveling some miles with us, said it was a very uncommon thing to see four old women traveling together. Good Mr. Jamison was much amused at this speech.

Monday night Nov. 3d. Slept in a little hut, poor woman much distressed because she had not room for us. She went to Sister Rebecca and said: “I don’t know what to do about your husbands.” I told the good woman we had no husbands; that these good gentlemen were travelers, and strangers to us, except the one who had charge of us, and he was brother to one of us. This settled all difficulties; the gentlemen were all put on the floor. We had two beds, although not very inviting. Our little room or closet had a door, but there was not a latch, bolt, or lock on it, and it opened on the other side. Mr. Jamison perceived our difficulty, kindly propped something against it, and slept near it himself. Feeling ourselves secure, fatigue made our beds very comfortable, and we soon fell asleep.

I have been particular in writing many things that happened to us, to let our Sisters know what they may expect, should they travel some time hence.

Tuesday morning, Nov. 4. Consoled ourselves with the expectation of having good roads; felt ourselves perfectly safe. It was about half past four, very dark and damp. We had not traveled more than two miles when on descending a small hill, the stage upset. I was on the side that struck the ground, and three of us were on the back seat. The first thing I felt was a stroke in my side from something that I fell on, and an awful sensation of suffocation caused by the weight of the Sisters who had been thrown upon me by the upset of the stage, and the space between the middle seat which had a high back, and the back one being very narrow, they with difficulty extricated themselves. I have but a faint recollection of what happened after, but Sister Rebecca says Mr. Jamison brought me out of the stage, spread his coat upon the ground, and placed me on it. At first they feared I was dead, but soon I came to myself. I looked eagerly around



Until the rise of railroads, which were in their infancy when the Sisters made their trip in 1828, stagecoaches were the common overland public conveyance. (Photo: State Historical Society of Missouri Photo Collection)

for the Sisters, and cannot express the joy I felt to find that they were safe, for had they been hurt, I would have suffered in mind, but as it was, I only suffered in body. I heard dear Sister Martina calling upon me, then saying I was dead, and next “O where is she!”

It was truly a dismal scene. The horses ran off, there was no human habitation within a mile of us. The wolves began to howl and bark. Mr. Jamison tried to make us believe they were dogs, but I heard them say they were wolves. My friends helped me upon my feet and I with help hobbled along in hopes of finding a house. We saw presently a man coming along with a chunk of fire [*sic*] and a candle in his hands. He conducted us to his humble and hospitable cabin. They rubbed my side with warm vinegar—it was all they had—and I laid on a bed until the stage was ready to start again; travelled all day in much pain. Mr. Jamison perceived it, and inquired if the services of a physician could not be procured and was answered, “No.” “Why,” said Mr. Jamison, “do you never die here?” The man replied that he had seen but one corpse in five years. Slept at a very nice house that night.

Wednesday Nov. 5. Arrived in St. Louis. Made many inquiries for the hospital. No one could tell us anything of it. Sister Martina complained that she had hurt her back the morning of the upset; Sister Regis had hurt her head; and I was ready to cry out with my side. Mr. Jamison left us at a public house, and went to look for the Bishop. He soon returned, and told us that the Bishop was not in St. Louis, and that the hospital was not ready for us. We were then taken to the Convent, and left with the Ladies of the Sacred Heart ... They received us kindly. Finding I was suffering, they sent for the doctor, and during my sickness, they paid us every attention. Since I have felt better, I have written a few lines every day. I am now very well, and have been out to church. As soon as we are in our hospital, I will write to you again. Amen!

- ¹ Record Group 11-2: Records of DePaul Hospital, St. Louis, Series 2, Box 2. Daughters of Charity Archives, St. Louis. Large portions of the diary are reproduced, without annotations or introductory material, in Ellin M. Kelly, *Numerous Choirs: A Chronicle of Elizabeth Bayley Seton and Her Spiritual Daughters: Volume 2. Expansion, Division, and War, 1821-1865* (Evansville, Indiana: Mater Dei Provincialate, 1996), 30-35.
- ² Gordon S. Wood, *Empire of Liberty: A History of the Early Republic, 1789-1815* (Oxford: Oxford University Press, 2009) 576-582.
- ³ Daniel Walker Howe, *What Hath God Wrought: The Transformation of America, 1815-1848* (Oxford: Oxford University Press, 2007) 190-191.
- ⁴ Wood, *Empire of Liberty* 591-593.
- ⁵ Jay P. Dolan, *In Search of an American Catholicism: A History of Religion and Culture in Tension* (Oxford: Oxford University Press, 2002) 34, 36.
- ⁶ Jay P. Dolan, *The American Catholic Experience: A History from Colonial Times to the Present* (New York: Doubleday, 1985), 202; Wood, 592-593.
- ⁷ *Vincentian Encyclopedia*, article “Elizabeth Ann Seton;” online at http://famvin.org/wiki/Elizabeth_Ann_Seton (accessed December 21, 2009). An introduction to the life of Elizabeth Seton for the general reader is, M. Irene Fugazy, SC, *Saint Elizabeth Ann Seton* (Strausbourg, France: Editions du Signe, 1997). Another valuable introduction is Annabelle Melville, *Elizabeth Bayley Seton, 1774-1821* ed. Betty Ann McNeil, DC (Hanover, Pennsylvania: Sheridan Press, 2009). Elizabeth Seton’s writings are collected in *Elizabeth Bayley Seton: Collected Writings* (4 vols.), ed. Regina Bechtel, SC and Judith Metz, SC (Hyde Park, New York: New City Press, 2000-2006).
- ⁸ Many of these stories are collected in Suzy Farren, *Called to Care: The Women Who Built Catholic Healthcare in America* (St. Louis: Catholic Health Association, 1996).
- ⁹ Charles Van Ravenswaay, *Saint Louis: An Informal History of the City and its People, 1764-1865* (St. Louis: Missouri Historical Society Press 1991) 252-253.
- ¹⁰ John E. Rybolt, C.M. (ed). *The American Vincentians: A Popular History of the Congregation of the Mission in the United States, 1815-1987* (New York: New City Press, 1988) 24.
- ¹¹ Hodes, *Beyond the Frontier*, 420
- ¹² *Ibid*, 419-420.
- ¹³ Frederick A. Hodes, *Rising on the River: St. Louis 1822-1850, Explosive Growth from Town to City*, Vol. 2 (Tucson: The Patrice Press, 2009) 182.
- ¹⁴ Louise Callan, RSCJ, *Philippine Duchesne: Frontier Missionary of the Sacred Heart, 1769-1852* (Westminster, Maryland: Newman Press, 1957), 482, 551.
- ¹⁵ Rosati to Bruté, June 23, 1828. Copy at the Daughters of Charity Archives, St. Louis. The original is at the

- Daughters of Charity Archives, Emmitsburg. The “Sisters in Kentucky” referred to in this passage are the Sisters of Charity of Bardstown, Kentucky, whom the Sisters of Charity from Emmitsburg encountered on their way to St. Louis.
- ¹⁶ For more on the early history of health care by the French Daughters of Charity, see Louise Sullivan DC, *Vincentian Mission in Health Care* (St. Louis: Daughters of Charity National Health System, 1997).
- ¹⁷ Glen Holt, “St. Louis’ Transition Decade, 1819-1830,” *Missouri Historical Review* 76.4 (July 1982). 373-374.
- ¹⁸ Van Ravenswaay, *St. Louis: An Informal History*, p.205-206; Hodes, *Beyond the Frontier*, 538.
- ¹⁹ Extract from minutes of the Council, Sisters of Charity of St. Joseph’s, July 27, 1828. Copy at the Daughters of Charity Archives, St. Louis. The original is in the Daughters of Charity Archives, Emmitsburg.
- ²⁰ Rosati to Mother Augustine Decount, September 21, 1828. Copy at the Daughters of Charity Archives, St. Louis. Original is in the Daughters of Charity Archives, Emmitsburg.
- ²¹ Holt, “St. Louis’ Transition Decade, 1819-1830”.
- ²² Rosati to Mother Augustine Decount, November 27, 1828, quoted in Kelly, *Numerous Choirs*, v. 2, 35. A copy of the letter is in the Daughters of Charity Archives, St. Louis.
- ²³ Rosati to Mother Augustine Decount, February 11, 1832; quoted in Kelly *Numerous Choirs*, v.2, 49.
- ²⁴ Sr. Francis Xavier Love to Mother Augustine Decount, quoted in Kelly, *Numerous Choirs*, v.2, 51-52.
- ²⁵ Melville, *Elizabeth Bayley Seton*, 43-44. There is no extant record showing that Elizabeth herself received assistance once she became a widow.
- ²⁶ The Daughters of Charity, unlike most communities of religious women, do not make lifetime vows. Daughters of Charity pronounce vows for the first time approximately five years after their vocation date and renew their vows each year thereafter. In 1850, the Sisters of Charity in Emmitsburg formally united with the French Daughters of Charity, assuming all of the rules and community practices of the French Daughters of Charity along with their blue habit with its distinctive white cornette. For an introduction to the history of the Daughters of Charity in the United States, see Sister Daniel Hannefin, DC, *Daughters of the Church: A Popular History of the Daughters of Charity in the United States, 1809-1987* (New York: New City Press, 1989).
- ²⁷ Refers to a community practice which dates back to the time of St. Louise de Marillac: “They shall make the same act of adoration in every village through which they pass. They shall acknowledge the guardian angel of each town and the guardian angel of each soul living there in order to commend them to their protection for the glory of God.” See Louise de Marillac, “Instructions to the Sisters Who Were Sent to Montreuil” (A.85,

- 1647), in *Spiritual Writings of Louise de Marillac: Correspondence and Thoughts*, tr. Louise Sullivan, DC (New York: New City Press. 1991), p.771.
- ²⁸ Frederick, Maryland.
- ²⁹ Footnote in the manuscript at this spot reads, “Sr. Serv’t of St. John’s School, Frederick.” “Sr. Serv’t” means “Sister Servant,” the Sister of Charity and Daughter of Charity term for the superior for a local community of Sisters. Sr. Francis Xavier Love was the Sister Servant for the group going to St. Louis.
- ³⁰ Mr. Jamison is most likely Henry M. Jamison (1797-1856), a storekeeper in Frederick. See Kelly, *Numerous Choirs*, v.2, 256, note 2. M. Lilliana Owens, S.L., in *The St. Louis Hospital, 1828* (St. Louis: St. Louis Medical Society, 1965), p.16, identifies Mr. Jamison with Fr. Francis B. Jamison, president of St. Mary’s College in Emmitsburg in 1833-34. However, after leaving Emmitsburg the Sisters did not receive Communion until their arrival in Vincennes on November 1. This makes it clear that Mr. Jamison was not a priest.
- ³¹ Hagerstown, Maryland.
- ³² Cumberland, Maryland.
- ³³ Footnote in the manuscript at this spot reads, “Dear Sister Ursula!”
- ³⁴ Wheeling, Virginia (Now in West Virginia, which became a state in 1863).
- ³⁵ Another name for a rosary.
- ³⁶ In the manuscript, the word “encouragement” has been erased and “hope” written over it.
- ³⁷ Fr. Louis Regis Deloul, Sulpician superior of the Sisters of Charity of St. Joseph’s, 1826-1829.
- ³⁸ Most likely a reference to St. Theresa of Avila. The Sisters had left Emmitsburg on St. Theresa of Avila’s feast day, October 15.
- ³⁹ Another reference to saying the chaplet (rosary).
- ⁴⁰ Refers to the words of Vincent de Paul concerning the proper conduct of the Daughters of Charity: “... Since they are more exposed to the occasions of sin than nuns bound to the cloister, having for monastery only the houses of the sick ... for cell a hired room ... for chapel the parish church ... for cloister the streets of the city ... for enclosure obedience ... for grille the fear of God; for veil holy modesty ... therefore they will strive to conduct themselves in all those places with at least as much reserve, recollection, and edification as true religious in their convent.” See “Rules for the Sisters in Parishes” (Articles 1 and 2, August 24, 1659) in *Vincent de Paul: Correspondence, Conferences, and Documents*, Volume 10 edited and translated by Sr. Marie Poole DC (New York: New City Press, 2006), p.530.
- ⁴¹ Footnote in the manuscript at this spot reads, “Later of New Orleans fame. When summoned to appear before Ben Butler to answer to the charge of refusing to bury the Yankee soldiers, ‘Calumny sir – calumny! – I would bury every one of them with the greatest pleasure!’ Finding he could not be intimidated, Ben let him go.” This passage could refer to Fr. Daniel Mullen, chaplain of the Ninth Regiment Connecticut Volunteer Infantry, 1861-1862. See Thomas Hamilton Murray, *History of*

