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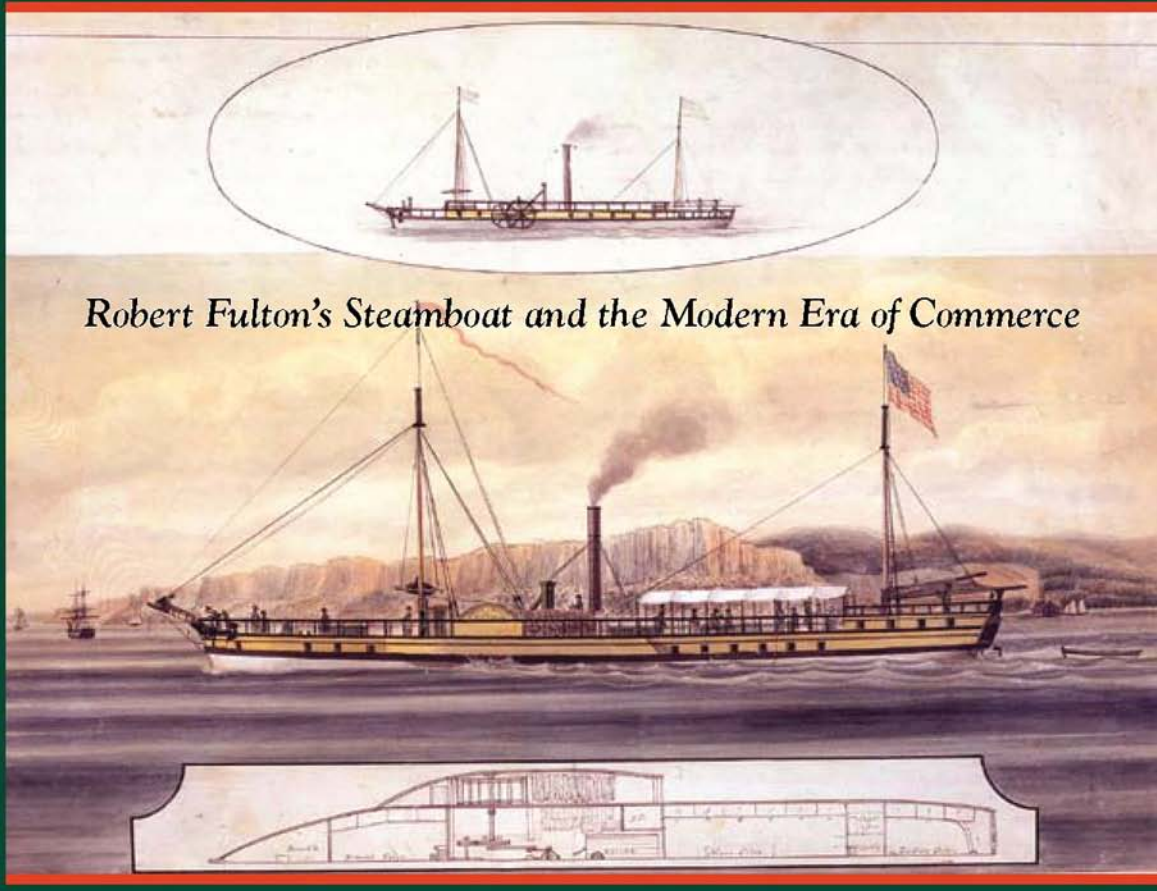
THE HUDSON RIVER VALLEY REVIEW

A Journal of Regional Studies



Robert Fulton's Steamboat and the Modern Era of Commerce

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MARIST

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From the Editors

This marks the bicentennial year of Robert Fulton's maiden voyage aboard the steamboat that would eventually be called the *Clermont*. Fulton's "invention" revolutionized transportation and commerce, forever changing the Hudson River and its surrounding valley. In commemoration of this anniversary, we open this issue with a fascinating recounting of Fulton's achievements written by his foremost biographer. Next, we explore more recent efforts to expand transportation in the region, focusing on the struggles surrounding construction of a Westchester County parkway. Finally, we offer the first glimpse at a recently discovered Dutch account book documenting the eighteenth-century fur trade in Ulster County.

Continuing our nautical theme, our history forums encourage visits to the Albany Institute of History and Art, which has mounted a compelling exhibit about Fulton and steamboats, and the Hudson River Maritime Museum in Kingston. Another forum article proposes a hike along the shoreline below Storm King Mountain, the haunt of a famous nineteenth-century steamboat captain. As usual, we conclude with a book review and a listing of new and noteworthy titles.

Reed Sparling
Christopher Pryslopski

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Call for Essays

The Hudson River Valley Review is anxious to consider essays on all aspects of the Hudson Valley—its intellectual, political, economic, social, and cultural history, its prehistory, architecture, literature, art, and music—as well as essays on the ideas and ideologies of regionalism itself. All articles in *The Hudson River Valley Review* undergo peer analysis.

Submission of Essays and Other Materials

HRVR prefers that essays and other written materials be submitted as two double-spaced typescripts, generally no more than thirty pages long with endnotes, along with a computer disk with a clear indication of the operating system, the name and version of the word-processing program, and the names of documents on the disk. Illustrations or photographs that are germane to the writing should accompany the hard copy. Otherwise, the submission of visual materials should be cleared with the editors beforehand. Illustrations and photographs are the responsibility of the authors. No materials will be returned unless a stamped, self-addressed envelope is provided. No responsibility is assumed for their loss. An e-mail address should be included whenever possible.

HRVR will accept materials submitted as an e-mail attachment (*hrvi@marist.edu*) once they have been announced and cleared beforehand.

Since HRVR is interdisciplinary in its approach to the region and to regionalism, it will honor the forms of citation appropriate to a particular discipline, provided these are applied consistently and supply full information. Endnotes rather than footnotes are preferred. In matters of style and form, HRVR follows *The Chicago Manual of Style*.

Contributors

Eleanor Phillips Brackbill is head of museum education at the Neuberger Museum of Art, Purchase College, State University of New York. She is the author of *Isaac Gedney and the Neutral Ground* and editor of numerous guides for the Neuberger Museum and Synergy: The Museum/School Program, as well as "Nineteenth-Century Landscape Painting and the American Site" for the Whitney Museum of American Art.

Cynthia Owen Philip is an independent historian who has written extensively on the Hudson River Valley. She is the author of *Robert Fulton: A Biography* and the prize-winning *Wilderstein and the Suckleys: A Hudson River Legacy*. A wide array of her articles and essays have appeared in national and local magazines. Her illustrated history *Rhinecliff, N. Y., 1686-2007* will be published next spring.

J. Michael Smith is a native of Beacon, New York, and a resident of Vermont. As an independent historian he has focused on the cultural histories of Munsee and Mohican groups of the Hudson River Valley. He is the author of "The Highland King Nimhammaw and the Native Indian Proprietors of Land in Dutchess County, New York: 1712-1765," *The Continuance: An Algonquian Peoples Seminar*, (Albany, NY: 2004), and "The Seventeenth Century Sachems or Chiefs of the Wapping Country: Identity and Interaction in the Hudson Valley."

Kees-Jan Waterman lives in Leiden, the Netherlands. An independent historian, he has provided English translations of Dutch seventeenth- and eighteenth-century documents to the Huguenot Historical Society, New Paltz, New York. He is the translator and editor of *"To Do Justice to Him and Myself": Evert Wendell's Account Book of the Fur Trade with Indians* in *Albany, New York, 1695-1726*.

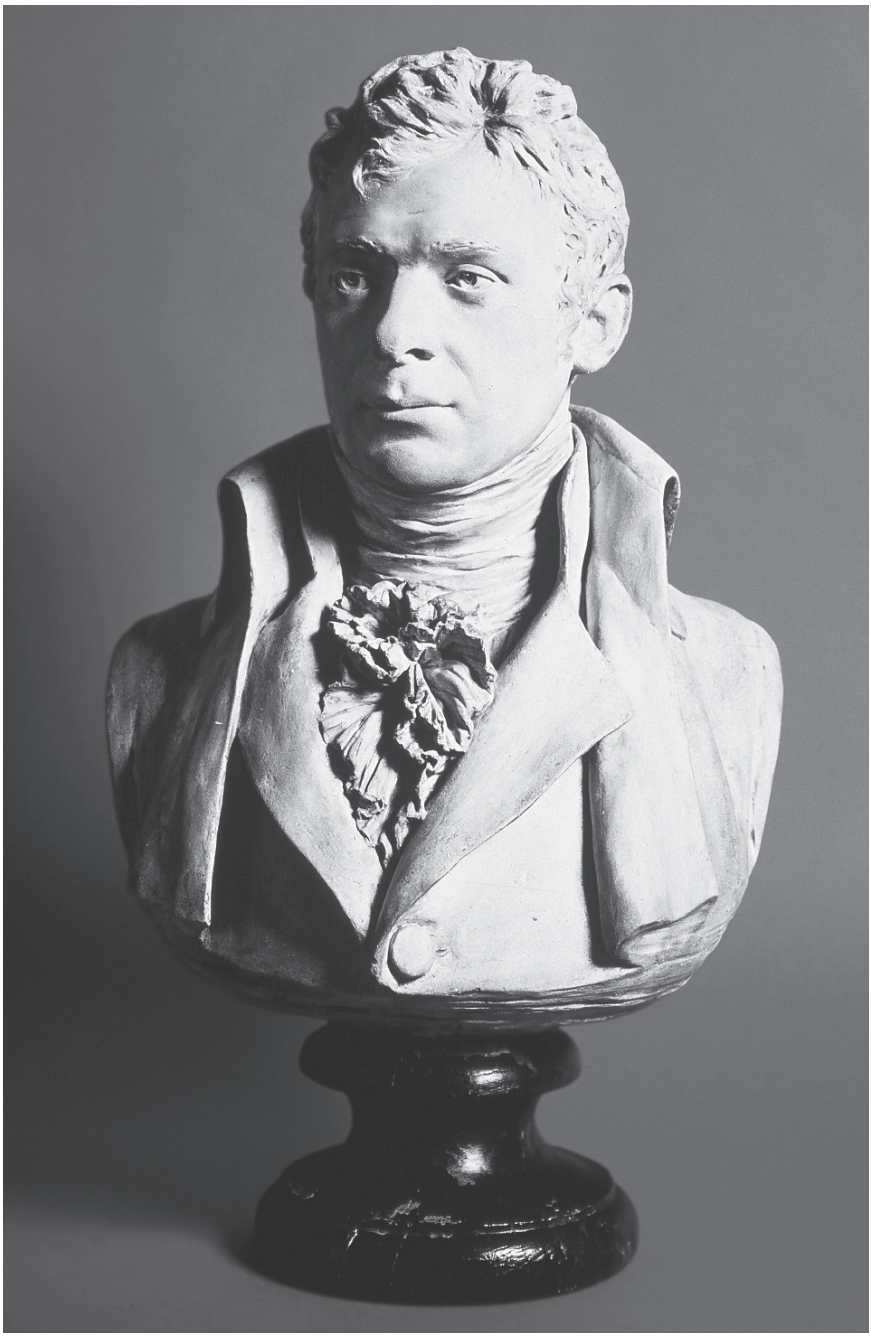
THE HUDSON RIVER VALLEY REVIEW

Vol. 24, No. 1, Autumn 2007

Regional History Forum

Book Reviews

On the cover:
Clermont: Three Part Study of a Ship, Richard Varick DeWitt (1800-1868), 1858, watercolor on paper, ht. 18 in., w. 25 in., framed: ht. 25 in., w. 32 in.; Albany Institute of History & Art, Bequest of Sarah Walsh DeWitt, 1924.1.2



Photograph of bust of Robert Fulton sculpted by Jean Antoine Houdon, private collection

Robert Fulton, Genius Ahead of His Time

Cynthia Owen Philip

There is no question that artist, inventor, entrepreneur, and impresario Robert Fulton was, like most geniuses, highly complex. Friends, many of them distinguished in their own right, found him spirited, elastic, and amusing. Competitors scorned him as arrogant, deceitful, and overbearing. Nevertheless, his thought and life progressed in a straight line, each event-packed period building on the previous one. Especially at crucial junctures, however, he tended to erupt, often doing himself and his causes real harm. How much his mixed behavior was due to his own being and how much due to the insufficient tools, technologies, management skills, and federal patent laws with which he had to deal is hard to tell. What is certain is that he was a man of his times—and a man way ahead of his times.