- the Ninth Regiment, C.V.*, “The Irish Regiment” (New Haven: Price, Lee & Adkins Co., 1903), Chapter 2. Available online at the address: <http://www.quinnipiac.edu/other/abl/etext/9reg/chp2.html> (Accessed January 1, 2010).
- ⁴² Footnote in the manuscript at this spot reads, “This date, although copied, is incorrect. If Wednesday it should be 29th, not 30th.”
- ⁴³ Today’s Albany, Indiana is located northwest of Muncie, Indiana, well to the northeast of Louisville where the Sisters boarded the stage. The “Albany” referred to here might instead be today’s New Albany, Indiana, located on the north side of the Ohio River and just west of Louisville.
- ⁴⁴ Hindustan, Indiana (current spelling) is located between Bloomington and Martinsville, Indiana.
- ⁴⁵ All Saints Day: November 1.
- ⁴⁶ Sisters of Charity of Bardstown, Kentucky, founded in 1812. This community still exists and is now known as the Sisters of Charity of Nazareth. Though it had the name Sisters of Charity, this community was independent of the community founded in Emmitsburg by Elizabeth Ann Seton. For a discussion of the founding and early history of the Sisters of Charity of Bardstown, Kentucky, see Ellin M. Kelly, “The Sisters of Charity in Vincennes, Indiana.” *Vincentian Heritage*, 26.2 / 27.1, 2007, pp. 113-131. Available online at <http://via.library.depaul.edu/vhj/vol27/iss1/6/> (accessed December 21, 2009).
- ⁴⁷ Kelly, *Numerous Choirs*, v. 2, p.33, reads “Champerrier.” The correct name is Fr. John Leo Champomier. The church the Sisters attended, St. Francis Xavier Church, was established by him in 1826. In 1834 it became the cathedral for the new Diocese of Vincennes, and Fr. Simon Gabriel Bruté, spiritual director to Mother Seton, was named the first bishop. Bruté is buried at the cathedral and his library, including a Bible owned by Mother Seton, is housed there.
- ⁴⁸ Elizabeth Ann Seton.
- ⁴⁹ Probably refers to a sister in Emmitsburg.
- ⁵⁰ In the Catholic Church’s traditional Liturgy of the Hours, Vespers corresponds to evening prayer.
- ⁵¹ A tributary of the Wabash, today known as the Embarrass River.
- ⁵² Journal of Mother Rose White, p. 93. Record Group 7-2-1, Daughters of Charity Archives, Emmitsburg. Mother Augustine Decount and Mother Xavier Clark (Emmitsburg: St. Joseph’s Provincial House, 1938), 63.
- ⁵³ Unlike other communities of religious women, Daughters of Charity do not make permanent, lifetime vows. They make vows for the first time approximately five years from their vocation date and renew their vows each year thereafter.

How Natural is Nature?

The Effect of Burning on Presettlement Vegetation in West-Central Illinois

BY PAUL KILBURN AND RICHARD B. BRUGAM

The presettlement vegetation (c. 1820) of west-central Illinois in the Lower Illinois River Valley (LIRV) shows the influence of frequent burning (Kilburn et al. 2009). The region is included within a larger vegetation formation called “the Prairie Peninsula” (Gleason 1922). Ecologists have argued for a long time over the causes of the fires that seemed to dominate this region in presettlement times. Transeau (1935) believed that the Prairie Peninsula had a distinctively drier climate than regions to the north, south, and east. By contrast, Weaver and Clements (1938) believed that the Prairie Peninsula had a “forest climate” and that the prairies would revert to forest without the frequent Native American use of fire. Another factor to consider, though, is early U.S. government land surveys and the degree to which pre-Columbian landscapes were shaped by Native American burning.

Recognition of the impacts of such burning on Illinois vegetation might change our concept of the pre-Columbian landscape as pristine and free of human alterations. In fact, even before the arrival of Euroamerican settlers, the Prairie Peninsula may have been already a heavily modified cultural landscape.

The LIRV extends north from the mouth of the Illinois River where it joins the Mississippi. French settlement started along the Illinois River

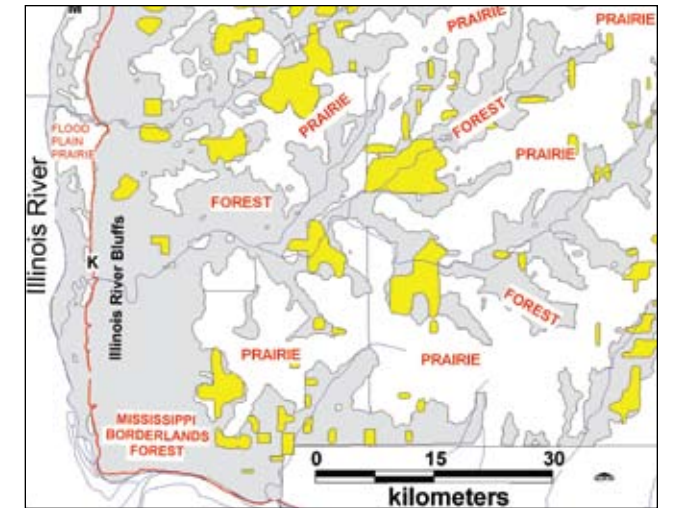
when Rene-Robert Cavelier, Sieur de LaSalle, established Fort Creve Coeur at Lake Peoria near the Native American settlement at Starved Rock in 1679. Early French fur trappers frequently travelled the river, although significant settlement did not occur until the late 1700s. Illinois became a state in 1818, largely due to settlement in the St. Louis region (Howard 1972).

The LIRV was a productive habitat for Native Americans, providing abundant fresh water from the numerous streams flowing into the river and a reliable meat supply from large and small game animals, waterfowl, fish, and mollusks. The LIRV also provided first-rate cultivable bottomland on the river and stream floodplains for staple crops of maize, beans, squash, pumpkins, sunflowers, and amaranth (Warren 2000). There were abundant nut and acorn trees and understory shrubs, as well as supplemental food from other wild plants (Atwell 2000). The hydrology of the river was much different prior to modern modification, and floods occurred predictably every year in spring (Sparks et al. 1998). However, lands suitable for habitation on these floodplains were well above average river levels and rarely flooded. All these factors encouraged the location of numerous villages along the rivers and streams (Brown and Vierra 1983, Brown 1985, Buikstra 1988).

Native Americans in the Lower Illinois River Valley

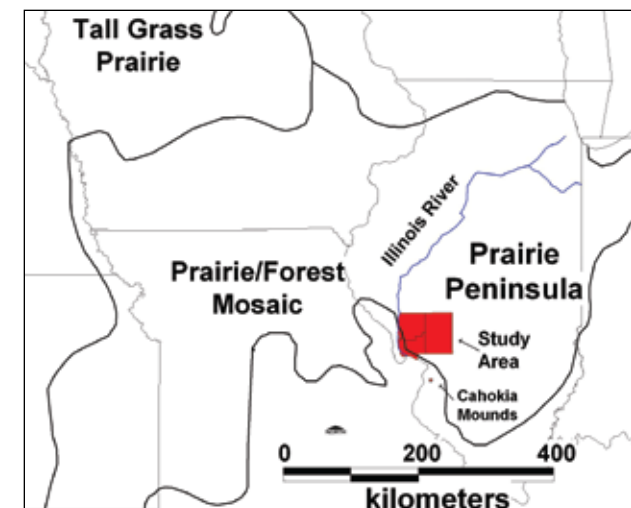
The Native Americans living in LIRV prior to the arrival of Euroamericans had reached the zenith of their Stone Age technology. They developed a lifestyle that fit well with their environment and maximized their use of natural resources without overusing them, as many earlier Native American groups had done (Lopinot and Woods 1993, Diamond 2005). They were sound agriculturalists and used lands near their villages to grow corn, beans, and squash to supply much of their food needs. They also were highly skilled hunters who could provide not only meat, but also skins and furs for clothing and other needs. They were adept at trapping and catching fish and capable of using other aquatic resources for supplemental food. These early inhabitants constructed efficient longhouses with connected rooms to provide warmth and shelter during inclement weather (Warren 2000). They also developed a wide variety of flint tools for cutting, scraping, drilling, chopping, hoeing, and grinding (Yerkes 1987). Their river location allowed ready access for trade in all directions. Their artistry allowed production of attractive yet serviceable pottery, dress, and decoration.

There is extensive archeological evidence of large populations of Native Americans in Southwestern Illinois. South of the LIRV lies the American Bottom, a broad portion of the Mississippi floodplain. The American Bottom was the location of Cahokia, a major Native American city that grew rapidly from 1050 CE, reaching



Detailed map of the study area showing forest (light gray) and barrens (yellow) as mapped by the GLO survey 1818-1820. The bluffs bordering the Illinois and Mississippi rivers are indicated by a red line. East and north of the bluffs, in the rough topography, is the Mississippi Borderlands Forest. Upland prairie, barrens, and forest form a vegetation mosaic going to the east. Atop the bluffs were perched extensive hill prairies which are now being overgrown by shrubs and trees. The Mound House (M) and Koster (K) archeological sites are indicated by letters.

Location of the study area (in red) and the Prairie Peninsula. The Cahokia site is indicated by a red square. (Photo: Modified from Wright 1968)



a population of up to 40,000 people (Milner 1986), before it collapsed about 300 years later. The culture of the Cahokians has been traced throughout the Midwest by the spread of distinctive artifacts (Pauketat 2009).

Because of its large number of Native American archeological sites, the Illinois River has been deemed the “Nile of North America.” More than fifty years of intensive research, principally by scholars associated with the Center for American Archeology in Kampsville, Illinois, has documented over 10,000 years of human occupation and more than 3,000 sites in the lower reaches of the Illinois Valley alone (Brown and Vierra 1983, Brown 1985, Buikstra 1988). Two especially important archeological sites in our study area are the Koster Site and the Mound House Site.

Fire and Native Americans

A feature of Native American culture that was most influential in controlling vegetation was fire. Humans have occupied the LIRV since the retreat of the last glaciers 10,000 years ago (Brown 1985, Brown and Vierra 1983,

Photos opposite page, top left: Big Bluestem prairie in late summer where grass is often over eight feet tall. Top right: The first Euroamericans may have walked through tallgrass prairies like this in the fall. Bottom: Forbs dominate this part of a tallgrass prairie. Purple coneflower, yellow sunflower, and purple blazing star show their majestic beauty.



View of the Illinois River floodplain near the Koster Archeological Site. Formerly heavily forested, it is now cleared and the site of extensive agricultural land. The Illinois River is out of sight in rear of photo about four miles distant. (Photo: R. Brugam, SIU)

Hajic 1990). There is evidence that ancestors of Native Americans, the Clovis people, were in the St. Louis area as early as 10,000 years ago (Graham et al. 1981). It is likely that they also lived in the LIRV. Fire frequency increased as the Holocene progressed, and despite the cooling effect of the little ice age (c. 1450 CE to 1850 CE Brugam and Swain 2000), human-initiated fires actually increased during this period (Abrams and Nowacki 2008).

An extensive body of literature exists on Native American use of fire and its widespread effect on the vegetation of the Midwest (Gleason 1913, Day 1953, Pyne 1992, Stewart 2002, Williams 2003, Anderson 2006). The

Mound showing Woodlands period Native American burial site at the edge of the flood plain at the base of the bluffs. (Photo: R. Brugam)



reasons for burning were varied, and Williams (2003) lists eleven major purposes: hunting, crop management, improvement of growth and yields, fireproofing of specific areas, insect collection, pest management, warfare and signaling, economic extortion, clearing of areas for travel, felling of trees, and clearing of riparian areas. Several of these purposes were the chief causes of frequent burning later described in the study area.

Other investigators (King and Johnson 1977) showed that the prairie-forest border closely followed topography, with prairie on flat upland areas and forest on hilly sites and stream valleys. Many investigators have correlated these topographically controlled vegetation boundaries to variations in fire frequency. Flat areas dry equally and can carry fire for long distances. In contrast, hilly regions form effective firebreaks (Grimm 1984, Brugam and Patterson 1996).

Grasslands, found on the nearly level upland plateau portions, reflect frequent fire occurrence that maintained these prairies for many years (Wright 1968, Anderson 2006, Nelson et al. 2006, Zawicki and Hausfater 1969). In addition, these prairie fires burned into adjacent forests, reducing parts of these forests to nearly treeless barrens later recorded by surveyors (Kilburn et al. 2009). These fires often became ground fires in woodlands that formed fire scars on larger trees and killed new seedlings but allowed hazel and other woodland shrubs to survive in a more open forest. In addition, hill-prairies throughout the

A fall fire in the prairie is an awesome sight. Such fires do not hurt grass roots but kill invading woody plants.