The context in which Fulton lived was a heady mix: the Revolutionary War in Lancaster, Pennsylvania; the early Industrial Revolution in England; the Directory, Consulate, and Napoleonic wars in France; then back to England after Bonaparte crowned himself emperor; and finally, having spent over twenty years abroad, a grateful return to the United States just as the country was gearing up for the War of 1812 against Great Britain.

All of these settings would shape his genius. As an inventor and entrepreneur he thought globally. Yet he never forgot the lot of everyday people. Visionary and practical, his goals were lofty: to earn fame for improving the people's daily lives and money for carrying out his ideas. His achievement was great: a system of small canals that provided remote areas access to markets; a fleet of steamboats offering on-time service on American rivers, and, to him his premier project, a system of submarine warfare that he believed would ultimately abolish all war.

Pennsylvania

Fulton was lucky to spend his childhood in Pennsylvania. Born November 14, 1765, on a 400-acre farm in Little Britain, a rural township south of Lancaster, he was the fourth child and the first son of Scotch-Irish parents. When he was

young, the farm seemed prosperous. In 1771, it boasted four head of cattle, two prize horses, and one common horse. The family employed one servant. This wellbeing, however, was an illusion. Within months, his father, overwhelmed by debt, was forced to sell everything at auction. Even the beds and kitchen utensils were sold. It must have been a devastating experience for the six-year-old Fulton. The family returned to Lancaster, where they had lived before his birth. Although he never forgot the rigors of farming, the chance to grow up in that grand bustling crossroads proved a blessing.

Lancaster was the largest inland town in the colonies. A transportation hub, it was connected to Philadelphia, sixty miles distant, by the King's Highway, then little more than a wagon trail, but steadily improving. The Conestoga Trail led to the great western wilderness. Settled initially by Moravians, it was polyglot, with over 4,000 French, Swiss, German, English, and Scotch-Irish inhabitants. Mainly artisans and mechanics, the gunsmiths who produced beautifully engraved barrels were the elite. There was a glassworks and a foundry that manufactured stoves. The sturdy Conestoga wagon was invented and manufactured there. The Juliana Library, the third in the country to be founded, made it a cultural center. Its offerings included such delights as *Tom Jones, The Gentleman's Magazine,* and *London and its Environs,* as well as such useful items as *Ward's Young Mathematicians' Guide, Mott's Treatise on Mechanical Powers,* and assorted works by Locke, Montesquieu, Addison, Newton, and Franklin. (Fulton possessed his own copy of Euclid's *Elements*.) The library was kept in the house of William Henry, a gifted eclectic who had been the surveyor of a canal between the Susquehanna and Lehigh rivers and had also invented a screw augur and built a model of a vessel propelled by steam. His house was a major social and intellectual center. Fulton, whose father was a charter library member, was a frequent visitor. After his father's sudden death, it undoubtedly became a refuge.

During the Revolution, Lancaster was a designated center for supplying the American armies with guns and provisions. Hessian prisoners were paroled to help out on farms. When the British occupied Philadelphia, Tom Paine, the rousing pamphleteer, and David Rittenhouse, the great astronomer, were among the refugees.

At about fifteen years of age, Fulton was apprenticed to a silversmith in Philadelphia—much against his inclination, he later told a friend. However, he learned money management as well as design and metal working, for silversmiths often assumed the role of bankers, their wares playing the roles of savings, collateral, and even a means of payment. Moreover, just being in Philadelphia, the country's largest city, was a great adventure. Noted for the beauty of its wide,

squared-off streets, its understated opulence, and its alert, politically savvy populace, it was, next to London, the most exciting city in the English-speaking world. An acerbic French observer thought it "the great sink wherein all the speculation of America terminates and mingles." But a German traveler reported less distinction in rank among its inhabitants than could be found in any other city in the world. Known for charitable institutions, the prison reform and abolitionist movements were already strong. Interest in science was high, as evidenced by the widely attended lectures of the American Philosophical Society. Christopher Colles, an Englishman who built the first American steam engine, taught classes in the application of hydraulics and hydrostatics for building engines and constructing docks, bridges, locks, and aqueducts for inland navigation. Interest in local artists was in its infancy, but painter and showman Charles Willson Peale was already exhibiting his portraits of eminent Americans in a special gallery.

Fulton provided miniature portraits for his master's lockets and box tops. Somehow he accumulated enough money to buy off his indenture and set himself up as an independent artist with his own shop in a good location. To his line, he added hair-working the making of meticulous pictures from human hair. It indicates his excellent manual dexterity. Moreover, that he chose to work on his own was a first sign of his innate need for independence. Eight extant miniatures, two oil portraits and two landscapes from this period, are attributed to his brush.

However, by 1786 Fulton realized he would have to go to London—the art capital of the world—if he were to make painting a career; there was no advanced instruction in painting in America. He acquired a letter of introduction to Benjamin West, a fellow Lancastrian, who, as the official history painter to George III, was a leader among artists there. The letter is thought to have been from Benjamin Franklin, who had just returned from Europe; it may also have been from Peale, one of the many American artists West had mentored. Fulton arrived in London in early autumn with forty guineas in his pocket. He was not yet twenty-one years old.

England

As soon as he had settled himself, probably in a one-shilling coffee house room, Fulton went straight to West's combined residence, gallery, and atelier. There is no record of how West gauged Fulton's talent, or if he offered any direct instruction, although he almost certainly dispensed the advice he never tired of repeating: "Give your heart and soul to art, turn neither to the right nor to the left." Far more important, he received Fulton into the bosom of his family. Mrs. West became his *petite maman*, their sons his companions. Through the Wests, Fulton had access

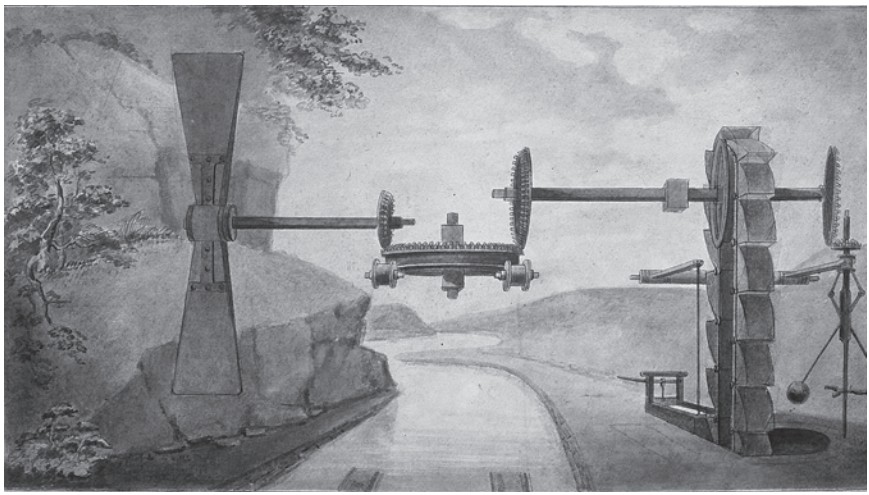
to almost the entire art community.

First he studied with one Robert Davy, whom West had suggested as a good person to show him where to buy art supplies. Later, Fulton was admitted to the Royal Academy schools, but he did not go, another sign he was basically a loner. Mostly he worked on his own. From time to time, he exhibited works in annual shows of the Royal Academy and Society of Artists. These won him an invitation to paint the portrait of Viscount William Courtney at his castle in Devonshire. Much has been made of Fulton's accepting this assignment, for Courtney was the cast-off tart of the famous pederast William Beckford. All that can be said is that there were few, if any, Royal Academicians who did not happily accept commissions from Beckford himself. Reputed to be the richest man in England, Beckford was then in the process of building his extraordinary retreat, Fonthill Abbey.

What is important about this sojourn is that it led Fulton to engineering. He visited the shops of artisans who had made nearby Torquay famous for its inlaid marble. Resurrecting talents he had learned as a silversmith's apprentice and mechanical techniques he remembered from his Lancaster boyhood, he designed a better cutting and polishing instrument. The model he built won a coveted silver medal from the Society of Arts, Commerce and Manufacturers.

Sensing he had at last found his true calling, Fulton singlehandedly undertook to improve the deplorable transportation system of southern England. His was a grand vision. Hardly better than rutted tracks, the roads were steep and narrow. Virtually all goods were carried on the bumping backs of ponies. The hilly terrain and the lack of water made canals with locks, such as had opened the northern districts of England to London markets, out of the question. When in October 1793 he read a survey for a canal to lift sea sand to be used as fertilizer from the beach at Bude in Devonshire, he believed he had made enough progress with his canal ideas to present them to the committee's chairman, Charles Mahon, third Earl of Stanhope. Although Fulton was an utter stranger with scant credentials, Stanhope immediately replied. Thus began Fulton's metamorphosis from Robert Fulton, artist, into Robert Fulton, engineer and inventor.

However, it cannot be emphasized strongly enough, that Fulton did not abandon painting and drawing. Quite the contrary: it was his ability to visualize, then to place the fervent imaginings of his brain on paper, that underpinned his genius as an inventor. The connection between art and invention at that time was strong. In fact, invention itself was spoken of as an art. An engineer was an artificer and a mechanic an artisan. Fulton painted and drew for his work, for pleasure, and, indeed, for solace his entire life. His output in pencil, oil, watercolor, and pastel is truly extraordinary. Much of it is beautiful.



NEW JERSEY HISTORICAL SOCIETY

Watercolor engineering drawing depicting gears floating above a canal as well as the machinery that would operate them; published in London, England, 1797; from Fulton Canal Drawings (MG 1508, Box A-2 – NJHS#1855.6.2)

The Remarkable Treatise on Canal Navigation

Charles Mahon was an eccentric. Very rich but a thorough republican, he struck his armorial insignia from the gates of his mansion and forced his daughter to keep turkeys. Even in winter, he slept with his windows wide open. He gave up sugar to protest the exploitation of the West Indies and was cartooned by the razor-witted Gilray as a "Majority of One" in the House of Lords. But first of all he was an obsessive inventor. In their first testy interchange, his relentless message to Fulton was: "I tell you your plan will not do." [1]

Undaunted as well as intoxicated by Lord Stanhope's attention, negative though it was, Fulton persisted. He went to Manchester to examine the Duke of Bridgewater's wide canal, which took coal and Josiah Wedgwood's pottery to London. His own ideas won a consultancy with the nearby Peak Forest Canal Company, a perfect candidate for his system of small canals because of the rugged hills in its path. A fellow lodger at his hotel was Robert Owen; only twenty-three years old, he was among the foremost spinners in England, with a cotton mill that employed 500 workers. Not only was he skilled at implementing labor-saving devices, he also was an idealist who sought ways to enhance his workers' quality of life. Owen and Fulton took to each other immediately. Owen introduced him to his friends, remarkably versatile men who met to discuss whatever topics were on their fertile minds. Erasmus Darwin, the grandfather of the famous

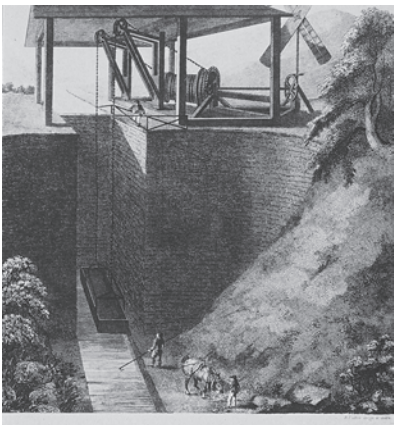


Illustration from Fulton's *Treatise*….

Charles, was the wise elder of the group. A practicing physician and a poet, he also pursued mechanics, experimenting with windmills, speaking machines, seed drills, oxygen motors, flush toilets, "fiery chariots," and preponderating canal lifts. In one of his poems, he envisioned boats driven by steam. Two other friends were John Dalton, a year younger than Fulton and already launched on his distinguished career as a chemist and atomic scientist, and the twenty-two year-old Samuel Taylor Coleridge, who at the time was rushing around the countryside seeking converts for a utopian settlement he and the poet Robert Southey intended to found on the banks of Pennsylvania's Susquehanna River. To be befriended by such able, questing men—who were drawn to him because he was an artist and inventor as well as a visionary idealist—gave Fulton a strong endorsement for the new direction he had taken.

Briefly Fulton diverted his attention from canals to steamboats, stimulated by Darwin's interest and the fact that, about this time, one John Smith ran a boat powered by an outmoded atmospheric engine on the Bridgewater Canal at two miles an hour. In November, just before his twenty-ninth birthday, Fulton wrote the renowned British engine builders, Boulton and Watt, asking how much a three- or four-horsepower engine designed to propel a boat would cost. He also peppered the builders with a raft of questions relating to the size and shape of a suitable hull. Boulton and Watt did not deign to answer, and Fulton returned to developing his canal schemes by inventing a canal-digging machine that reduced labor costs. Robert Owen invested in his ideas and the Peake Forest Canal Company rewarded him with 200 guineas to develop them. With these windfalls, Fulton spent the next eight months writing and illustrating A *Treatise on the Improvement of Canal Navigation Exhibiting the Numerous Advantages to be Derived from Small Canals and Boats of Two to Five Feet Wide, Containing from Two to Five Tons Burthen with a Description of the Machinery for facilitating Conveyance by Water through the most Mountainous Countries, independent of Locks and Aqueducts: Including Observations of the great Importance of Water Communications with Thoughts on, and Designs for, Aqueducts and Bridges of Iron and Wood.*

Published in 1796 by I. and J. Taylor, the top architectural and engineering printing house, the *Treatise* is, indeed, all that. Extraordinarily well written, the

reader is swept along with Fulton's unfolding of his conceptual ideas, as well as the you-are-there quality of his concrete descriptions of real-life applications. Even the cost analyses become interesting. Many of the illustrations are charming landscapes complete with people and horses, mountains, trees, and waterways. It is noteworthy that each one is signed "R. Fulton, inven. et delin." —inventor and delineator.

In fact, the *Treatise* contains all the thoughts that would shape Fulton's future. His concern to improve the life of everyman runs through the text; it is delightfully expressed in his plan to have one boatman manage a specific length of canal, so he could always "be convenient to his habitation." But it also is evident in his remarks comparing the cost in grain to feed a family and the greater cost to feed a tow horse.

Of signal importance to his own career was his definition of invention. "In mechanics," he writes, "I conceive we should rather consider them improvements than inventions…as the component parts of all new machines may be said to be old…Therefore the mechanic should sit down among levers, screws, wedges, wheels etc. like the poet among the letters of the alphabet, considering them as the exhibition of his thoughts; in which a new arrangement transmits a new idea to the world."[2] Fulton would cling to this definition to the end of his life. Inventions were for him not sudden divine illuminations. Rather, they were a concatenated social event. The community of scientists and mechanics, past and present, provided the basic materials; the creative role of the individual inventor was to improve on them by discovering new and useful relationships among them.

This was not a widely accepted theory of invention at that time. In the United States, for instance, a new combination of already patented elements was not patentable. In fact, in a race to secure a patent, the winner was the person who could prove having first *thought* of the invention, whether or not it had been proved viable. Fulton's definition was then, as it is now, true in practice. (Otherwise an extremist might argue that the invention of the airplane belonged to the creator of the Icarus myth.) Over the decades patent law would change, but in those early days, Fulton was among the very few who recognized that patents should be given to inventions that were demonstrably workable.

Elegant as the *Treatise* is, it is not without outbursts of seething personal anger, especially at the persecutions visited on inventors. In the concluding chapter of his presentation of small canals, Fulton throws his gauntlet at perceived detractors and at the same time describes the turn of mind that shaped his actions.

"[M] any a man of worth and demeanor is tormented by the criticism of ignorant insignificance, for men of the least genius are ever the first to deprecate, and the last to commend, and for the obvious reason, they have not sense to know the produce of genius when they see it …If old systems were invariably to be continued there would be no more scientific improvement than in a bed of oysters.

I therefore look upon it as a duty in every man who has the least pretension to science to investigate every plan, which even has the resemblance of improvement… his judgment should also be put to the test and thus light would appear, as friction brings forth the sparks of latent fire.

I am aware, this challenge to a fair discussion may be construed into self-importance in me, by opposing my opinion of all others: but be that as it may, I deem it indispensably necessary in all improvements of a public nature."[3]

It was perhaps as an afterthought of his overflowing mind that Fulton concluded the *Treatise* with a letter to Thomas Mifflin, governor of the Commonwealth of Pennsylvania, in which he recommended his system of small canals. In it is one of his most innovative contributions, an entirely new method of financing. The canal Fulton envisaged would connect Philadelphia to Fort Pitt, 350 miles distant. Because investment capital was scarce in America, and it was in the national interest to bring the product of the interior to markets on the coast, he advocated that the federal government invest in the first sixty or seventy miles. After that, tolls from the first segment could be used to pay for the subsequent section, and tolls from that for the next. If the work lagged, the state might even contribute funds. Thus, "Canals will pass through every vale, meander round each hill, and bind the whole country in bonds of social intercourse."[4]

The optimism of the *Treatise* is truly infectious. In a distinct turn-around Stanhope wrote: "Your book about Canals, has set me, you see, *on fire*… So I hope that at last I shall burn to some purpose, provided you keep *on blowing the Fire*."[5] This gave Fulton "a pleasure nearly allied to Vanity."[6] The monthly periodicals praised the *Treatise*, too. It would become Fulton's *passe partout*.

Having procured a British patent for his system of small canals, Fulton tried to sell shares in it for living money. But England was in the throes of a severe financial crisis and he found no buyers. Finally, the American speculator John Barker Church, who was about to return to the United States (where as the brother-in-law of Alexander Hamilton he had excellent connections), took a one-quarter interest in it. His agreement was that he would pay Fulton three installments of £500 each. Meanwhile Fulton was to go to Paris, take out a patent there, and exploit it.

Paris

When Fulton arrived in Paris in the summer of 1797, Napoleon was rounding off his Italian conquests, having already annexed the Netherlands. In addition, the French navy was waging against America what would come to be called the "Quasi-war with France." Yet, as Fulton wrote an inventor colleague in London, "all is gay and joyous as if there were no war at all."[7]

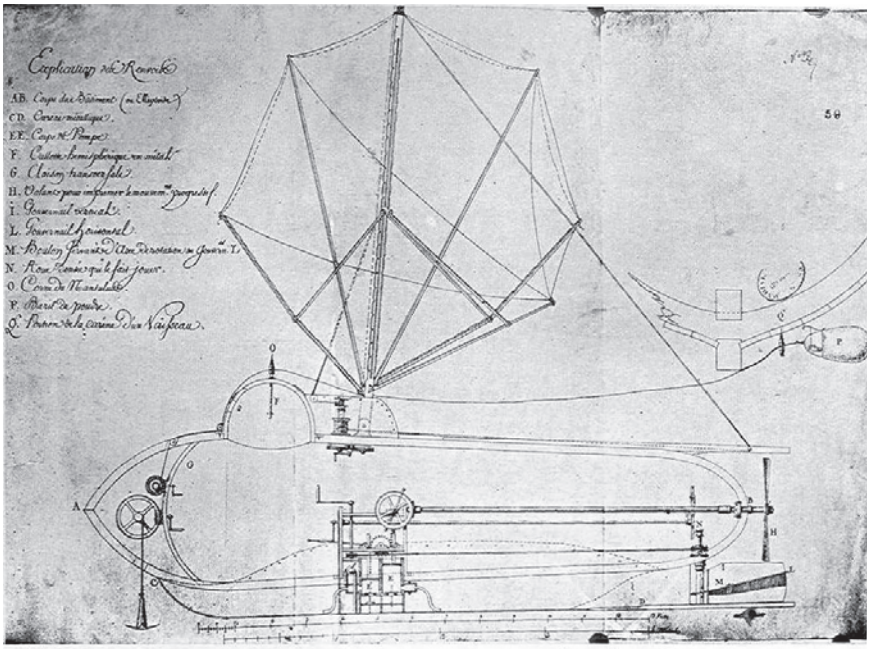
It is safe to say that no other city in the world could have suited Robert Fulton as well as Paris in September 1797. The Terror, with its bloodthirsty guillotining, was over. Governed by the Directory, the city exuded republican hope. Scientists and engineers were considered citizens of the world, rather than a specific country. Its eminent savants gave fashionable free lectures and were personally accessible in their work places. The National Conservatory of Arts and Trades, which processed patents for inventions and displayed models of them for all to see, had recently been installed in the refectory of Saint-Martin-des Champs. Art, too, was a public offering. Paintings of the despoiled aristocrats were hung in the Louvre, formerly the habitat of royalty. *"La propriété du peuple français"*—the property of the French people—every class of citizen was welcome to visit the museum. Art treasures selected as tribute from Italy were then being paraded through France, on their way to Paris, like slave girls of yore.

Socially, the city was ebullient. Women circulated freely with men on an intellectual as well as a romantic level. Uncorsetted, they went about in flimsy low-cut, high-waisted gowns. They were healthy and pink-cheeked. They ate well and bathed often. Waltzing, with the novel requirement that partners put their arms around each other, was all the rage.

Fulton peddled his system of canal navigation in France as he promised Church he would do. His *Treatise* aroused well-placed interest and was translated into French, with nearly 100 drawings; Portuguese (for Brazil); and, by order of the Czar, Russian. However, fond as Fulton was of small canals, this was not his true objective. That was to sell the government what he euphemistically called "a curious machine for mending politics"; it was a system of submarine warfare. His voluminous papers yield no record of when and how he developed it, but, as a fervent believer in free trade, it was the way he had devised to bring it about.

Recognizing that France's navy was dramatically smaller than Great Britain's, the Ministry of the Marine gave Fulton funding to build a model. The distinguished committee appointed to evaluate its performance ecstatically reported: "It can do anything a fish can do with its tail and its fins. It is also like a boat and can do anything a boat can do."[8] They dubbed it the *bateau-poisson*.

More money was provided to build an operable, large-scale boat. Full of

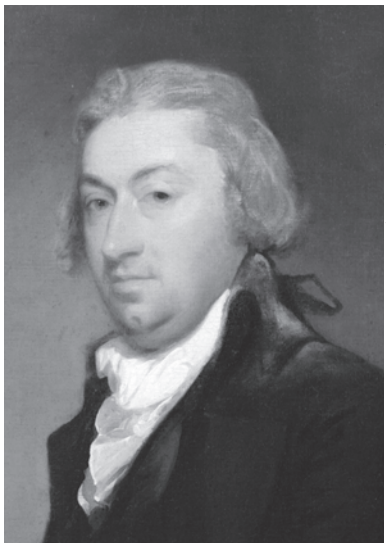


Nautilus schematics from H. W. Dickinson, *Robert Fulton; Engineer and Artist*, London 1913

confidence in its perfection, Fulton demonstrated it on the Seine before all of Paris in June 1800. He and one helper descended through the conning tower and, without aid of sail or oars, propelled the craft to the middle of the fast-moving current. Then the boat plunged. The multitudes held their breaths, disasters of every grisly nature skittering through their minds. Twenty minutes later it popped up, at a great distance from where it had submerged. Fulton repeated the maneuver. Then the crowd demanded to see how it would sail. In two minutes he and his assistant mounted the specially weighted mast and the canvas. Despite an ill wind and the fast current, the "bateau-poisson" tacked merrily back and forth as if on a jolly outing. He would call his submarine *The Nautilus*.