Midwest located on the bluff tops overlooking rivers were undoubtedly kept free of woody plants by frequent burning (Robertson et al. 1995).

Could these fires have been started by lightning instead of humans? The frequency of lightning-caused fire is minor in the humid East (Curtis 1959, Anderson 2006, McClain and Elzinga 1994). Although common in the drier West, lightning strikes in Illinois are usually accompanied by rain that would quickly extinguish any lightning fires. It is likely that nearly all of these early fires were started by Native Americans.

Vegetation at the Time of Euroamerican Settlement

Our study area is Jersey, Greene, and Macoupin counties along the LIRV. Jerseyville, the county seat of Jersey County, has an average annual rainfall of 98 centimeters (Natural Resource Conservation Service 2002), more than double the amount needed to support forest at these latitudes (Bourne 1820). Furthermore, the soils are deep on the uplands; today, abandoned fields are rapidly invaded by trees and shrubs, much as they are in other locations where Native American burning is suspected as a factor in shaping landscapes (Peter and Shebitz 2006). Prior to European settlement, large portions of these counties located away from the rivers had frequent fires and consisted of treeless prairies of considerable biodiversity (Sampson 1921). Forests were restricted to ravines and other areas of rough topography or in the bottomlands where they covered all but swamps and sloughs that were frequently flooded.

The western edge of the study area is located along the Illinois River Floodplain. Common trees are pin oak, cottonwood, hackberry, and overcup oak (Kilburn et al. 2009). These trees are very intolerant of fire but resistant to flooding. Open and lower parts of the floodplain flooded frequently and were mapped as prairie by the surveyors. Small areas of open lands in the higher parts of the flood plain may have been kept open by Native American cultivation and burning.

The river bluffs separate the floodplain from heavily wooded areas for five to ten kilometers to the north and east on the rough topography. Dominant species in this forest were white oak, black oak, and various hickory species (Kilburn et al. 2009). This area is called the Mississippi Borderlands Forest because it is contiguous to forests on the east side of the Mississippi (Schwegman 1974). In the deeper ravines and moister lower parts of valleys, elm, ash, black walnut, and sugar maple became co-dominant with the oak-hickory forest dominating the uplands (Kilburn et al. 2009).

Farther east, post oak and black jack oak became common members of the oak-hickory forest (Kilburn et al. 2009). In this region, the forested ravines are separated by broad upland areas of nearly level prairie grassland (Sampson 1921). Prairie grasslands dominate the uplands. Today, these upland prairies have been converted to agricultural fields.

The government land surveyors also noted a specialized vegetation type that they called “barrens.” These were dominated by small oak and hickory “grubs”—small trees formed by frequent burning of crowns but with root systems that remained intact. The surveyors interpreted these shrubby trees as long-term survivors of periodic fires (Kilburn et al. 2009).

The Prairie Peninsula

The central part of Illinois and Indiana is part of a unique vegetation formation called the “Prairie Peninsula” that consisted of a mosaic of forest and prairie. Since Gleason’s time (1922) there has been controversy among ecologists over the joint roles of climate- and human-caused fires in determining the boundaries of the Prairie Peninsula.

Later investigators have demonstrated that the climate of the Prairie Peninsula is indeed unique (Bryson 1966, Wright 1968). This location receives little precipitation from the winter storms that follow the moist tropical air associated with the Gulf of Mexico. It is also missed by heavy snowstorms following the Alberta storm track that passes over northeastern Illinois. Thus, by spring, Prairie Peninsula soils have lower moisture content than areas to the north, south, and east. The Prairie Peninsula was also more susceptible to summer drought than other areas in eastern North America (Wright 1968).

Hill prairies at Pere Marquette State Park in deep loess soils above the limestone bluffs. Behind the hill prairies, oak-hickory forest covers the rugged topography. The upper left corner of photo shows some of the Illinois River floodplain, which today is mostly agricultural. (Photo: P. Kilburn, 1965)



The contrasting views that the origin of the Prairie Peninsula was anthropogenically formed or that it was a climate-induced phenomenon are not mutually exclusive. The human presence probably increased the likelihood of fire ignition beyond natural lightning (Abrams and Nowacki 2008) in a climate that was already dry enough to support fires.

Was Prehistoric Illinois a Pristine Wilderness?

It is clear that North America was not a pristine wilderness at the time of European contact, but was a human-managed landscape (Denevan 1992, Botkin 2004). In Illinois, Native American populations took advantage of the specialized Prairie Peninsula climate to create a fire-managed landscape that supported their lifestyles. The result was an increased fire frequency beyond what would be expected from natural fire sources.

This suggests that the native peoples who lived, farmed, and hunted in west-central Illinois had a significant impact on the vegetation present at the time of the General Land Office (GLO) survey in the early nineteenth century.

Evidence of such impact is ecological,

anthropological, and archeological based on GLO survey vegetation maps, tree data, and on written comments by early explorers who witnessed burnings throughout the Prairie Peninsula. Our hypothesis is that Native American fires exerted strong control on the vegetation of the Lower Illinois River Valley. It is most likely that the nature of the vegetation reported by the early surveyors was heavily influenced by human activities prior to Euroamerican settlement.

The General Land Office (GLO) Survey and Study Area

The 1818-1820 survey of these counties provided a great deal of plant ecological information. Based on a formula dating back to the 1787 Northwest Ordinance, the U.S. GLO survey divided unoccupied federally-owned land into "townships," measuring six miles (c. ten kilometers) on a side. Each township contained 36 "sections" that were one mile (c. 1.3 kilometers) square. Surveys were conducted primarily in winter. The surveyors marked the section corners by two blazed trees. They also marked the section boundary lines at quarter-mile intervals by blazing two trees at that point, and blazed additional trees, usually two, along each section line. They kept a

record of each species, and its size and distance from the surveyed point. In a prairie, the surveyors made a three-foot high mound of earth and placed a wooden post in it to indicate a survey point. Microfiche copies of the surveyor notebooks, *Federal Land Survey Field Notes*, are readily available in libraries around the state.

The surveyors also summarized specific information noted after traversing each section. They noted vegetation types such as prairie, forest, scattering timber, and barrens, grading soil features with terms such as "good," "thin," and "2d rate." They noted topography, whether level, gently rolling, or "broken," and undergrowth, often describing the shrub cover including hazel, vines, briars, spice, sassafras, and others. Most important, the surveys reported whether the land surrounding the section line was cultivable. A great deal of information was packed into these short summaries, which have proven useful in assessing the presettlement vegetation.

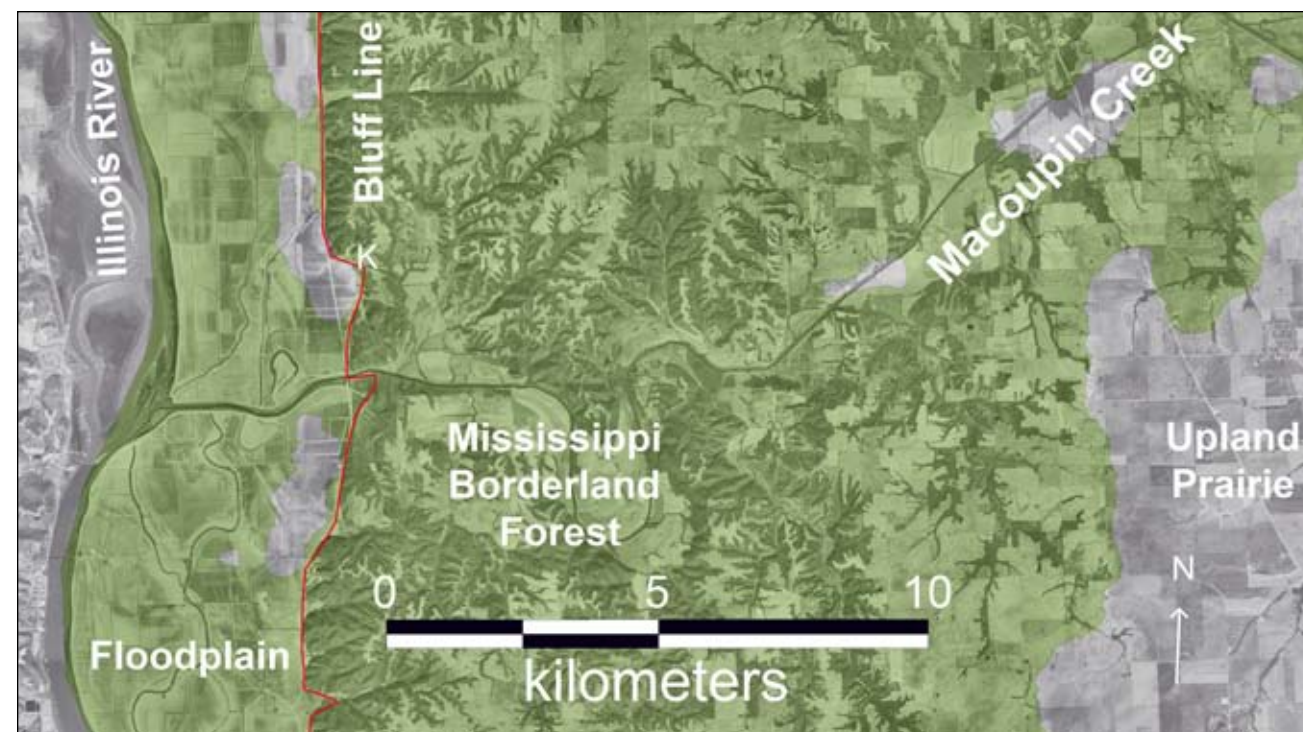
After fieldwork was completed, the survey administrators prepared a map of the vegetation of the county, showing the boundary of the forest and prairie and, occasionally, indicating barrens and other features.

The study area is approximately fifty kilometers north of St. Louis and includes all of Jersey, Greene and Macoupin counties in Illinois, and counties located adjacent to the Illinois and Mississippi rivers in west-central Illinois. The area forms a rectangle ranging from about sixty kilometers north and south, and approximately seventy kilometers east and west. The area includes river floodplains with forests, prairies, lakes, and swamps stretching through rugged ravine forest to the nearly level uplands dominated by prairie in eastern Greene, Jersey, and Macoupin counties.

The floodplain bordering the Mississippi River is narrow, usually less than one kilometer wide. However, along the Illinois River, in northern Greene County, it ranges from two kilometers to more than five kilometers

Composite aerial photo of a transect along the border between Greene and Jersey Counties. The forested areas are indicated in green shading. The bluff line is indicated with a red line. The large letter K indicates the location of the Koster archeological site. Clearings in the borderland forest show where agriculture has taken place on the more level areas. The eastern area, where prairies formerly dominated, is now almost totally agricultural.

(Photo: Illinois Natural Resources Geospatial Data Clearinghouse, Illinois State Geological Survey, <http://www.isgs.uiuc.edu/nsd/home> (2005 Illinois Orthophoto Quarter Quadrangle Maps)



Mississippi River Bluffs in Jersey County, Illinois, showing remnant hill prairie.

(Photo: R. Brugam, Southern Illinois University)



Hazel branch showing ripening nuts. The nuts were a staple food of the indigenous people.

(Photo: John Taft, Illinois Steward)

wide. Limestone bluffs rise 65-80 meters above the rivers at this point in both Jersey and Greene counties and are capped with up to twenty meters of post-Wisconsin glacial period wind-blown loess (Kilburn et al. 2009).

Numerous streams cut deep ravines through the loess and limestone forming rough topography approximately five to ten kilometers east of the bluffs. Farther from the rivers the topographic variation lessens and the land levels out until it becomes a mostly rolling to level plain, cut only by gentle ravines at the heads of the streams.

Native American Impacts on Vegetation

The most significant Native American impact on vegetation was the burning of prairies, which in presettlement times formed nearly half (45 percent)

of Jersey, Greene, and Macoupin counties (Illinois Natural History Survey 2005). A second major impact was extension of fire into the forest at the edge of these prairies, causing barrens, a dwarfed and open forest community. This distinct vegetation type recognized by surveyors covered approximately a fifth of the forest area of these counties. A third major impact was caused by ground fires burning throughout the remaining forest, opening up the canopy and allowing sun-loving shrubs such as hazel to flourish. A fourth impact from burning was the maintenance of open hill-prairies on the loess caps atop the limestone bluffs. These prairies, too small to be recognized in surveyor notes, were abundant on the south- and west-facing slopes overlooking the rivers.