At the same time, Fulton added to Paris amusements. He built a panorama, using a special device for showing multiple scenes for which he had taken out a patent. (Although French patent law was based on American law, it allowed what they called patents of importation and improvement.) It became so popular he built a twin. Street criers composed ditties to celebrate them. (The charming Passage des Panoramas that linked them still exists near the Bourse.) Fulton also patented a rope-making machine, sorely needed because of the demands of ships' rigging. It was such a laborious job that a strong man could twist for no more than

four hours. This, too, was a patent of importation and improvement. Part of it he sold to Nathaniel Cutting, an American speculator about to depart France, for whom he promised to develop it.


NEW YORK STATE PARKS, RECREATION, AND HISTORIC PRESERVATION

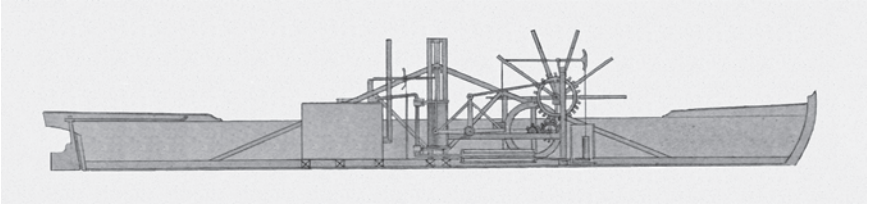
Oil on canvas portrait of Chancellor Robert R. Livingston (CL.1974.56)

Enter Chancellor Robert R. Livingston, America's minister plenipotentiary to France. No one knows how he and Fulton became acquainted, but, because Fulton was a well-known figure throughout Paris, it did not take them long to meet and discover their mutual interest in invention. Livingston frankly told him that steamboats were his "hobby horse." Although both his experimental boats were dismal failures, he had just renewed his monopoly for steam navigation on the Hudson River. What he did not confide was that he had also signed an agreement with John Stevens, his brother-in-law and a first-rate engineer, and with Nicholas Roosevelt, to further develop the steamboat.

Fulton's forays into propelling boats by steam had been at best sporadic, but he was in need of a new project during a lull in his submarine venture. It was obvious to him that Livingston was no mechanic and would need his expertise to make good his monopoly. He went straight to work to win him as a patron.

At a spa in the Vosges mountains, whither he had gone with Ruth Barlow (with whom he was living in Paris, along with her husband Joel, in what can only be called an odd *ménage à trois*), he ran a three-foot eight-inch model propelled by springs in a sixty-six foot testing basin he had constructed on a nearby stream. His objective was to find out how much power it would lose as it was propelled through water. Using tables from experiments on the loss to friction of solids run through water conducted at the Royal Navy's docks while he was in London, Fulton was satisfied he had a combination that worked.

Fulton and Ruth made a leisurely return to Paris at the end of the season in a charming little carriage drawn by two white ponies. There he continued to perfect his design, changing the method of propulsion from endless chains to paddle wheels. He and Livingston sparred back and forth about the design. Fulton always managed to win out, because, as Fulton had guessed, Livingston, having no solid ideas of his own to contribute, believed that if he did not give in he might lose his



Seine river boat from H. W. Dickinson,
***Robert Fulton; Engineer and Artist,* London 1913**

indispensable services. Finally, on October 10, 1802, they signed a contract that made them equal partners, Livingston providing seed money and the monopoly; Fulton the execution. (Because it dealt with what would happen if one or both died, it set up what amounted to a proto-corporation, almost undoubtedly another of Fulton's novel ideas.) Fulton was now able to build a full-scale boat.

Who made the hull is not known, but it was built to Fulton's exact specifications, seventy-four and a half feet long and eight feet wide. To make the engine and the moving works, he engaged Etienne Calla, the premier model maker in Paris, and the Perier brothers, who had experience running the Boulton and Watt steam pump at the Chaillot waterworks, and had, in fact, visited its foundry in England. Again *tout Paris* was invited to the public demonstration. It took place on the evening of August 9, 1803, in the same vicinity where the submarine had run, below the Periers' Chaillot foundry and across from the Invalides. Fulton tended the engine himself, his taut, six-foot frame standing well above his three helpers. She went against the strong current at over two and a half miles an hour, more than twice as fast downstream—or so an energetic journalist who raced her along the quay testified. Then he gave rides to the assembled scientists, savants, and officials in two small boats towed behind. In a grand finale, he proceeded upstream toward the Place de la Concorde, thrilling the patrons of the swimming school and the public baths who had witnessed the performance from their jasmine-embellished decks. The official newspaper declared the entire performance "*un succes complet et brilliant*."

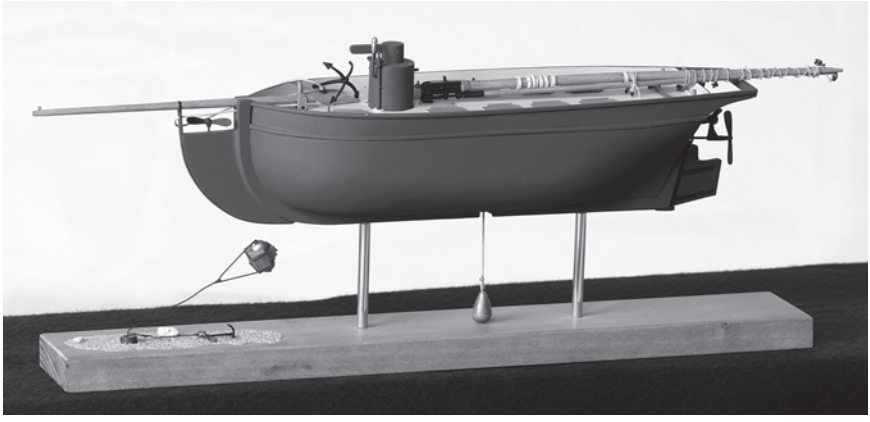
That Livingston did not witness his splendid show was Fulton's only disappointment, if indeed it was. He had gone to Switzerland with his family, purportedly to escape the ninety-degree heat in Paris, but probably to escape exposure and mortification should the demonstration fail. (He had not been present when his earlier steamboats had been tested. In fact, he had directed their building by correspondence.) On Livingston's return, although he was gratified with Fulton's success, he engaged in still more petty sparring. Fulton finally persuaded him that the best next step was that he go to England, order a Boulton and Watt engine,

then sail to New York to start work on their Hudson River boat. Fulton left France for England in April 1804. But he did not leave for America as he had promised. Instead, he spent more than two years trying to convince the British to use his system of submarine warfare.

England II

Fulton arrived in London in May 1804. What followed was undoubtedly the most rancid episode in his ascending career. The British, of course, realized that he was proposing a cutting-edge weapon that would transform maritime war, at that time dependant on the ultimate brutal tactic of broadside and boarding in which decks ran with blood. Most were opposed to the invention because they considered sneaking up ungentlemanly and cowardly. On the other hand, they were aware that the tenuous Peace of Amiens was disintegrating and they could see the French general/emperor's troops amassing at Boulogne to invade their island. Besides, Fulton had improved his system. Of grave concern was his plan to mine their Channel harbors with torpedoes to be exploded by a time-set lock device. Protected only by their widely dispersed warships, they were afraid. Luring Fulton to their side made sense. For his part, Fulton had become cynical about the fate of republicanism in France under the Empire. Obsessed with proving the system he absolutely believed would end all maritime war, he accepted their advances. What Fulton did not count on was the embedded jealousies among their government's individual members.

At first Fulton was fortunate. William Pitt, the Younger, who mingled a strong visionary streak with a love of economy, had become prime minister and was an enthusiast for his system; he believed it would benefit the stronger naval power,



NEW YORK STATE PARKS, RECREATION, AND HISTORIC PRESERVATION

Model of the *Nautilus*

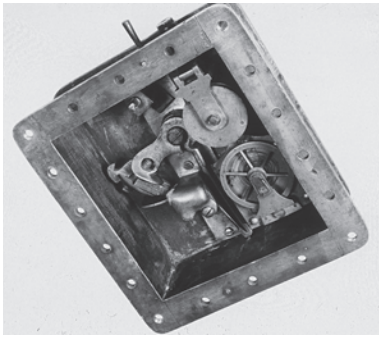
England, and not the weaker, France. After frustrating delays that tried Fulton's patience, Pitt finally signed a contract that made Fulton a rich man. First he was given a salary of £200 a month, plus expenses for superintending the execution of his plan. When he blew up a decked vessel, demonstrating that his system was capable of destroying the enemy's fleet, he would be paid £40,000 and, thereafter, half the value of vessels destroyed. If he or the government desired to terminate participation, he would receive a quarter of the value of all ships destroyed by his torpedoes for a period of fourteen years. Because Fulton demanded it, the contract included an arbitration clause by which, if decided in his favor, the government would pay him £40,000 for demonstrating the principles and revealing his plans. Moreover, he was to be allowed to export the Boulton and Watt engine he had ordered, a privilege that made the company livid when they found out about it. Needless to say, Fulton was elated by the outcome of negotiations. However, he was angered that the British refused without explanation to sanction the building of his improved submarine boat.

The "new Curiosities" that Fulton devised in concert with Sir Home Popham, one of the most scientific seamen of his day (it was he who perfected the naval signaling system), were oblong boxes lined with lead, covered with canvas and tar, and painted sea colors for camouflage. To increase their destructive power, they were laden with tightly packed stones as well as with barrels of gunpowder. The detonating mechanism was a clockwork lock that could be set at varying times, from ten minutes to six hours, and could be put in motion by the removal of a pin.

An attack, delayed by foul weather, was launched against the French fleet at Boulogne on a clear night in early October. The action lasted until four o'clock, when a gale drove the squadron back to England. Lord Melville, first lord of the Admiralty (with whom Fulton dined the following evening at Walmer Castle, the Prime Minster's residence on the coast), had nothing but praise for the expedition. Fulton's gloomy account to the Wests assumed that very few of the 130 boats in the outer harbor were destroyed and the others made their escape.

Nevertheless, Pitt and Melville held firm. But, as Popham had mastered the operation, Fulton found himself left out in the cold. When spring brought another opportunity to try the bombs, the situation was even more complicated. Lord Melville had been impeached for mismanagement of naval funds and was replaced by an eighty-year-old who hated novelty of any kind. Viscount Castlereagh, now the secretary of war and still a staunch supporter, ordered another expedition against Boulogne. It was a dismal failure. Fulton was not invited to join the action; he merely observed it from the beach. To reinsert himself into the action, he

acquired a recently captured 200-ton brig, which he anchored a half mile from Walmar Castle. He blew it to smithereens with one of his torpedoes, much to the delight of a number of distinguished Naval men and government officers he had invited. One observer stated: "The starboard side of the boat was lifted bodily, then went to pieces, the masts, as she sunk, fell over, and crossed each other…and the whole disappeared a misshapen, black mass floating on the surface."[9] Even Fulton was stunned by the explosion. For a moment, he reflected on the lives it would destroy, but when he was paid £10,000 for its work, he believed with renewed fervor that his system was destined to eliminate maritime war. Castlereagh was so delighted he wrote Lord Nelson to inform him he was sending Fulton and his torpedoes for his use at Cadiz; he had not yet received the news of the successful battle at Trafalgar that culminated with Lord Nelson's death.



COLUMBIA COUNTY HISTORICAL SOCIETY

Timing mechanism for one of Fulton's torpedos

Trafalgar made Britain supreme on the seas. With nothing to fear from the French navy, it marked a turning point in the war and with it a less than sanguine attitude toward Fulton's system. His unorthodox weapons, still unproven in battle, seemed superfluous. As his relationship with the government went from bad to worse, his dark side rose to the surface. He heckled, he threatened, he nagged shamelessly, all to no avail. He was coldly ignored, a humiliating and utterly frustrating experience. To make matters worse, the star of his chief competitor, William Congreve (later of "rockets red glare" fame), shone brightly. Those who might have helped Fulton began to believe he was a madman. To get rid of him once and for all, it was finally decided to pay him off. The arbitrators he had so carefully written into his contract agreed to let him keep the £10,000 he had received for blowing up the brig and gave him an additional £1,000 above the £4,000 in salary he had earned. Finally, he was accorded £646, twelve shillings, and six pence due on his accounts.

Fulton was not content. But after writing still more abusive letters, he finally conceded that haranguing the government was fruitless. It was time to return home. To the Barlows, who had preceded him to America, he wrote: "My situation now is, my hands are now free to burn, sink, and destroy whom I please. I have or will have …500 sterling a year, with a steam engine and pictures worth £2,000. Therefore, I am not in a state to be pitied."[10]

America

When Fulton reached New York in December 1806, it boasted a bustling population of 80,000 and was growing at a rate of over ten percent a year. To make room for northward expansion, swales and swamps were being filled, rocky outcroppings leveled, and woods cut down. New buildings were springing up on every spare lot. The half-completed City Hall promised to be an elegant architectural jewel, a symbol of New Yorkers' conscious delight in their aspiring, freewheeling way of life.

Forty-one years old and as confident in his abilities as any truly creative genius can be, Fulton dug right into the steamboat project. He wrote two letters to Livingston, who was comfortably ensconced at Clermont, his immense country seat on the Hudson River, tending the merino sheep Napoleon had given him. The first letter asked for information about tides, ice, and volume of stagecoach traffic. The second, twelve pages long and full of calculations, tried, with only marginal success, to prove that putting steamboats on the Mississippi and its tributaries would be infinitely more profitable than putting them on the Hudson.

That done, Fulton sped off to Philadelphia to reunite with the Barlows, with whom he was intending to live again. From there he went on to the Federal City. A sprawling, half-built town, the capitol was rising and the White House grounds were being landscaped under President Jefferson's watchful eye. There Fulton attended a dinner in honor of Meriwether Lewis, who had just returned from his great transcontinental explorations. He also made contact with William Thornton, a good architect, but more important for Fulton, the clerk of the Patent Office. He graciously allowed Fulton to examine the twelve patents for steam navigation already registered. The only one that caused him concern was that of John Fitch, whose boat had run for a season between Philadelphia and Bordentown on the Delaware River. It had been abandoned because incessant trouble with the engine and boiler prevented it from becoming a commercial success. Further, Fitch's manic-depressive behavior scared off investors. Moreover, as Fulton must have known by now, it was Fitch's monopoly for steam navigation on the Hudson River that Livingston had abrogated and replaced with his own. An even more important fact was that Thornton had inherited—or procured—an interest in Fitch's patent. Although their relationship started out on a friendly basis, Thornton would become his most persistent and vicious enemy. Buoyed by self-confidence, however, Fulton chose to put his head in the sand.

Back in New York City, he tackled his not entirely easy partnership with Livingston. He had put years into bringing the design of a steamboat to perfection, he wrote, and had paid in $5,111 more than Livingston had. Livingston disagreed.

So important was this discrepancy in their recollections, Fulton undertook a bone-jarring three-day stagecoach trip to Clermont to thrash it out face to face. As neither could produce the papers to prove his point, Livingston must have simply caved in. He paid up half of the expenditures, including Fulton's bill at a fashionable New York City boarding house.

Fulton then began building the American steamboat that would transform world transportation. To make the hull, he chose New York's foremost shipwright, Charles Browne, whose yards were at Corlear's Hook on the East River. It was 141 feet long and twelve feet wide, twice as long and proportionately skinnier than his boat in Paris. The roof of the passenger cabin was raised two-feet, "sufficient," he said, "for a man with his hat on." Then he retrieved his engine from the warehouse, where it had lain for over a year, because Livingston would not pay the $654 in duties. He engaged a first-class ironmonger to make the paddlewheel mechanism, and a coppersmith to make the boiler. Livingston tried to veto using copper because it was so expensive.

With that done, Fulton felt carefree enough to pay a three-week visit to Philadelphia, where he enjoyed the company of the Barlows and sat for a portrait by Charles Willson Peale to be placed in the gallery of praiseworthy Americans he lovingly called the "Temple of Wisdom." Refreshed by this interlude, Fulton was glad to find work on his boat had proceeded at a phenomenal pace during his absence. By the end of May the hull was ready for painting. By July 14 the engine and machinery had been put in place. Only finishing touches on the cabin were needed.

So certain was Fulton that she would run perfectly when launched, that he took off time to advance his system of submarine warfare. On June 22, Britain's warship *Leopard* fired on the *U.S. Chesapeake,* killing three, wounding eighteen and snatching four for impressment into His Majesty's navy. To Fulton it meant one thing: his torpedoes would be needed. They were infinitely cheaper than building an adequate fleet of warships. On July 20, he anchored a 200-ton brig near Governors Island. He intended to demolish it in an explosion fully as dramatic as the one in England. That he did, but not before the 2,000 disappointed spectators that had lined the Battery had gone home to supper. The most popular report of the event was a hilarious satire by writer Washington Irving in his new monthly *Salmagundi.*

Fulton retained his equilibrium. He wrote President Jefferson, urging him to advocate that submarine warfare be organized into a general system of national defense. Reluctant to spend a penny more than necessary to build up a navy, Jefferson wrote back that he favored establishing a special submarine corps.

Putting his finger on the delivery problem, he hoped that Fulton had not abandoned the submarine boat as impracticable; Fulton did not choose to explain why he had. At the same time, addressing him as Colonel Fulton, Jefferson attempted to entice him into designing a canal between the Mississippi River and Lake Pontchartrain as part of the defenses of New Orleans. Fulton replied that he wished to remain master of his own movements.

With a free mind, Fulton turned his attention to the steamboat. Flat-bottomed like a skiff, straight-sided like a scow, but with a bow and stern with the graceful lines that, sensitive always to aesthetics, Fulton had asked Browne to provide, she was ready at last for her first trial. It took place on a Sunday, when the impresario in Fulton knew the waterfront would be jammed with eager spectators expecting a fine explosion and even perhaps a drowning. It was also four years to the day from his brilliant success on the Seine. Hands-on as always, he started the engine. The first time it had been worked in a boat, it did its job. He ran a mile up the churning thoroughfare, then down again to test her maneuverability and the power of her paddlewheels. She answered well, which meant he could increase the size of the paddlewheels to give them more thrust. His audience was agape. Fulton was so pleased that he wrote the Chancellor, probably in a wave of teasing exuberance: "Whatever may be the fate of steamboats for the Hudson, my thing is completely proved for the Mississippi and the object is immense—please forward to me 1,000 or 500 dollars as soon as possible." [11]

Fulton devoted the next week to making fine adjustments to the mechanisms and fixing up the cabin. That Sunday, again with all New York lining the shore, he steamed down the river, around the tricky waters of the Battery to a dock on the North River near what is now Twelfth Street. Livingston at last had displayed faith; on board were his invited relatives and eminent guests. (Typically, he was absent.) The trip was accomplished without mishap.

Bursting with high-flying adrenalin, Fulton set the very next day at one o'clock for his departure to Albany. The weather was predicted to be fair. The tide would turn within the hour. The sun would not set until 6:48, followed by one of the Hudson's long, luminous twilights. The full moon would aid navigation through the narrow Highland waters.

Romantic stories have been written about how numerous Livingston relatives and friends boarded the boat for what would be, for them, a festive ride. Certainly the Chancellor issued invitations with proprietary abandon, for his cousin Helen wrote her mother: "He says it will be something we will remember all our lives and that we need not worry about provisions; his men will see to all that." [12] Fulton, of course, put an end to that party. He viewed the maiden voyage as an experiment,

NEW YORK STATE PARKS, RECREATION, AND HISTORIC PRESERVATION

"Fulton's patent Steamboat ascending the highlands"

not a gala. Only Fulton, an excellent engineer, and a captain invaluable for his knowledge of the vagaries of the river were aboard.

The excited crowd awaiting the steamboat's departure was immense. There were as many hecklers as well-wishers. "Fulton's Folly" she was called. Her long, thin lines, in contrast to the beamy sloops, made her look like a fragile stick. When the chimney began to belch black smoke, bets were on she would be claimed by the devil. Everyone who was not hurling insults and jests held their breaths as she glided into mid-river. Then, after a brief tinkering with the engine, she gathered herself together, steamed upriver, and serenely disappeared from sight. The only immediately unrealized impediment along the way came from boatmen who were scared out of their wits at what they saw as a supernatural fiery monster bearing down on them against the wind and tide. Thumping steadily through the night, she steamed into the long reach past Kingston mid-morning the next day. At exactly one p.m. she tied up at Livingston's dock. "Time 24 hours, distance 110 miles,"[13] was the remarkably laconic account Fulton wrote for the press.

It has also been said that the Chancellor put on a great celebration to welcome her arrival. He probably did, although, surprisingly, there is no record

of it. What is known is that the following morning he, his sons-in-law, and an English prelate joined Fulton on the final lap to Albany. For them it was an outing. For Fulton, it was the fruition of long years of striving to be of practical use to his fellow man.

The steamboat brought her time up to almost five miles an hour. There was more celebration in Albany; the fear that the steamboat would destroy traditional river carriage was momentarily brushed aside. The British bishop publicly stated: "she is unquestionably the most pleasant boat I ever went in. In her, the mind is free from suspense. Perpetual motion authorizes you to calculate on a certain time to land; her works move with all the facility of a clock; and the noise is not greater than that of a vessel sailing with a good breeze." [14]

Fulton simply had a placard hung on the side of the boat announcing the steamboat would start for New York the following day, fare $7.00—twice as much as charged by sloops. His men lay in provisions—bread, sauce, fowls, liquor, and a barrel of water. But the only passengers they attracted for the through trip were two Frenchmen, the distinguished botanist Francois Andre Michaud and a French army officer named Parmentier, sent to the United States by the French Academy to report on the plants and trees of the region (and possibly among those who had witnessed Fulton's Parisian demonstration).

The steamboat left Albany at nine o'clock the next morning, August 20. At Hudson, the riverbank and framing hills were crowded with people hoping to catch a glimpse of her. Rowed boats filled with men and women tried in vain to keep up; even a five-oared barge that was double-manned failed to do so. Fulton left the Livingston party at Clermont and immediately resumed the run. At West Point, the whole garrison turned out and sent up repeated "Huzzahs." All along the way excited people came to the waterfront to cheer and wave their handkerchiefs.

Fulton guided his boat into her berth in New York at four p.m. on August 21. Emotionally spent, all he could utter to the press was: "time 30 hours. Space run through 150 miles, equals 5 miles an hour." [15] Astonishingly, there was no other press notice, except one planted by Barlow. This may have been because Aaron Burr's trial for treason was on. (He was accused of organizing an army to split the new lands west of the Mississippi valley from the rest of the country.) Or perhaps it was because, irony of ironies, it was an unusual anomaly: an historic event unreported because it was uneventful.