At the time of the GLO survey, much of the upland eastern portions of the area away from the rivers consisted of treeless grasslands. These grasslands were undoubtedly dominated by big bluestem (*Andropogon gerardi*) and Indian grass (*Sorghastrum nutans*), tall grasses with flowering stalks often above two meters in height. Such grasslands were later termed “tallgrass prairie” (Sampson 1921, Madson 1993). Some early travelers told of riding horses through these grasslands in the fall when grasses were often above their heads (Schoolcraft 1821). Interspersed among the grasses was a wide variety of forbs, including many plants in the Sunflower Family and many legumes, together with fewer numbers of species from other plant families (Madson 1993). These forbs,

with far lesser coverage than the native grasses, created a rich mixture of plants.

A band of forest, five to ten kilometers wide, termed the “Mississippi Borderland Forest,” occupied the heavily dissected land adjacent to the rivers (Schwegman 1974). Nearly all the prairie existed on level land east of this band. Stream valleys and areas of hilly topography adjacent to the streams formed sizeable timbered galleries within the upland prairie matrix. In the westernmost counties, Jersey and Greene, 23 percent of the land was covered in prairie (Kilburn et al. 2009). Macoupin County to the east had 63 percent prairie cover (Illinois Natural History Survey 2005). To the north and east of Macoupin County, the percentage of prairie cover rose until it often exceeded ninety percent in what was termed the “Grand Prairie” of central Illinois (Schwegman 1974).

Clearly, these prairies burned frequently and fires stopped only at the ravines and streams, which acted as firebreaks, or when winds shifted direction. Early seventeenth-century travelers recorded the immensity of some of these fires. McClain and Elzinga (1994) quote several of these descriptions, including LaSalle in the 1670s, who noted, “On the right hand and on the left stretched the boundless prairie, dotted with leafless groves and bordered by gray wintry forest, scorched by the fires kindled in the dried grass by Indian hunters . . . At night the horizon glowed with distant fires.”

View of limestone bluffs along the Mississippi River near Elsah in Jersey County. Atop the bluffs is fifteen-meter-thick loess cap. A remnant hill prairie can be seen on right. (Photo: R. Brugam)



Indians covered with wolf skins stalking bison, who tolerated wolves to clean up dead bison. Indians hunting without horses used ingenious methods to kill their prey, as portrayed here by George Catlin.

(Photo: Beineke Library Digital Collections, Yale University).

A major reason for anthropogenic burning of prairie was bison hunting. Bison had existed in Illinois for at least the last 8,000 years (McMillan 2006), but greatly increased in numbers about 1500 CE. They ranged throughout

the Prairie Peninsula and even to the East coast. They were abundant grazers on this land until the eighteenth century when extensive hunting by Euroamericans, who desired the skins as well as the tongues for sale in eastern markets, eliminated the bison east of the Mississippi River (Belue 1996). We postulate that for several thousand years, burning as a hunting tool kept the Prairie Peninsula predominantly grassland.

James Smith (Darlington 1907) described a ring hunt for bison by Ottawa hunters on a large prairie in Ohio. “They expected rain to put out the fire after hunting but the wind arose, it extended through the whole prairie which was about fifty miles in length.” Also instructive was Father Hennepin’s (1680) description of a bison hunt by Miami Indians using a ring fire to confine the animals, near the present site of Kankakee, Illinois.

When they [Native Americans] see a herd [of bison], they gather in great numbers, and set fire to the grass everywhere around these animals, except some passage that they leave [open] on purpose, and where they take post with their bows and arrows. The buffalo, seeking to escape the fire, are thus compelled to pass near these Indians. Bison attempting to escape in these narrow passages were subject to a barrage of arrows and often more than six-score were slain (Hennepin 1698) fulfilling the purpose of both the burning and hunting, and providing meat and hides for the tribe for another year.

Another early traveler in Ohio (Hildreth 1971) noted that

The yearly autumnal fires of the Indians, during a long period of time, had destroyed all the shrubs and under growth of woody plants, affording the finest hunting grounds; and in their place had sprung up the buffalo clover, and the wild pea vine, with various other indigenous plants and grapes, supplying the most luxuriant and unbounded pastures to the herds of deer and buffalo which tenanted the thousand hills on the borders of the Ohio.

An entire Native American village was often vacated while everyone participated in the annual bison hunt (Warren 2000). To be such an important food item, the bison population must have been considerable. Marquette and Joliet (1673) describe “herds of 200 and even 400 wild cattle” (their term for bison). An eyewitness in 1718 (Evermann 1916) states that “from the summit of the hill at Outenon [Tippecanoe County, Indiana] nothing is visible to the eye but prairies full of buffalo.”

Bison had considerable impact on the prairie. How great this impact was depended on the number of bison, as well as the number of Indians, neither of which is known. In the plains states west of the Mississippi, the vast herds encouraged native prairie. In Illinois, one can only speculate on the influence of these large grazing animals on the prairie and the composition of the various species found thereon (Knapp et al. 1999, Anderson 2006). Our view is that large animal grazing was important in maintaining the prairie, but how important is open to conjecture at this time.

While barrens covered only about a tenth of the study counties, they did form almost twenty percent of the presettlement forest area. Fire has long been recognized as the cause of this vegetation type through much of the eastern United States. Frequent fires reduced the forest to communities of stunted and scattered trees, shrubs, hickory, and oak “grubs” (Heikens and Robertson 1994, Bowles and McBride 1994, Edgin 1996, Edgin 2000). In short, barrens are a fire-adapted community, and while precise definition of a barren varies owing to their wide geographic location and considerable variation, early surveyors saw them as clearly distinct from dense timber and forest.

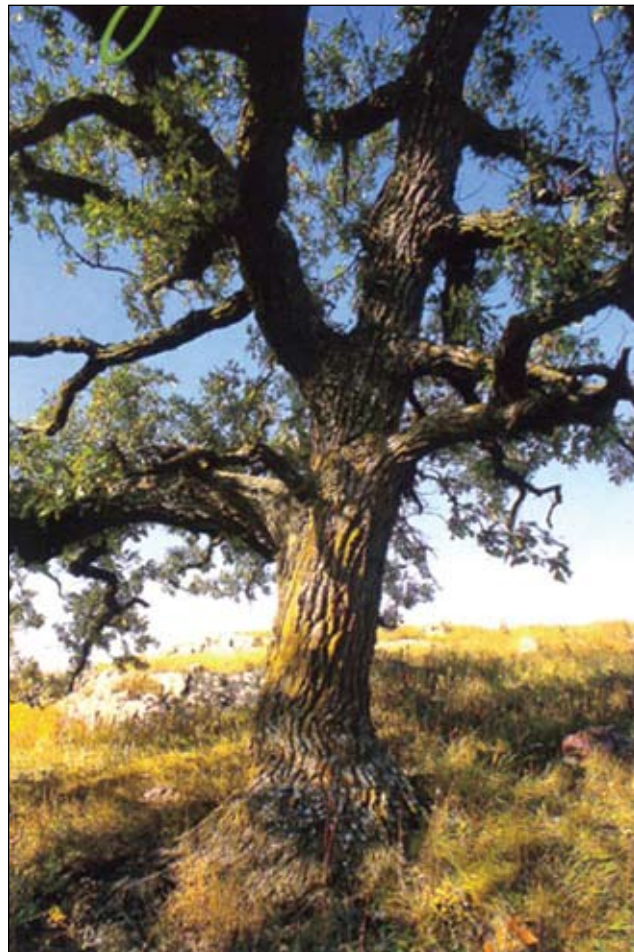
In the study area, barrens usually abut the prairies, which dominate the level uplands, resulting in barrens often found in the adjacent rolling and rougher topography (Kilburn et al. 2009). This indicates that prairie wildfires burned into the forests repeatedly, reducing them to the stunted, widely spaced patches that were present at the time of the GLO survey. The soils in barrens areas are predominantly forest soils, further supporting this conclusion that barrens are degraded forests (Natural Resources Conservation Service 2007, Kilburn et al. 2009).

Frequent and extensive ground fires occurred in the forests of the eastern U.S. before Euroamerican settlement. Early English visitors were impressed by the annual and sometimes semiannual burning of forests in southern New England (Cronon 1983) and in the southeast portion of that region (Silver 1990). Documentation of human-initiated fires in other eastern forests is also extensive (Pyne 1982, Williams 2003).

A recent fire-scar study of an oak woods in Hamilton County, Illinois, which was probably typical in Illinois forested lands before settlement and which included many oaks more than 200 years old, shows ground fires resulting in fire scars created at a mean interval of 2.82 years (McClain et al. 2009). This evidence of the frequency of ground fires in the forests of Illinois provides major support for the notion of frequent presettlement burning in forested lands.

The reasons for starting these fires included clearing forest understory, facilitating travel, reducing insect abundance, stimulating forage, increasing mast (such as acorns and beechnuts) production, and facilitating hunting

This old open grown bur oak has a larger spread than height, a feature rarely found in the much denser forests of today.



(Stewart 2002, Williams 2003). In addition, it is probable that sparks and coals from campfires escaped into the surrounding woods where there was little incentive or means to put out fires, and such fires added to intentional ignition for hunting game and other purposes. It is possible that nearly every square foot of the presettlement forest of these counties burned frequently, at least every three years (McClain et al. 2009), and perhaps even more often in many places. The heavy leaf cover present in these woods provided ready fuel for this burning.

One of the reasons for Native American burning of forests was to increase mast production from trees and shrubs (Abrams and Nowacki, 2008). It is unlikely, however, that burning focused on trees in these counties, inasmuch as the dominant trees in this region were oaks and hickories, heavy mast producers. Burning was beneficial to growth of the most frequently cited understory shrub, American hazel (*Corylus americana*), a major nut producer.

The GLO survey notes summarize undergrowth in most of forested sections. Most of the surveyor notes list hazel as the dominant and often the only undergrowth shrub. Typical entries on all lands other than floodplains are “undergrowth hazel & vines”; “undgr hazel”; and even in prairies “tufts of hazles in places”; and “a thicket of hazles, vines & c.” Hazel was often recorded in prairies and barrens as well. “Vines and briers,” certainly grape (*Vitis* spp) and raspberry (*Rubus* spp.), were often mentioned, though less frequently than hazel. All three thrive only in open forests.

In the almost 200 years that has elapsed since the GLO survey, the understory vegetation has changed drastically. Fires kept the woods open, the trees farther apart. The open nature of the woods encouraged sun-loving shrubs, and hazel, vines, and briers flourished. Hazel tolerated ground fires, and though the aboveground portions of the shrub were often burned, its extensive root system encouraged vigorous sprouting and quick replacement of burned shoots. Today hazel has nearly disappeared from these woods. Its disappearance in Illinois has been described by McClain (2008):

Now it is possible to drive along roads or walk for miles through timber where hazel was once abundant and not find a single plant. Individuals must diligently seek hazel populations along roadsides, in the less populated counties. Perhaps no other shrub in Illinois has experienced such a tremendous decline as the American hazel.

McClain further describes Native American uses of the plant:

American Indians utilized hazel as a source of food and medicine. The nuts, which are high in protein and vitamin E, were gathered in the fall and eaten raw or roasted. The bark was used to make a tea to treat hives and

fevers and the leaves were crushed and used in a poultice to treat varicose veins.

To encourage the spread of this shrub and increase mast production from the frequent clumps was another reason for human-initiated fires. McClain goes on to describe the abundance of this native nut, often called filberts. He quotes a pioneer resident of Pike County who, in the early 1830s, noted the abundance of hazelnuts and who claimed that “during the first two years of our residence . . . my children gathered bushels of them.” The abundance of hazel is also described by Farnam (1846). It is clear that hazel could have provided abundant food for the Native Americans, and it is also likely they realized that fire encouraged hazelnut production.

A further important piece of evidence for human-initiated forest ground fires is that many of the few remaining original trees, those that are probably over 200 years old, are clearly open-grown, with very long branches and wide crowns. Such trees were undoubtedly small at the time of the survey and the frequent fires during the nineteenth century kept the forest open. The growth form of these ancient trees indicates growth in an open forest, one completely different from the denser forests of today. Clearly these old-growth trees developed in a fire environment (Faison et al. 2006).

Burning of hill-prairies overlooking the rivers, those small south- and west-facing grasslands that often existed on the deep loess caps atop the limestone bluffs, was a fourth fire impact on the presettlement vegetation.

Hill-prairies are a unique plant community dominated by native prairie grasses and colorful prairie perennials in Illinois and adjacent states (Braun 1950, Evers 1955). In Jersey and Greene counties, the most abundant species on such grasslands are little bluestem grass (*Schizachyrium scoparium*) and side oats grama (*Bouteloua curtipendula*). These grasses are interspersed with a wide variety of native prairie forbs, the term given to native perennial plants. These botanical gems, often less than an acre in size today, though formerly much larger, occur mainly on these hot and dry south- and west-facing exposed slopes. They are common atop the bluffs in both Jersey and Greene counties. Because of the scenic views from these high points often overlooking large rivers, they have long attracted human interest, from Native Americans who used them as burial sites in presettlement times (Perino 2006), to people today who enjoy their fine vistas.