In a hasty note to Livingston, Fulton displayed his characteristic enthusiasm: "funds and spirit," he wrote, "are now only wanting to do the handsomest and most lucrative things." [16] To Barlow, however, he reiterated his dreams: that steam

would give cheap and quick access to merchandise on the Mississippi and other great rivers, "laying open their treasures to the enterprise of our countrymen." And he added, probably with an eye to its publication, "but I will not admit that the steamboat is half so important as the torpedo system of defense and attack, for out of this will grow liberty of the seas, an object of infinite importance to the welfare of America and every civilized country."[17]

Throughout the autumn Fulton ran *The Steamboat*—first called just that, because there was, in the world, no other. Riding her became more and more popular, even fashionable. Only when ice threatened did he lay her up. Over the winter he took her to a protected cove south of Clermont, in Red Hook, where he set up a workshop and, except for the trustworthy engine, completely rebuilt her. He made three separate cabins: one was reserved for women and children and one for men only. In all, they offered fifty-four sleeping spaces. He also installed an up-to-date kitchen that would serve excellent noontime dinners, evening teas with meats, and breakfasts, each costing fifty cents. The deck was finished with one-inch boards. In the vast area allotted to passengers, it was covered with a light olive-green oilcloth, thick as pasteboard. Sheltering passengers from sun and rain was a permanent awning under where they could also dine. Fulton allowed Livingston to register her, for he had paid up his half of the expenses. *North River Steamboat*, hailing port Clermont, were the words he chose. Thereafter, the *North River* was her name. (During Livingston and Fulton's lifetimes, she was never referred to as the *Clermont*.) In April, she began her first full season. By July, she was carrying upwards of 140 passengers on each run. Her two round trips a week netted a princely $1,000.

This was an immensely busy period. It involved: quarrelling with Livingston about the boilers (Livingston wanted to economize by building them out of wood and leather, lined with lead and covered with a paste concocted of oxblood and egg whites); writing a report on a national transportation system for Albert Gallatin, Secretary of the Treasury; trying to figure out a valid approach for patenting the "unique combinations" of his steamboat design; and making preparations for joining the Barlows in the mansion they had bought in Georgetown. Somehow, Fulton also found time to court Harriet Livingston, the Chancellor's young cousin and the sister of his son-in-law, Robert. Their marriage on January 7, 1808, at her family home, Teviotdale, at Germantown came as a surprise to everyone—perhaps because of Fulton's propensity for whirlwind action, even to bride and groom. He was eighteen years older than she. Undoubtedly, she was fascinated by his foreign achievements, by the place he had already made for himself in the United States, and by his forceful personality and good looks. Any

NEW YORK STATE PARKS, RECREATION, AND HISTORIC PRESERVATION

Miniature on ivory portrait of Harriet Fulton (CL.2004.2)

doubts she might have had about his lack of heritage would have been dispensed by his partnership with the Chancellor. Besides, at twenty-four she may also have been ready to dispense with the habit of Livingstons marrying Livingstons, or at least someone in their inner circle. In Harriet, Fulton saw a well-educated young woman and a passably accomplished painter and musician. Not beautiful, she had the admirable Livingston nose and strong chin, which gave her a decidedly patrician air. If his miniature portrait of her is reliable, she also possessed an exceedingly *belle poitrine* and chose gowns that displayed it to good advantage. He was undoubtedly also attracted to this strong new connection with the Livingston family. With the steamboat reconstruction underway, it made sense to live temporarily at Teviotdale. Fulton's assessment in mid-winter was that the honeymoon and the steamboat went on charmingly.

The only event to mar the idyllic horizon was that on the very day Fulton and Harriet were married, John Stevens, one of the Chancellor's erstwhile partners, contracted to build a steamboat, 100 feet long and sixteen feet wide to be afloat by April 1. A first-class engineer, he counted on his own high-pressure engine to make a steady six miles an hour—all Fulton's boat could attain with sails flying and the tide running in her favor. Called the *Phoenix*, she would ply the Hudson from his property in Hoboken, New Jersey, to Albany in defiance of Livingston's monopoly. Angry, taunting letters flew back and forth, the core of which were Livingston's tirades defending his interest and his honor and Stevens' "Monopolies are very justly held, in every free country, as odious."[18] The controversy compounded when John R. Livingston, the Chancellor's brother (who was projecting his own boat), sided with Stevens. Thereupon, Fulton and Livingston decided they should try weaving John R. into the web by licensing him to establish lines from New York City to Staten Island and New Jersey, a route that offered lucrative connections with the stagecoaches to Philadelphia. Unphased, Stevens ran his completed *Phoenix* from Hoboken to Perth Amboy, New Jersey, at speeds often reaching over five and a half miles an hour. William Thornton was

swift to attempt an alliance with him, promising to notify him as soon as Fulton submitted a request for a patent. Addicted to high living and gambling, seeking bribes was second nature to him.

Fulton struggled long and hard to find convincing phraseology for his patent. Finally, during the first week of January 1809, he submitted his application. Following the argument spelled out in his *Treatise on Canals* that likened the mechanic to the poet making new combinations with the letters of the alphabet, he included the definitions and tables derived from the experiments on the velocity of solids drawn through water made while he was in London and published in 1802. He also included an exhaustive series of calculations based on the dimensions and machinery of his steamboat, all illustrated by fourteen figures, tables, and drawings. In an error that was so foolish it is impossible to fathom, Fulton did not sign the application himself. It was perhaps simply an awful mix-up, but the signature was one Fletcher's, possibly the person hired to copy Fulton's text in elegant script. Whatever its inspiration, that signature would come back to haunt him.

Thornton, who had returned from the countryside (where he had been hiding from his creditors), held Fulton's patent back. On January 16, he filed his own application, and the next day wrote Stevens that he did not think Fulton's claim to a patent was as good his own. To rectify the impression that statement made, he wrote again a week later that he had only "slightly examined" Fulton's patent. Fiercely independent, Stevens remained aloof.

As if this were not enough, Nicholas Roosevelt, Livingston's other jilted partner, asked Benjamin Henry Latrobe, who had displaced William Thornton as the architect of the national capitol, to intervene with Fulton and Livingston for him. Financially hard-pressed due to a federal suit for having misappropriated funds in a copper transaction, Roosevelt hoped to be bought off. Latrobe should have known better, but Roosevelt had just married the architect's beloved only child; besides, it was his character to act impulsively. He warned Fulton that if he did not honor Livingston's partnership with Roosevelt, Roosevelt would be forced to seek redress. Fulton acknowledged that the monopoly covered only the Hudson River, but threatened to sue whoever infringed his patent. Roosevelt then suggested to Stevens that they build a large boat together, but Latrobe rebuked him, insisting that playing Stevens off against Livingston was a better strategy. Fulton thought he had solved the problem when he sent Roosevelt to Pittsburgh, to build a boat for what had always been his prime goal, the Mississippi River system. It was a decision he would mightily regret.

Meanwhile, Stevens, who was anxious to avoid a lawsuit (it was not his

temperament), elected to take the *Phoenix* to Philadelphia and run her on the Delaware. It was a courageous act, as it required braving the open sea, a feat Fulton himself had not yet envisioned as practicable. For most of the journey, the *Phoenix* was beset with "dirty, squally weather," but with his engineer son, Robert Livingston Stevens, to help out, she was safely anchored off Philadelphia's Market Street on the evening of the fourteenth day. Her survival through 241 miles of heavy seas more than justified Stevens' faith.

Impressed, Fulton laid aside his infringement claim and wished him well. However, he was to have no respite, for Thornton launched an open attack against his patent, then unctuously offered to be his discrete supporter in an amicable suit against Stevens. Fulton did not bite. "I am so situated that I must stand or fall on what I have done," he explained in a sudden burst of candor.[19] Incapable of proceeding on his own, Thornton then returned to Stevens, who quickly brushed him off once more.

Hearing that the *Phoenix* was overwhelmed by boisterous young men treating her like a tavern and that, built to weather the ocean, she was too clumsy for river work, Fulton decided Stevens' back was against the wall. Livingston, too, was ready to deliver an ultimatum. If Stevens did not concede, at least privately, that his high-pressure engine had failed and that he was working under the patent, they would give all the Philadelphia runs to strangers. Still Stevens refused to capitulate. It was not until the end of the year that all three agreed to a compromise. Fulton and Livingston would retain monopoly rights on all New York State waters, including Lake Champlain, and also the rights on the Mississippi and Ohio rivers. Stevens would get Chesapeake Bay and the Connecticut, Delaware, Santee, and Savannah rivers as well as the run through Long Island Sound to Providence, Rhode Island.

The agreement relied, of course, on the validity of Fulton's patent. It would be a brief truce. Almost immediately, Stevens applied to the Corporation of the City of New York for a lease to run a ferry from his property in Hoboken to the Bear market in Manhattan.

Fulton allowed himself to be partly diverted from this threat because he was so pleased with his new boat, the *Car of Neptune*. Far more luxurious than the *North River*, she would begin her runs in the autumn, more than doubling the $16,000 profit the *North River* had brought in. He was also able to ignore for the moment that Stevens, showing no intention of cooperating unless it suited his ambition, was extending his line south from Philadelphia. Moreover, he had taken out a patent for his improved engine.

As if the stage were not crowded enough, still more competitors launched boats

to plague Livingston and Fulton. A group of twenty Albany men built a replica of the *North River* called the *Hope* and ran her in competition against Fulton's boat. These multiple pressures served only one good purpose: they brought Fulton and Livingston together as they had never been before. They wasted no time in taking the so-called Albany Company to Circuit Court, pleading infringement of the patent. The federal judge, (incidentally Henry Brockholst Livingston) remanded the case to state court on the grounds that the satisfaction they were seeking—possession of the boats and triple damages—was excessive. The change in venue would place the burden of argument on the monopoly. In the interim, the Albany Company added the *Perseverance* to its line, prompting price wars and mutually scurrilous attacks on safety and comfort. The *North River*, for instance, was said to be full of bedbugs—and perhaps it was. Certainly, it was slowing down. With Livingston's concurrence, Fulton replaced her with another new boat.

Even more handsome than the *Car of Neptune,* the *Paragon* was a floating palace. She was 170 feet long and her deck was twenty-eight feet wide. A mahogany staircase led to the captain's quarters and the ladies cabin, with its special dining room. Another led into the great cabin. Forty feet long and twenty-five feet wide, it communicated with a bar room. Meals could be served to 150 passengers. There were 104 sofas and berths, the latter wide enough for two persons, if agreeable. The floors were carpeted; the windows were adorned with silk draperies over fringed muslin curtains. Built of cedar and pine timbers, the hull was strong enough to keep her afloat should she fill with water.

That fall Fulton was delighted to hear that the *New Orleans,* the boat Roosevelt had built in Pittsburgh, had begun her 2,000-mile trip to her namesake city. Roosevelt, his wife Lydia (pregnant with their second child), a Newfoundland dog named Tiger, and a crew of six were aboard. They made Louisville in four days. The immense comet that illuminated the night sky along the way was, perhaps, a harbinger of bad news, for low water delayed them for six weeks at the Louisville Falls. From the Roosevelts' point of view, the time was well spent; they were feted by townspeople and Lydia had her baby; however, it signaled that getting past the falls would always be problematical. Once again en route, the whole countryside was shaken by earthquakes and buffeted by hurricane-force winds. The waves rose to terrifying heights. The current was three times its normal speed. When the wind subsided, the calm was so unnatural even the hands spoke in whispers. The Roosevelts' joy was unbounded when, on January 12, 1812, they finally reached New Orleans and were greeted by an ecstatic populace. Their safe arrival radically changed the pattern of western commerce. Suddenly released from its bondage to eastern wagon men, New Orleans confidently expected to become the premier

port of the nation. Fulton, who had for so long awaited this success, was troubled only because he heard of it not from Roosevelt, but through a man who had received a letter from his brother.

In the east, trouble continued to compound. Arsonists torched Fulton's workshops on New York's west side. Stevens was operating a steam ferry, called the *Juliana,* between Vesey Street and Hoboken; according to him, it was the fastest boat on the river. In just one day, she made sixteen round trips, carrying an average of 100 passengers. Philadelphia-based Oliver Evans, a former friend whom Fulton had gratuitously insulted, was building an engine for a Massachusetts canal boat; Evans' son was building a 120-foot passenger boat to compete with Roosevelt's between New Orleans and Natchez.