It is clear from studies over the past fifty years (Robertson et al. 1995) that woody plants invade and overrun these grasslands unless checked by fire, clearing, or herbicides. It is most likely that in the years prior to settlement, frequent fires were necessary for the maintenance of the hill prairies. Ground fires in the adjacent woods no doubt spread into the hill-prairies, aiding in keeping them open.

During the early to late woodland period ending about 600 CE, the tops of these loess-covered bluffs were favorite Native American burial sites due in part to their scenic location and were likely kept open by burning

during the time when the burials were done. It is doubtful, however, that subsequent tribes of Native Americans paid much attention to these graves after the last burials, and these burials do not explain existence of the hill-prairies today (Perino 2006, Hamilton 1919, Titterington 1935).

It is possible that frequent burning of the ravine forests spread into hill-prairies and maintained them as grassland. Such fires, either intentionally or not, keep the woods open and reduce insect populations. Some of these fires likely spread upwards from the base of the bluffs where many of their villages were probably located. Fall fires, when the vegetation was at its driest, would readily spread, particularly in windy conditions, through any grassland. Early twentieth-century photos, and even earlier drawings, attest to the openness of these bluff areas. Today, these hill-prairies are being invaded by woody plants, and some have completely disappeared (McClain et al. 1909). In conclusion, it is almost certain that frequent fires started by Native Americans kept these hill-prairies open.

Native American Populations

Were there enough Native Americans living in LIRV from 1200 to 1800 CE able to carry out a burning program that resulted in the presettlement vegetation as described by the GLO surveyors? The answer to this question is key to determining vegetation impacts at the time of the GLO survey.

Nearby Cahokia was at its peak around 1200 CE (Pauketat 2009), and it is likely that villages in the LIRV were at maximum size. For obscure reasons, population decline began at Cahokia at that time, but the population at LIRV may have been little affected, as geography and vegetation were far different from the American Bottom at Cahokia. Nevertheless, during this interval, archeological evidence is sparse in LIRV, and this question must be carefully examined.

First, epidemics may have played a role in population reduction in the LIRV (Blasingham 1956). Tanner (1987) describes one possible impact from disease as early as 1692-3 when “during the winter all of the Illinois tribes suffered high child mortality.” Tanner (1987) also notes another disaster in 1714 when “Epidemic disease killed hundreds of Illinois Indians at Kaskaskia” Such epidemics could severely limit the organization, population, and activities of Native Americans in the LIRV area, but it is questionable how major these epidemics were or how long their effects were felt. Certainly not all Indians perished from epidemics. Survivors gained some immunity, new families were started, and the resultant population likely grew.

Another potential effect on population numbers was the devastation of Indian wars (Blasingham 1956). Tanner describes one such attack in the area:

In 1680 the Iroquois attacked tribes in the Illinois River valley, beginning at Kaskaskia and pursuing the retreating Illinois Indians along the river. All of the Illinois except the Tamaroa fled across the Mississippi River. The

Tamaroa were defeated, with more than 700 captured or killed.

This battle likely destroyed many of the LIRV villages. It seems probable, however, that many Native Americans fled river areas until the war parties left and then returned and reestablished their way of life and increased their population once peace was restored. Some of these remnant tribes later were relocated to Kansas, where they are today on reservations.

Tanner (1987) shows 33 maps of the location of Indian villages from 1641 to 1889 in the Great Lakes area, including Illinois. These maps show numerous Illinois villages at Peoria and others northeast of Peoria along the Illinois River. They show many villages around St. Louis, near the confluence of the Missouri and Mississippi rivers, and east and west of the Mississippi. But the maps show no villages in the LIRV. One might conclude the lands along LIRV sustained few Native American villages at the time, even though there had been extensive Native American use of this area during the previous 10,000 years. These maps, though immensely useful, hardly indicate all Native American settlements, especially the smaller ones. Any number could have existed a mile or more from the Illinois River, in the higher parts of the floodplain, without being noted by early travelers whose accounts were sporadic and selective at best (Warren 2000). Euroamerican settlers were concentrated around St. Louis; by the time they expanded into the LIRV, the Native Americans had been relocated. Vast areas were passed by travelers who took no notes. In short, while early accounts are immensely valuable, they reveal only a fraction of the Indian activity in the LIRV.

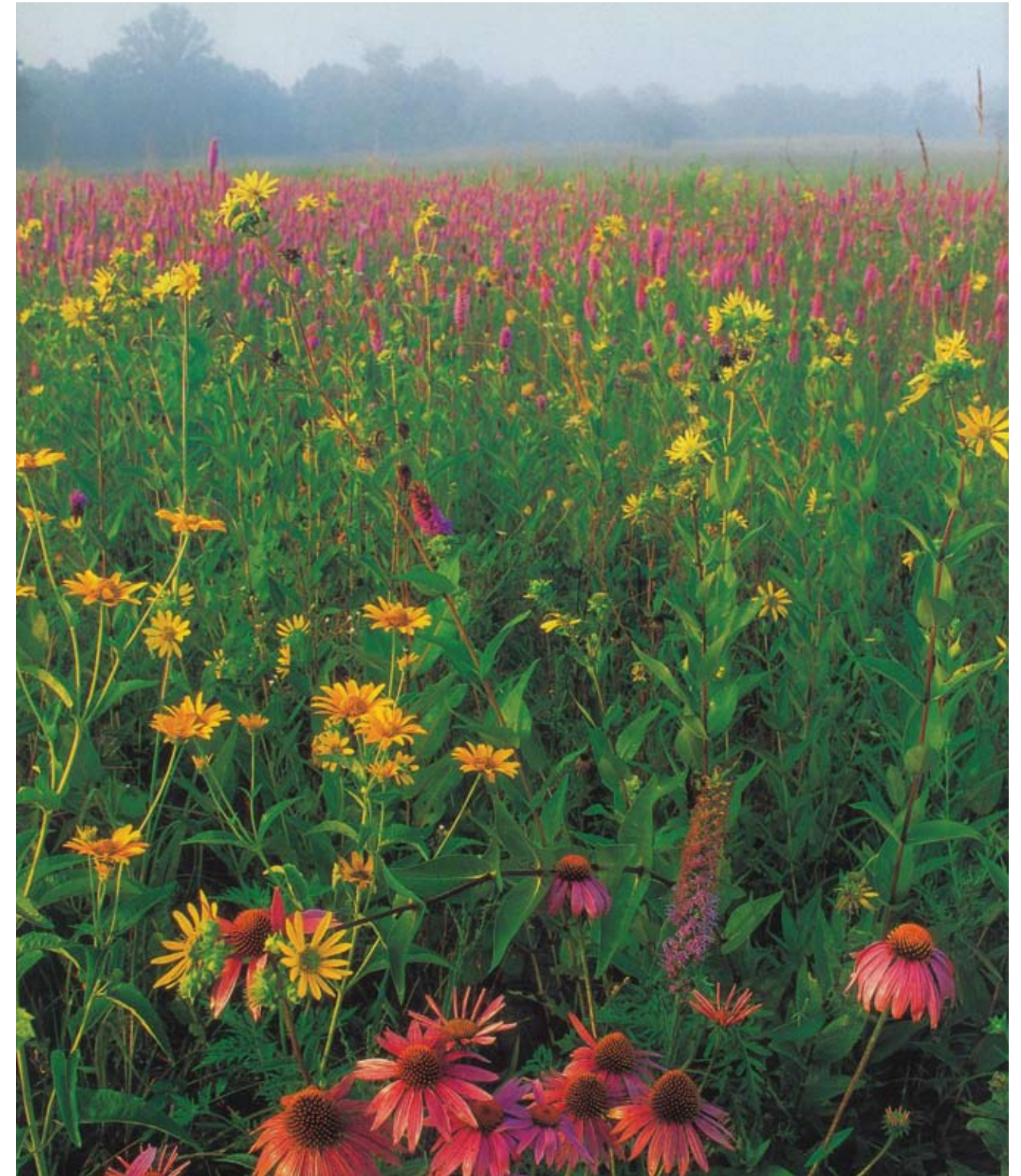
As described in the previous sections, vegetation patterns indicated Native American use of this area nearly up to the time of the GLO survey. Traveler notes provide evidence of widespread Native American presence along the rivers. While vegetation impacts may have lessened after 1200 CE, they were sufficient during the following 600 years to provide the effects noted on the presettlement vegetation at the time of the GLO survey.

Conclusion

Analysis of the presettlement vegetation of Jersey, Greene, and Macoupin counties in west-central Illinois reveal major fire impacts by Native Americans. In present settlement times, almost half of these counties were covered with prairies maintained by the frequent burning by Native Americans for hunting big game, especially bison. As the prairie fires invaded the adjacent forest, a sizeable portion of the remaining forest became barrens. Fires continued to burn through much of the remaining forest areas as ground fires that did not kill the larger trees but did girdle and kill the smaller trees and shrubs, allowing ready access through the woods, a forest that was much more open than many of the second- and third-growth woods of today. This fire regime promoted hazel dominance of the understory, a shrub that sprouts readily

after fires. Grapevines and raspberry shrubs were also abundant and are largely absent in today’s forests. The surveyors, who carried tools, food, tents, clothing, and other supplies in a wagon, moved easily through the open forest before roads existed. This ease of passage suggests

that much of the vegetation in these counties was burned frequently, perhaps annually, at least on the uplands and over the gentler topography. Fires, probably unrelated to bison hunting, also caused the burning of the hill-prairies isolated atop the river bluffs.

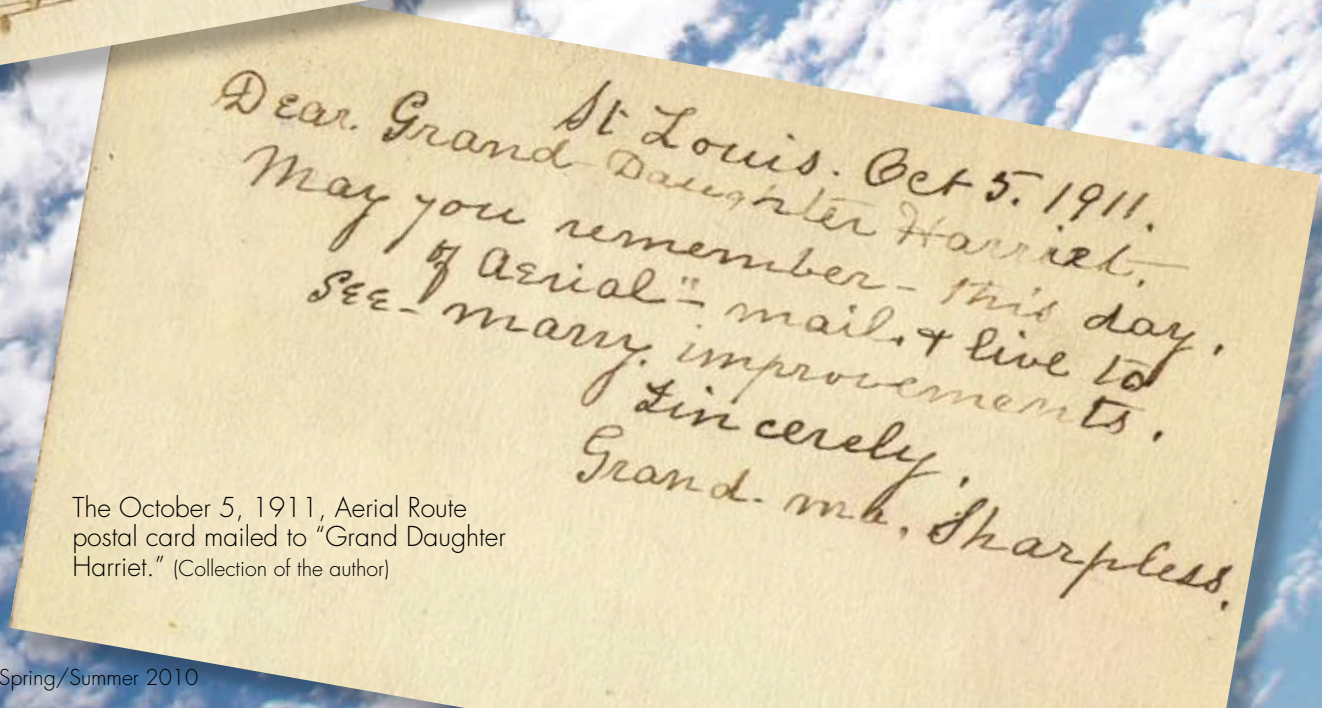


SOURCES

- Abrams, M. D. and G. J. Nowacki. 2008. "Native Americans as active and passive promoters of mast and fruit trees in the eastern USA." *The Holocene* 18: 1123-1137.
- Anderson, R. C. 2006. "Evolution and origin of the central grassland of North America: climate, fire and mammalian grazers." *Journal of the Torrey Botanical Society* 133 (4): 626-647.
- Atwell, K. A. 2000. "The lower Illinois valley." *Illinois Antiquity* 35 (3): 21-22.
- Belue, T. F. 1996. *The long hunt: death of the buffalo east of the Mississippi*. Stackpole Books: Mechanicsburg, Pennsylvania.
- Blasingham, E. J. 1956. "The depopulation of the Illinois Indians." *Ethnohistory* 3 (3 & 4): 193-224 and 361-412
- Botkin, D. 2004. *Our Natural History: The Lessons of Lewis and Clark*. New ed. New York, Oxford University Press.
- Bourne, A. 1820. "On the prairies and barrens of the west." *American Journal of Science and Arts* 2: 30-34.
- Bowles, M. L. and J. L. McBride. 1994. Presettlement barrens in the glaciated prairie region of Illinois. J. S. Fralish, R.C. Anderson, J.E. Ebinger, and R. Szafone eds. *Proceedings of the North American Conference on Savannas and Barrens*. Normal: Illinois State University.
- Braun, E. L. 1950. *Deciduous forests of eastern North America*. Philadelphia: The Blakison Co.
- Brown, J. A. 1985. "Long-term trends to sedentism and the emergence of complexity in the American Midwest." T. D. Price and J. A. Brown eds. *Prehistoric Hunter-Gatherers: The Emergence of Cultural Complexity*. San Francisco: Academic Press.
- Brown, J. A. and R. L. Vierra. 1983. "What happened in the Middle Archaic? An introduction to and ecological approach to Koster site archeology." J.L. Phillips and J. A. Brown eds. *Archaic Hunters and Gatherers in the American Midwest*. New York, Academic Press.
- Brugam, R.B. and M.J. Patterson. 1996. "Application of a geographic information system to mapping presettlement vegetation in southwestern Illinois." *Transactions of the Illinois State Academy of Science* 89: 125-141.
- Brugam, R. B. and P. Swain. 2000. "Diatom indicators of peatland development at Pogonia Bog Pond, Minnesota." *The Holocene* 10: 453-464.
- Bryson, R. 1966. "Air masses, streamlines and the boreal forest. Canadian Geography Branch." *Geographic Bulletin* 8:228-269
- Buikstra, J.E. 1988. "The Mound Builders of Eastern North America: A Regional Perspective." Albert Egges van Giffen Instituut voor Prae en Protohistorie, Universiteit van Amsterdam.
- Cronon, W. 1983. *Changes in the Land*. New York: Hill and Wang.
- Curtis, J. T. 1959. *The vegetation of Wisconsin*. Madison: University of Wisconsin Press.
- Darlington, W. M. 1907. *An account of the remarkable occurrences in the life and travels of Col. James Smith*. Cincinnati: The Robert Clarke Co.
- Denevan, W.M. 1992. "The pristine myth: The landscape of the Americas in 1492." *Annals of the Association of American Geographers* 82: 369-385.
- Diamond, J. M. 2005. *Collapse: how societies choose to fail or succeed*. New York, Viking.
- Edgin, B.R. 1996. "Barrens of presettlement Lawrence County, Illinois." In *Proceedings of the Fifteenth North American Prairie Conference*. The Natural Areas Association, Bend, OR.
- , 2000. "The beauty and bounty of barrens." *Illinois Audubon* 275:12-16.
- Evermann, B.W. 1916. *Proceedings of the Indiana Academy of Science* 26: 165-224.
- Evers, R. A. 1955. "Hill Prairies of Illinois." *Bulletin of the Illinois Natural History Survey* 26 (5): 366-446.
- Faison, E. K., D. R. Foster, W. W. Oswald, B. C. S. Hansen, and E. Doughty. 2006. "Early Holocene openlands in southern New England." *Ecology* 87 (10): 2537-2547.
- Farnham, E. W. 1846. *Life in a prairie land*. New York: Harper and Brothers.
- Gleason, H. A. 1913. "The relation of forest distribution and prairie fires in the middle west." *Torreya* 13: 173-181.
- , 1922. "The vegetational history of the Middle West." *Association of American Geographers Annals* 12: 39-86.
- Graham, R. C., C. V. Haynes, D. L. Johnson, and M. Kay. 1981. "Kimmiswick: a Clovis-mastodon association in eastern Missouri." *Science* 213: 1115-1117.
- Grimm, E. C. 1984. "Fires and other factors controlling the Big Woods vegetation of Minnesota in the mid-nineteenth century." *Ecological Monographs* 54:291-311.
- Hajic, E. R. 1990. *Koster site archeology I: stratigraphy and landscape evolution*. Kampsville Archeological Center Research Series, vol. B. Kampsville, Illinois: Center for American Archeology.
- Hamilton, O. B. 1919. *History of Jersey County, Illinois*. Chicago: Munsell Publishing Co.
- Heikens, A. and P. A. Robertson. 1995. "Classification of barrens and other natural xeric forest openings in southern Illinois." *Journal of the Torrey Botanical Society* 122: 203-214.
- Hennepin, Father L. 1680. *A description of Louisiana*. John Gillmary Shea trans. Ann Arbor: University Microfilms.
- , 1698. *A new discovery of a vast country in America*. Chicago: A. C. McClurg & Co., 1903.
- Hildreth, S. P. 1971. *Pioneer history*. Arno Press and *The New York Times*.
- Howard, R. P. 1972. *Illinois: A history of the Prairie State*. Grand Rapids, Michigan: William B. Eerdmans Publishing Co.
- Illinois Natural History Survey. 2005. Federal Township Plats of Illinois (1804-1891) georectified. CD-ROM.
- Illinois Natural Resources Geospatial Data Clearinghouse. 2005. NAPP Digital Orthophoto Quarter Quadrangles Illinois State Geological Survey, <http://www.isgs.illinois.edu/nsdihome/> (accessed Feb. 23, 2010)
- Kilburn, P., B. Tutterow, and R. B. Brugam. 2009. "The tree species composition and history of barrens identified by government land surveyors in southwestern Illinois." *Journal of the Torrey Botanical Society* 136 (2): 272-283.
- Knapp, A. K., J. M. Blair, J. M. Briggs, S. L. Collins, D. C. Hartnett, L. C. Johnson, and E. G. Towne. 1999. "The keystone role of bison in North American tallgrass prairie." *Bioscience* 49: 39-50.
- Lopinot, N. H. and W. I. Woods. "Wood overexploitation and the collapse of Cahokia." C. M. Scarry ed. *Foraging and farming in the eastern woodlands*. Gainesville: University Press of Florida.
- Madson, J. 1993. *Tallgrass Prairie*. The Nature Conservancy. Helena, Montana: Falcon Press.
- Marquette, P. and L. Joliet. 1673. *Historic Diaries*. Madison, Wisconsin Historical Society.
- McClain, W. E. 2008. "Where the wild hazel grows." *Illinois Steward*.
- McClain, W. E. and S. L. Elzinga. 1994. "The occurrence of prairie and forest fires in Illinois and other midwestern states, 1679 to 1854." *Erigenia* 13: 79-87.
- McClain, W. E., A. C. Moorehouse, and J. E. Ebinger. 2009. "Loss of Hulsebus loess hill prairie, Henderson County, Illinois to woody plant invasion." *Transactions of the Illinois State Academy of Science* 102: 141-147.
- McClain, W. E., T. L. Esker, B. R. Edgin, G. Spyreas, and J. E. Ebinger. 2009. "Fire history of a post oak (*Quercus stellata* Wang.) woodland in Hamilton County, Illinois, U.S.A." *Castanea*: in press.
- Milner, G. R. 1986. "Mississippian period population density in a segment of the central Mississippi River valley." *American Antiquity* 51: 227-238.
- Natural Resources Conservation Service. 2007. Soil survey of Jersey County, Illinois. U.S. Department of Agriculture.
- Nelson, D. M, F. S. Hu, E. C. Grimm, B. B. Curry, and J. E. Slate. 2006. "The influence of aridity and fire on Holocene prairie communities in the eastern Prairie Peninsula." *Ecology* 87: 2523-2536.
- Pauketat, T. R. 2009. *Cahokia: Ancient America's Great City on the Mississippi*. New York: Viking Penguin Group.
- Perino, G. 2006. *Illinois Hopewell and Late Woodland mounds: the excavations of Gregory Perino 1950-1975*. K. B. Farnsworth, and M. L. Wiant. eds. *Studies in Archaeology* 4. Urbana: Illinois Transportation Archaeological Research Program, University of Illinois.
- Peter, D. and D. Shebitz. 2006. "Historic anthropogenically maintained bear grass savannas of the southeastern Olympic Peninsula." *Restoration Ecology* 14 (4): 605-615.
- Pyne, S. J. 1982. *Fire in America: a cultural history of wildland and rural fire*. Princeton: Princeton University Press.
- Robertson, K. R., M. W. Schwartz, J. W. Olson, B. K. Dunphy, and H. D. Clarke. 1995. "50 years of change in Illinois hill prairies." *Erigenia* 14: 41-52.
- Sampson, H. C. 1921. "An ecological survey of the prairie vegetation of Illinois." *Natural History Survey Bulletin* 13: 530-585.
- Schoolcraft, H. R. 1821. *Journal of a tour into the interior of Missouri and Arkansas*. London: Sir Richard Phillips and Co.
- Schwegman, J. E. 1974. *Comprehensive Plan for the Illinois Nature Preserves System, Part 2: The Natural Divisions of Illinois*. Illinois Nature Preserves Commission.
- Silver, T. 1990. *A new face on the countryside: Indians, colonists, and slaves in South Atlantic Forests, 1500-1800*. New York, Cambridge University Press.
- Sparks, R. E., J. C. Nelson, and Y. Yin 1998. "Naturalization of the flood regime in regulated rivers." *BioScience* 48: 706-720.
- Stewart, O. C. 2002. *Forgotten fires*. Norman: University of Oklahoma Press.
- Tanner, H. H. (Ed.) 1987. *Atlas of Great Lakes Indian history*. Norman: University of Oklahoma Press.
- Titterton, P. F. 1935. "Certain bluff mounds of western Jersey County, Illinois." *American Antiquity* 1: 6-46.
- Transeau, E. 1935. "The Prairie Peninsula." *Ecology* 16: 205-218.
- Warren, R. E. 2000. "The Colonial Period." *Illinois Antiquity* 35 (3): 14-15.
- Weaver, J. E. and F. E. Clements 1938. *Plant ecology*. New York, McGraw Hill.
- Williams, G. W. 2003. *References on the American Indian use of fire in ecosystems*. Washington, D.C.: USDA Forest Service.
- Wright, H. E. 1968. "History of the prairie peninsula." *The Quaternary of Illinois*. R. E. Bergstrom ed. Special Publication 14, College of Agriculture, University of Illinois, Urbana.
- Yerkes, R. W. 1987. *Prehistoric life on the Mississippi floodplain*. Chicago: University of Chicago Press.
- Zawacki, A. A. and G. Hausfater. 1996. *Early vegetation of the lower Illinois Valley*. Springfield: Illinois Valley Archeological Program Research Papers, vol. 1.

St. Louis Air Mail Pioneer

BY DAVID L. STRAIGHT



The October 5, 1911, Aerial Route postal card mailed to "Grand Daughter Harriet." (Collection of the author)

Almost a century ago, Mrs. Sharpless sketched a Wright biplane and wrote on a postal card, "Dear Grand Daughter Harriet, May you remember this day of Aerial mail & live to see many improvements," then mailed it to Harriet Veidt, living on Michigan Avenue in the Carondelet neighborhood of St. Louis. The October 1911 flights at Fairgrounds Park that inspired Grandma Sharpless were part of the public entertainment during the annual Veiled Prophet Week. For only the second time, the United States Post Office sanctioned pilots to transport mail. The Aero Club of St. Louis had organized the Air Meet to demonstrate the commercial potential for aviation and further promote St. Louis as an aeronautic center.

The selection of St. Louis four years earlier in 1907 to host the Gordon Bennett International Balloon Race provided an important boost for local aviation enthusiasts. Balloon flights in St. Louis began as early as 1830. In July 1859, John Wise established a world's distance record of 826 miles on a flight from St. Louis to Henderson, New York. The world's first aeronautic congress, as well as balloon and dirigible flights, were among the attractions at the Louisiana Purchase Exposition in 1904. Bennett, an avid sportsman and owner of the *New York Herald*, established the balloon prize in 1906 to promote aviation as well as to provide news for his papers.