Fired up, Fulton hastened to complete his new catamaran ferry, the *Jersey.* It was designed to move either end foremost—her paddlewheels were simply reversed to go in the opposite direction. At the same time, the *Firefly,* a small version of the *North River* destined for short trips, was under construction. Next, he would build a boat to run through Long Island Sound to Norwich, Connecticut. In addition, plans for a dry dock and workshop in Jersey City, (an infinitely better solution to repairs than the beach south of Hudson, New York he had used), were on the drawing board.

Stretched to his limits, Fulton was afflicted with an onslaught of face boils so severe that one of his eyes swelled shut. Moreover, his domestic life was far from calm. In the midst of her third full-term pregnancy, Harriet was increasingly exasperated with her husband's unremitting focus on his work; it simply was not the tradition in which she was raised. True, Fulton had listened to her complaints about living with the Barlows. After first renting two different houses on Chambers Street north of City Hall—hardly the center of the beau-monde—he had at last moved the growing family into a handsome mansion on the corner of State and Marketfield Streets, opposite Bowling Green. In addition, Fulton had allowed her to use the *Paragon* for a "splendid entertainment" in honor of the commander of the H.M.S. *Bramble.* Nevertheless, in one of her few surviving letters, Harriet sarcastically complained to the Chancellor that "in his good nature and thoughtless way," her husband had given half of the receipts of the *Jersey* to him after he had promised the whole to her for pocket money. "To you it is no object, and if it is," she went on, "you must make Fulton abandon to you the patentees right in the *Firefly,* or on Lake Champlain or Mr. J. R. Livingston's boat…my heart is so set on it, your generosity must meet my wishes—and I will make Fulton do the same for you."[20] (Note that she does not refer to her husband as Mr. Fulton, as a woman of her breeding would be expected to do, but rather as

plain Fulton, as if he were a hired servant.) It seems certain that her anger had far deeper roots than her pregnancy.

There was good news, however. In the New York court, respected Chief Judge James Kent declared with some passion against the Albany Company, ruling that it would be a "monstrous heresy to annihilate the legislative powers of the state." The *Hope* and the *Perseverance* were placed under injunction. In a compromise concluding the episode, the *Hope* was sold to Fulton, the *Perseverance* to one Aaron Ogden. (The decision did not mark the end of the legal case against monopolies. It would wear on in protean forms throughout Fulton's lifetime. As a national issue of highest importance, it wound up in the Supreme Court as *Gibbons v. Ogden.* In 1824, the justices sided with the anti-monopolists. Citing the Commerce Clause of the Constitution, and also Congress's interest in promoting the progress of science and the useful arts, Chief Justice John Marshall, who wrote the landmark decision, laid the groundwork for the federal structure of our government.)

The remainder of 1812 was discouraging for Fulton and Livingston in different ways. The Chancellor suffered a stroke. Fulton paid little overt heed to his steadily deteriorating powers, probably because it frightened him. Drawing himself still more closely to the clan, he sent Harriet's young brother John to deal with Roosevelt's erratic management in New Orleans. This was another poor choice, because John's worldly experience mainly had been confined to entertaining himself among his kith and kin. Fortunately, at the same time, Fulton strengthened his ties with the Chancellor's youngest brother, Edward, who was then living in New Orleans and who turned out to be the only Livingston to truly understand not only the steamboat empire Fulton was attempting to build but also how his mind worked. A partner in the Mississippi venture, Edward raised subscriptions among his affluent friends in the city and gave Fulton good advice about their needs as shareholders. He tried his best to keep tabs on Henry Shreve and Daniel French, aspiring competitors for the Mississippi routes. And, he never tired of urging Fulton to visit Pittsburgh, where, he said, everything was inordinately expensive and was, as Roosevelt's trip had amply demonstrated, often shut off from the lucrative southern reaches by low water at the Louisville Falls. There was no question in his mind that the workshops should be below them.

Fulton never went to Pittsburgh. Instead, he sent Benjamin Henry Latrobe to build boats for the Ohio Company while John built them for the Mississippi Company. Begging for the job because the government had abolished his position as surveyor of buildings, Latrobe seemed to have adequate credentials. He, too, had written on transportation for Gallatin. He also had installed an engine that simultaneously operated the Washington Navy Yard's forge, bellows, and block

mill. However, it was well known that Latrobe was possessed of a volatile temperament. Vain and irascible even when work progressed smoothly, he collapsed under stress. In addition, Fulton hired one John Devereux Delacy, a speculator and attorney of flamboyant charm who had helped peripherally with the Albany negotiations. His job was to set up a Norfolk and Richmond line.

None of these men—Roosevelt, Latrobe, Delacy, or John Livingston—was equal to the job, as Fulton would soon find out. However, there was little he could do about it. The total absence of trained managers at that time was even worse than the lack of a useful banking system. In the free-wheeling early days of the republic, they simply did not exist. Most entrepreneurs did not need them. But because of the wide-ranging scale of his endeavors, Fulton did. Run ragged, he would pay dearly for being a visionary ahead of his times. With the exception of a few encouraging intervals, the rest of his life could be characterized, as he put it, as "friction without luster." Although his inventive genius did not diminish, nor did his drawing skills, his ability to weather the storm grew steadily more confused.

For Fulton, January and February 1813 were profoundly melancholy months. Robert R. Livingston suffered a second paralytic stroke. He lingered briefly, then died on February 25. Fulton was devastated. Despite their constant bickering, there had been an overriding pride in their association that kept their partnership from falling apart. In a profound though unarticulated way, both had drawn pleasure as well as "fame and emolument" from it. Within a few hours of learning of the Chancellors's death, Fulton received word that Joel Barlow, too, had died. Sent to France to negotiate reparations for illegally seized vessels, he tired of dealing with petty functionaries in Paris and pursued Napoleon to Russia, where he had set up a temporary court at Vilna. There he discovered Napoleon had abandoned his army and was already back in Paris. Barlow joined the French army's awful retreat. Chilled and exhausted, he died in a bleak little village in what is now Poland on December 26. The two deaths left a terrible vacuum. To Edward Livingston he wrote: "Two such friends of such rare talents are not to be replaced in a whole life."[21] Depressed, he told Latrobe he was thinking of giving up his steamboats.

That, of course, was only an expression of Fulton's despair. With the Chancellor gone, he now had to deal with his partner's heirs: his widow, Mary Stevens Livingston, and his sons-in-law, Edward P. and Robert L. Livingston, who despised each other almost as much as they enjoyed receiving their steamboat profits and, in the process, disparaging Fulton. In fact, they tried to make Fulton their employee by forcing him to take a salary. Fulton angrily refused and

continued to manage operations, as he had always done. But that was not easy. As the Chancellor had made his will before going to Paris, it said nothing at all about steamboats. Nor were there any papers relating to the deals the partners had made with Stevens or any other participants in their enterprises. Moreover, there was no clear accounting of debts and receivables. When the heirs discovered that the Chancellor died owing Fulton $27,000, they were dumbstruck—and angry.

Uphill though it was, Fulton continued adding to his fleet, steadfastly following his principle of plowing the profits back in. He was pleased when the swift Long Island Sound boat, the *Fulton,* beat both the *Car of Neptune* and the *Paragon*. His dry dock and workshop in New Jersey were progressing well, too. In Pittsburgh, Latrobe had begun the *Buffalo* and John the *Vesuvius*, to be followed by the *Aetna*. Edward P. and Robert L. disapproved and kept up a sarcastic flow of letters. Fulton shot back equally biting replies. Finally, Edward P. informed Fulton that his father-in-law had never had any confidence in the patent and Robert L. returned all of Fulton's letters unopened. None of them should have so profligately wasted his energies. While they were hurling insulting remarks at one another, Aaron Ogden was acquiring a monopoly for all New Jersey waters and was building the *Seahorse* to exploit it. His routes would compete directly with John R. Livingston's.

The War of 1812, which had started the previous June, provided Fulton with some relief. The initial year most of the fighting was along the Canadian border, but by mid-1813, British warships were assaulting American ports up and down the coast. Suddenly, President Madison, who had been cool to submarine warfare, was anxious that Fulton make it part of the nation's defense. Fulton was more than happy to comply. Most of his action was in the Chesapeake region and was not entirely successful. He scored an important triumph, however, when one Elijah Mix, a stalwart young sailor, succeeded in floating a torpedo alongside the *Plantagenet*, a British ship of the line. Although it exploded before it could be maneuvered beneath the keel, the result was "like the concussion of an earthquake, attended with a sound louder and more terrific than the heaviest peal of thunder," according to *Niles Weekly Register.* A pyramid fifty feet in circumference was thrown forty feet high; "its appearance was a vivid red, tinged at the sides by a beautiful purple…it burst at the top [of its trajectory] and with a tremendous explosion and fell in torrents on the deck."[22] The *Plantagenet* survived the turbulence, but, thereafter, a seventy-four-gun ship, two frigates, and three tenders carefully guarded her. Having also witnessed the power of Fulton's torpedoes in England, the British would never feel safe in American waters throughout the remainder of the war.

Fulton's nervous energy remained unblunted by a seasonal cold that inflamed his lungs and kept him confined to his bed. He drew plans for an iron-plated vessel that could be submerged so only her sloping decks were above the water. Large enough to contain 100 men, it was propelled by a wheel revolved by a shaft moved back and forth by a cadre of men. Its virtue was that it would be silent and virtually cannon proof. Fulton called her the *Mute*. As if this were not accomplishment enough, he set up a company that would supply New York with coal from yet to be discovered mines along the Mississippi. In addition, he promoted what would become the Erie Canal, then in its planning stage, with a pamphlet of correspondence exchanged with Gouverneur Morris, the president of the canal's Board of Commissioners. He also agreed to serve on the commission in charge of converting the canal just above City Hall into a street. He even designed row housing for it.

So fascinated was he by these myriad projects that it almost slipped by him that Aaron Ogden had petitioned the New York State Legislature to repeal or modify the steamboat monopoly act. Ogden's principal arguments were attacks against Fulton's and Livingston's probity, but he also possessed an assignment of John Fitch's rights, purchased for one dollar from his administrators. (Thornton was one of them.) Ogden prevailed in the first round. The second round dragged on and, although the famous Thomas Addis Emmet superbly represented him, Fulton decided to plead his cause himself. Informing the Assembly that his company was $77,700 in debt and that it would take four years to break even, he sought their high-minded sympathy by describing how chilling the violation of inventors' just claims was to the spirit of enterprise. To reinforce his claim, he presented what he asserted was a copy of the letter he sent to Lord Stanhope dated November 4, 1793, in which he discussed using side wheels as a means of propulsion. Employing all his persuasive Hibernian theatricality, Emmet concluded with a list of Fulton's achievements, then addressed him directly:

> Artful speculators will assuredly arise, with patriotism of their tongues, and selfishness in their hearts. Who calumniating or concealing your merits will talk loudly of your monopoly. Who will present it as grievous burden to the community…Yes, my friend! My heart bleeds while I utter it; but I have fearful forebodings, that you may hereafter find in public faith a broken staff for your support, and receive from public gratitude, a broken heart for your reward.[23]

Ogden was denied his petition.