St. Louis was chosen to host the race because of its central location, far from mountains and oceans; the reputation of the Laclede Gas Works for efficient delivery of high quality, extremely light coal gas required by balloonists; and the enthusiastic support of the Aero Club of St. Louis, established in 1907 by cracker manufacturer Lewis Dozier. On October 21, 1907, nine balloons from four nations ascended from the St. Louis Aero Club grounds at Chouteau and Newstead avenues, chosen because of its access to the four-million-cubic-foot Laclede Gas retort, a chamber used to distill or store gas. The Aero Club sponsored two additional days of contests after the

Gordon Bennett Balloon Race. A speed race for airships attracted ten entrants, three of which actually raced. The world's first heavier-than-air "flying machine" race offered a prize for the longest and best continuous flight. None of the seven entrants had ever made a sustained flight, and none of the aeroplanes got off the ground that day.

Two years later, during the St. Louis Centennial Week celebration, October 3-9, 1909, the Aero Club arranged flight demonstrations and contests for balloons, airships, and aeroplanes. Fresh from winning the Coupe Internationale d'Aviation at Rheims, Glenn Curtiss was the headline attraction. He made two test flights below the mist-shrouded treetops of Forest Park at dawn on October 7, 1909. However, as 300,000 spectators lined both sides of Lindell Avenue from DeBaliviere to the Washington University steps, Curtiss' plane experienced mechanical trouble on a dozen attempts. This limited his best flight to sixty yards. The first aeroplane flight in St. Louis was anti-climatic, but a few days later, Thomas Baldwin flew under the center span of the Eads Bridge.

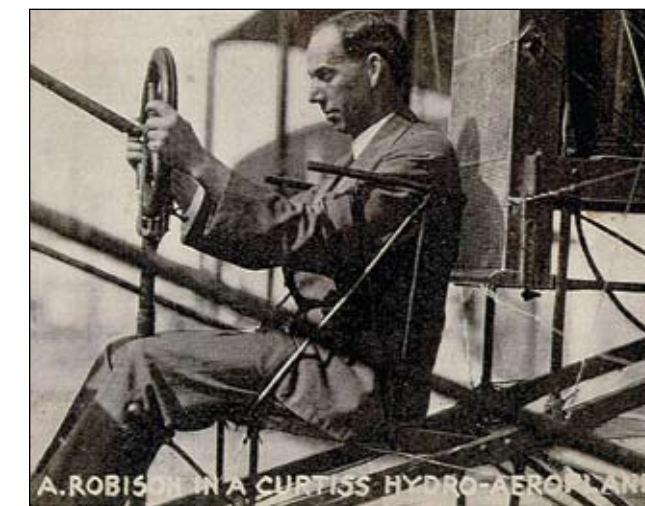
The Aero Club also sponsored balloon races, based upon distance traveled rather than speed. These were divided into three classes: balloons of 3,000-cubic-foot gas capacity; 40,000-cubic-foot; and the long distance 80,000-cubic-foot capacity. The 3,000-cubic-foot class, conceived by Albert Bond Lambert, heir to the Lambert Pharmaceutical fortune from the manufacture of Listerine, consisted of balloons used mostly for promotional purposes. Twenty-four local businesses entered advertising balloons, with the Halsey Automobile Company balloon winning after an eighty-mile flight to Vergennes, Illinois. The annual Forest Park balloon race continues this tradition.

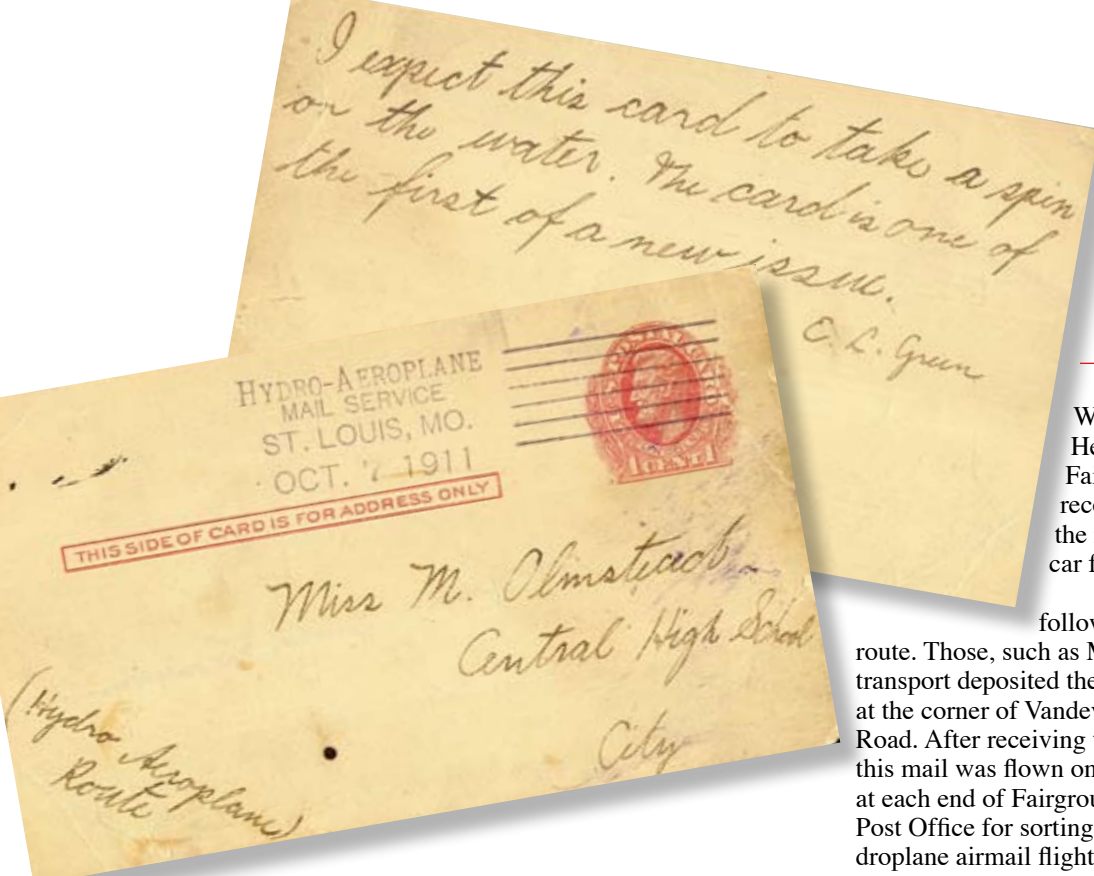
Lambert, who devoted much of his money and energy to promoting aviation in St. Louis, was elected president of the Aero Club in 1910. He had organized the nation's first National Guard Aerial Detachment in 1909. The

Glen Curtiss, flying a plane of his own design, was the featured pilot for the 1909 Centennial Week. (Collection of the author)



Hugh Robinson at the controls of his Curtiss hydroplane that carried mail on the Mississippi River. (Collection of the author)





A postal card carried on the first hydroplane airmail service on October 8, 1911; the card was postmarked the previous day. (Collection of the author)

acquisition of a former racetrack, renamed Kinloch Field, east of the modern Lambert Airport, provided a site for the October 8-16, 1910, International Air Meet and a permanent home for the Club. Two events that year at Kinloch Field foreshadowed the future of aviation: aerial bombardment of a mock battleship demonstrated its military potential, and former President Theodore Roosevelt's ride in an aeroplane in Saint Louis in 1910 hinted at commercial passenger service. Also in October 1910, the Club began publishing *Aero*, America's first weekly aeronautical magazine. When Lambert earned the Pilot License #61 from the Aero Club of America in 1911, he became the fifth American to hold pilot licenses for both balloons and airplanes.

For its 1911 Air Meet, the Aero Club hired Walter Brookins, a daring stunt pilot, who held numerous aviation records. His teacher, their sister Katherine, had introduced Brookins to the Wright brothers. Having learned to fly with Orville, he had run the Wright flying school in Montgomery, Alabama. For this Air Meet, events were moved to Fairgrounds Park to make them more accessible to city residents. Postmaster General Frank Hitchcock had authorized demonstration airmail flights. Those wishing to have letters and post cards carried by aeroplane had to pay 2¢ postage and inscribe their mail, "Aerial Route." By late in the afternoon of October 4, 1911, the St. Louis Post Office had applied a special cancellation, "AEROPLANE STATION No. 1 / ST. LOUIS, MO., AVIATION FIELD," to 5,000 pieces of mail. The two fifty-pound sacks were rushed to Kinloch Field and strapped to the wings of

Walter Brookins' Wright biplane. He flew the mail twelve miles to Fairground Park—a new distance record for U.S. airmail. Upon landing, the mail was taken back downtown by car for sorting and delivery.

The greater volume of mail on the following three days required a shorter route. Those, such as Mrs. Sharpless, desiring airmail transport deposited their mail in a special collection box at the corner of Vandeventer Avenue and Natural Bridge Road. After receiving the Aeroplane Station cancellation, this mail was flown only between airmail stations located at each end of Fairgrounds Park and then taken to the main Post Office for sorting and delivery. An experimental hydroplane airmail flight had been scheduled for October 7 and the mail prepared for the flight was postmarked that day. Inclement weather postponed the flight until Sunday morning, October 8. Hugh Robinson took off from the Mississippi River at the foot of North Market Street and flew under and over the Eads, McKinley, and Merchants bridges before carrying the mail to the Illinois side of the river. However, as no arrangements had been made for the East St. Louis Post Office to receive airmail, he returned the mail to St. Louis for sorting and delivery.

Brookins and Robinson's demonstration flights were important steps in the establishment of airmail. Seven years later, in 1918, the Post Office established a regular schedule of airmail service between New York, Philadelphia, and Washington, D.C. Experimental airmail service between St. Louis and Chicago began in 1920 from what is now the soccer pitch on the south edge of Forest Park. That same year, Albert Lambert leased, and later purchased, a 160-acre cornfield along Natural Bridge Road in Bridgeton to build an airport. He sold Lambert Field to the St. Louis Municipal Airport Authority in 1928 at his cost. In 1925, the Post Office awarded the St. Louis-Chicago airmail contract to Robertson Aircraft Corporation of St. Louis; it hired Charles Lindbergh as flight instructor and chief pilot. Could Grandma Sharpless have imagined that airmail would progress from stunt flying at aviation meets, through an expensive extra service for transcontinental or transoceanic mail, to the standard transportation mode for both domestic and international mail in less than a century?

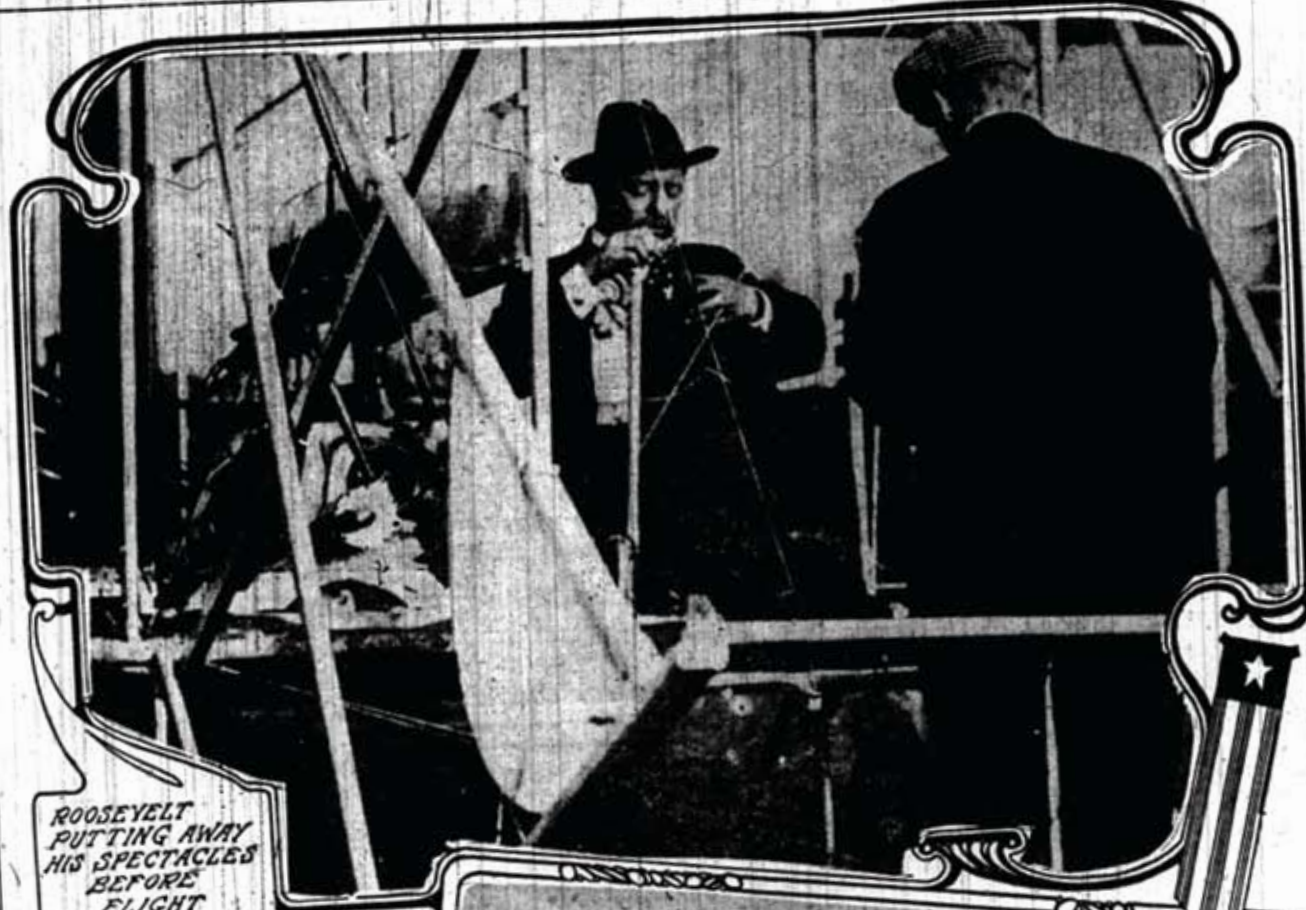
SOURCES

Horgan, James J. *City of Flight*. St. Louis: Patrice Press, 1984.
 Proetz, Arthur. *I remember you*. St. Louis: Zimmerman-Petty Company, 1963.
American Air Mail Catalogue, 5th edition, volume 1 (American Air Mail Society, 1974).

St. Louis Globe-Democrat

ST. LOUIS, WEDNESDAY MORNING, OCTOBER 12, 1910—SIXTEEN PAGES.

Col. Roosevelt Takes First Air Flight in Presence of 30,000



ROOSEVELT PUTTING AWAY HIS SPECTACLES BEFORE FLIGHT



ROOSEVELT LOOKING AT BROOKINS DOING SPIRAL. "THIS IS THE FINEST THING I HAVE EVER SEEN IN MY LIFE," SAID THE FORMER PRESIDENT

MORSE'S PETITION MUST BE REGULAR

Taft Declines to Consider Application Unless It Goes Through Department.

FEW DAYS IN NEW YORK

President Will Confer With Party Leaders Before Return to Washington.

FOREST FIRES SUBSIDE STRIKE CRISIS REACHED GERMAN SKY MEN ARRIVE

ROOSEVELT SPEECH SOUNDS

People of Missouri and of the Republic...

ORTHODOX VIEW WITH CHEER

Spirited Campaign followed by Vigor—Colonel C. "More Rap..."

The largest crowd in... greeted Col. Theodo... last night as the principal campaign in St. Louis.

Fresh from a daring an... aeroplane at the Kinloch... ering, which a conservative... heights of enthusiasm wit... concise and telling, produ... pression in thunderous che... tered the building.

Col. Roosevelt in a m... democracy of his state, New... bonism, he said. He dec... scribed to the doctrines c... could not subscribe to so-c... son of Tennessee and Tho...

He denounced the D... ance between Wall street... cratic party in Missouri b... interests and special priv...

"Give, Hadley," he c... ality in which I most belie... pation by seeing to it th... as a whole. And so I at... you here in this great st... because I think that the... to the conditions of the... state.

"And as it is in New... the people, the party th... people, is the Republica... lam, the party that rep... the party that arrogates...

"Republican Par No O..."

In reference to the... Roosevelt said: "As to... seems to me that the... much clearer than some... have us believe. I ful... there was a time whe... ponents had acted wi...

The year before the first air mail left St. Louis, former President Theodore Roosevelt visited Kinloch Field, and was coaxed into taking a ride on a "flying machine." He was the first President (sitting or former) to fly—with much ballyhoo from the *St. Louis Globe-Democrat*. (Photo: State Historical Society of Missouri Photo Collection)

ABOUT THE AUTHORS



Dr. Richard Brugam's (*How Natural is Nature?*) research has been in the area of paleoecology—the historical development of ecosystems. He received his Ph.D. from Yale University in 1975 and a three-year post-doctoral study at the University of Minnesota. He arrived in Illinois in 1978 and has published 42 papers on environmental change in the Midwest. He has used the Government Land Office Surveys to reconstruct the original forest cover of Southwestern Illinois. The current work is an extension of this interest.



Dr. Anthony Clark (*Cash for Clunkers*) is an Associate Professor of Economics and Director of the Institute for Study of Economics and the Environment at Lindenwood University. Dr. Clark is the author or co-author of a number of articles and technical reports, and he has appeared in numerous radio and television interviews throughout the state. His other current research projects include an economic impact analysis of the River City Rascals baseball team, a land use change model for assessing wildfire risk in Montana, and a nonmarket valuation study of urban sprawl and land conservation in the Middle East.



Dr. Paul Kilburn (*How Natural is Nature?*) is a retired Professor of Biology at Principia College and presently an environmental consultant working on native grassland in Colorado. He is a plant ecologist with extensive work in Michigan, Colorado, Alaska, and Illinois. His work has been on hill prairies, tundra, oil shale environmental problems, and presettlement vegetation.



Dr. Annette Najjar (*Cash for Clunkers*) has been an Associate Professor in the School of Business & Entrepreneurship since 2001 where she has taught several introductory and upper-level economic courses. She has conducted research on Payday Lending Institutions and continues her interest in understanding the economic impact of non-bank lending institutions. The Cash for Clunkers research was undertaken in the turbulent 2009 period to assess the efficiency and local impact of one of the many government stimulus programs.



Carole Prietto (*The Journey of the Sisters of Charity to St. Louis, 1828*) has served as Provincial Archivist for the Daughters of Charity St. Louis Province since 2006. From 1990 to 2004 she was University Archivist at Washington University in St. Louis. A native Californian, she has an MA in history from UCLA and is currently working toward a masters in library science at San Jose State University.



David Straight (*St. Louis: Air Mail Pioneer*) recently retired after 32 years with Washington University Libraries to devote full time to his postal history research and writing. His article "Cheap Postage: A Tool for Social Reform" will be published this fall in *Smithsonian Contributions to History and Technology*, No. 55. He is currently co-chair of the annual Postal History Symposium and a member of the Museum Advisory Council for the Smithsonian National Postal Museum.



Andrew J. Theising (*America's First Interstate Highway*) teaches in the Political Science Department at Southern Illinois University Edwardsville, where he also serves as Director of the SIUE Institute for Urban Research. He is the author of *Made in USA: East St. Louis* (St. Louis: Virginia Publishing, 2003) and most recently is the co-editor (with Mark Abbott) of *St. Louis Currents: The Bi-State Region after a Century of Planning* (St. Louis: Reedy Press, 2009). Theising received his Ph.D. from the University of Missouri-St. Louis.



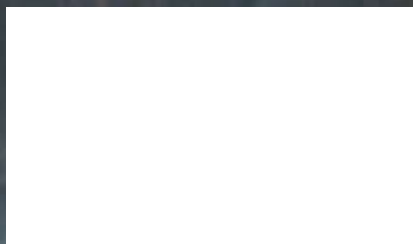
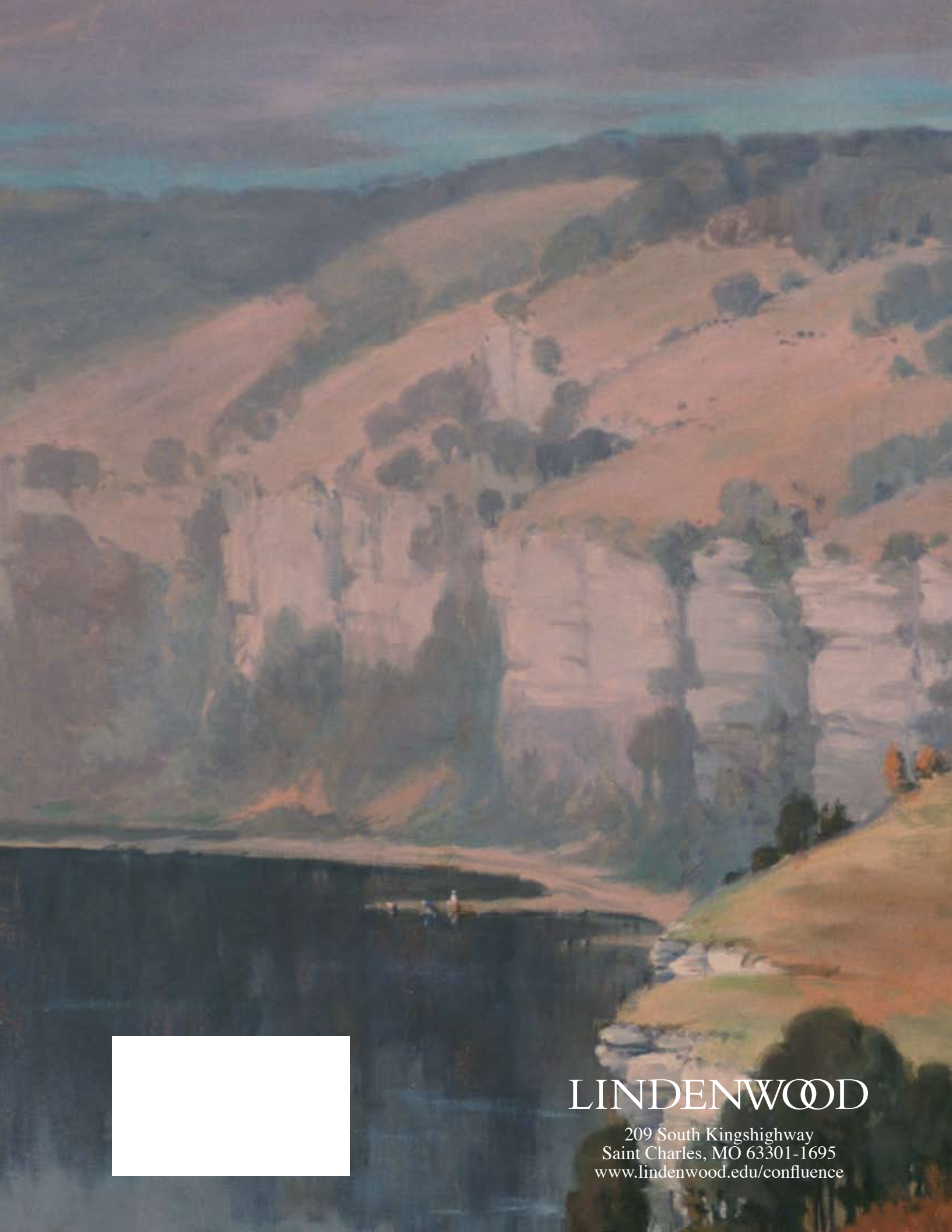
Ralph Wiedner (*Cash for Clunkers*) has spent a career in and studying the economics of sales in the auto industry in both the manufacturing and leasing parts of the industry. Today, Wiedner is Assistant Professor of Marketing at Lindenwood University.

IMAGE RIGHT

A complete page from the diary of Sr. Francis Xavier Love. Her complete diary of her trip to St. Louis appears in the "The Journey of the Sisters of Charity to St. Louis, 1828."

(Photo: Daughters of Charity Archives, St. Louis)

"I hope your lungs are not affected?"
"Yes sir, they are."
"Does your profession oblige you to make much use of your lungs?"
"No sir."
"Well, it is not the case with me;— I have to preach the Gospel."
The stranger looked very much pleased, which gave the minister new courage; he set to, and gave us quite a sermon, after which he said to Mr. Jannison: "You, I suppose sir, will style us heathens."
Good Mr. Jannison who had been silently listening to all that had been said, now answered Minister's questions. A long argument ensued. The poor minister finding Mr. Jannison too strong for him grew warm, and wish ed to fly the point in question. Mr. Jannison would not consent;— Minister said he was weary, and must get out of the stage, he wished to take a little sleep;— He returned in a few moments, and turned the conversation.
Between Cumberland and our dining place, we saw on one side of the road, huddled together like beads, nearly a hundred blacks, numbers of them chained together, half naked, shivering with cold, — men, women and children. Some were standing, others sitting half double leaning on each other in much distress. As the stage passed slowly by they looked after us with a kind of wild despair, enough to break the hardest heart. I asked what it meant, and one of the gentlemen answered some daring seller of human flesh had left them there, until he should get another supply.



LINDENWOOD

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