At the same time, Fulton lashed out at his Mississippi contingent. He accused Edward of trying to usurp control of the western waters. Patiently, Edward explained again the disadvantages of keeping the business in New York. The three-month turnaround for correspondence was too great; who, for instance, had the power to fire an employee who might be tempted to embezzle? Furthermore, New Orleans men would never grant a monopoly to a New York-based concern. Moreover, operations at Pittsburgh had gone from bad to worse. John was running alarming overruns, prompting Fulton to write scolding letters pointing out that he had been given the job only to make life easier for his widowed mother at Teviotdale. John and Latrobe quarreled bitterly, Latrobe pinning his delay in building the *Buffalo* to having loaned John materials in short supply. Moreover, having recovered from a nervous collapse so serious that he could not even write letters, Latrobe set himself up in the house construction trade. "[I]f I don't make money here," he confided to Delacy, an as yet unrevealed malefactor, "I shall be the only inhabitant of this place who does not."[24] Furthermore, he refused to provide an accounting of the large sums Fulton had sent him. Instead, he now claimed he could not finish the *Buffalo* for the agreed-upon price because of inflation. Growing hysterical himself, Fulton informed him he would honor no further drafts for money. Latrobe pretended to cave in, signing his next letter "Yours very sincerely and much more faithfully & usefully than you believe."[25] But, before the ink was dry, he wrote Delacy, appointing him his attorney in an action against Fulton.

Fulton's health as well as his pride was affected. His liver and bowels became torpid and he was restricted to a diet of meat and watered brandy. His only salvation was working on a new invention for the defense of America's harbors, a mighty steam-frigate, which he called the *Demologos,* the Word of the People. On August 25, 1814, British troops burned Washington, a premeditated outrage so savage that even large segments of the English press expressed shock. On September 12, they began their assault on Fort McHenry in which William Congreve's rockets played so impressive a role and entered our national anthem. On October 29, a bright autumn day, Fulton launched the *Demologos* in a grand celebration. A behemoth dwarfing every other boat in the river, she was christened *Fulton I.* Three weeks later, in another festive parade, the *Car of Neptune* and the *Fulton* steamboat towed her to the Jersey City workshops to be outfitted. The happiness of both events came as much from the people's grateful hearts, as from Fulton's consummate ability to stage spectacles.

That December Fulton made a will. It knit his entire life together. He left Harriet $9,000 a year during her widowhood, $3,000 should she remarry. She

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Launching, at New York City, 29 October 1814. Engraving published by B. Tanner, No. 71 South 3rd. St., Philadelphia, Pennsylvania, 27 March 1815. It is based on a drawing by J.J. Barralet after a sketch "taken on the spot" by Morgan.

would receive $500 a year for each child until twelve years of age, then $1,000 until they were twenty-one. She would have use of the household chattels during her lifetime. The bequests to his brother and sisters suggests he had kept in closer contact with them through the years than extant correspondence implies. His brother Abraham was to receive $3,000; his sister Betsey $1,000 plus use of their mother's farm for her lifetime (afterwards it would be sold and the proceeds divided equally among her children); Belle got $2,000; and to each of the recently deceased Polly's children, he left $500. All loans to his brother and sisters were cancelled. The remainder of his estate was to go to his children. Sons would get their inheritance at twenty-one or before that if they married. Daughters were to receive only the interest on the capital, for he explained that a girl must be guarded against the misfortune or imprudence of a husband. (By law at that time and far into the future, husbands took possession of their wives' money, even earnings.) If all children died before Harriet, half of his estate was to be used for a national institution for historical and scientific paintings. The other half would be at her absolute disposal.

Sometime in 1814, Fulton began to realize Delacy was not a dutiful aide-de-camp, but a "busy and bold intriguer" who had piled up debts in his name. He fired him. Delacy had banded with Roosevelt who had just received a patent for gases to power every kind of machinery. Latrobe, promising Fulton he would not help these two schemers except in defense of his own work and character, demanded

that Fulton forward money to put the *Buffalo* in operation immediately and retract his accusation that he had speculated with the company's funds. Furious, Fulton tried to attach the boat and shops. Latrobe was too quick for him; he gleefully put the shops in the sheriff's hands as security for debts. Closing a letter in which he threatened Fulton with divine retribution, he admitted his diatribe might seem "imprudent, in as far as it was dictated by my feelings without reference to yours."[26] With the same pen, he wrote Delacy offering every help at his command.

Meanwhile, Ogden's *Seahorse* was putting John R. out of business. Determined not to let that happen, John R. petitioned the New Jersey legislature to repeal Ogden's monopoly. Ogden was up to the match. He gathered Roosevelt, Delacy, and Latrobe onto his team and, with Thornton as an offstage manipulator, put out a dragnet for records that would substantiate his claim that Roosevelt's experiments between 1795 and 1798 gave him prior right to the invention of steam navigation. Thornton prepared a deposition that Oliver Evans signed, stating that he, Thornton, had proposed side wheels to Fitch in the 1780s. Then he recruited a newcomer, Fernando Fairfax of Virginia. His major coup was routing out Nathaniel Cutting, who was only too happy to take revenge on Fulton for what he deemed his shoddy treatment in the rope-machine matter. Cutting testified that the American consul in Normandy had told him in 1805 that he had loaned a set of Fitch's drawings to Robert Fulton when he was working on his French steamboat.

In defense, Fulton asked Edward P. Livingston to scour the Chancellor's papers to find clues to his early relationship with Roosevelt. At first, all he could find was a statement that he had settled his accounts with Roosevelt, except for the cost of one engine. Urged to persist, Edward turned up a letter of 1798 in which Roosevelt informed Livingston that his horizontal wheel was impractical and recommended that they use side wheels instead. Still other letters made clear that Roosevelt's recollections were substantially correct. Fulton's scared reaction was to hope that Roosevelt had not kept copies and that they could suppress any they had. Deep down he must have been furious with Robert Livingston for not having been candid about his association with Roosevelt and Stevens. It was as if his controlling hand had reached across the grave to humiliate him.

Sensing the active part Thornton was playing in the affair, Fulton hurried to Washington to put an end to the architect's abuse of the Patent Office for his personal gain. In a forthright letter to Secretary of State James Monroe, he outlined the problem: "If he is an inventor, a genius who can live by his talents, let him do so, but while he is clerk in the office of the Secretary of State and paid by the public for his services, he should be forbidden to deal in patents and

thereby torment patentees involving them in vexatious suits."[27] Monroe, who had received a steady stream of complaints from other inventors, had that very day written Thornton that, as of February 1 of the following year, the officer in charge of the Patent Office would be prohibited from appearing as a party in any claim for a patent right. Thornton's four page closely written reply protested that such a regulation would deprive him of his inherent right as a citizen to exploit the product of his mind and pointed out that it was his ability to think inventively that made him so effective an administrator of the Patent Office. He concluded with an attack on Fulton, "formerly a *Chevalier d'Industrie,* whose Infamy I shall not fail to publish to the world."[28]

True to his word, Thornton widely distributed a pamphlet he had written in 1810 and had recently brushed up and published with the title *A Short History of Steamboats*. In it, he accused Fulton of stealing the plans of David Bushnell, who, during the Revolutionary War, had invented a submersible, although it was an entirely different machine than Fulton's submarine. Surprisingly, at the end of the pamphlet, he nervously attempted to justify issuing himself a patent just prior to Fulton's in 1809. (Monroe held firm to his new regulation, but Thornton would remain the clerk of the Patent Office until 1828.)

The hearings before the New Jersey legislature, centered on Roosevelt's claim to be the originator of "steamboats with vertical wheels," began on January 14. As counsel for Roosevelt, Delacy submitted all the proofs that had been so diligently collected. Fulton, wrote Roosevelt (who had remained in his home forty-seven miles away), was a "stag at bay." Fulton interpreted the testimony differently. "Roosevelt has completely ruined himself as far as there was anything left to ruin by his own Injustice, tricks & chicanery," he exultantly wrote Latrobe.[29]

After a brief intercession in which Fulton and Emmet noted that the New York populace stood behind them, the hearing resumed with accusations and counter accusations on both sides. Spectators jostled to enjoy the theater. On the evening of the second day Fairfax revealed Nathaniel Cutting's deposition with a flourish. Fulton could no longer sit still. Although he had not been called as a witness, he demanded an opportunity to speak. At first, Ogden objected on the grounds that he was not a named petitioner. Finally, he backed down. It was then, Fulton's enemies gloated, that the "proud monopolist" dug his grave.

The following morning, Fulton rose, bristling with virtue. He explained that he had never claimed the rope-making machine as his own, but rather had obtained a French patent of importation and improvement, which was what he had sold to Cutting. Then he boldly presented the copy of the letter, which he said he sent to Stanhope in 1793, that had been so effective in Albany. It passed

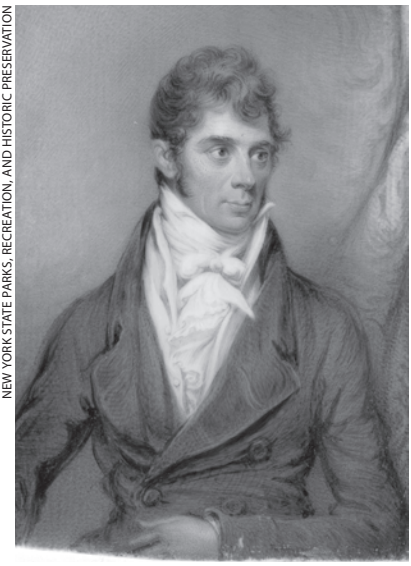
among the opposing counsel. Ogden held it to the light and with undisguised joy discovered the paper to be of American manufacture, with a watermark dated 1796. In the electrifying hush that fell over the legislative chamber, Fulton attempted to explain that what he had meant to say was that the document was a true copy of the original draft; because the original had become so tattered, he had destroyed it.

The session wore on late into the evening, with insults and recriminations on both sides. Ogden's team struck at Fulton's invention, proclaiming that its "novel combination" was nothing but a combination "of *gold* and *influence*, of *intrigue* and of *powerful connexions*."[30] Fulton exploded. Declaring he did not care how the legislature decided, he said he would seize Ogden's boat if he attempted to navigate the river, and he ordered his lawyers to sue both William Thornton and Nathaniel Cutting for libel.

Accusations continued to flow. The following Monday, Ogden's lawyer pleasantly acknowledged that Fulton had risked his time and money in bringing the present steamboat system into being, but that his services were not those of an original inventor. Yet he had been rewarded with extravagant governmental patronage that allowed him to live in princely magnificence and trample on the rights of others. In his ringing conclusion, he accused him of using false names: Francis in England and Fletcher on his patent, clearly a case of fraud. Finally, his attempt to pass the copied Stanhope letter off as an original draft was, unquestionably, perjury. Emmet was, for once, at a loss and could only babble vapidly.

Still, because the Republicans were in power in New Jersey and Ogden was a Federalist, the legislature decided, without one word of debate, in John R. Livingston's favor. Ogden's New Jersey monopoly would be repealed. It was, perhaps, a victory, but it was very fragile. Not one of Fulton's competitors had lost his enmity.

Although exhausted by the hearings, Fulton could not refrain from visiting the *Demologos,* which was being outfitted at his shops in New Jersey and was the only one of his works he could contemplate with content. By the time he was ready to return to New York, the river was frozen and the ferries had stopped running. Fulton, with Emmet and two friends who had stayed by to keep him company, decided to cross the river on the ice. It broke under Emmet's great weight, plunging him into the water. Fulton dragged him out. Soaked through, the party trudged on. When they arrived at Fulton's mansion, the inventor was so hoarse he could not speak. Yet three days later, over the strong objections of Harriet and his doctors, he called for his carriage and returned to inspect the progress made on the *Demologos*. It brought him great joy. But his infection settled



NEW YORK STATE PARKS, RECREATION, AND HISTORIC PRESERVATION

Miniature on ivory portrait of *Robert Fulton* (CL.2004.1)

in his chest. On the morning of February 23, 1815, he died.

Friends, colleagues, and even adversaries were stunned by their sudden loss. So, too, was the general populace. Newspapers announced Fulton's death in notices heavily bordered in black. In hurriedly called meetings, the cultural and trade associations to which Fulton had belonged—the New-York Historical Society, the Literary and Philosophical Society, the Academy of Arts, and the General Society of Mechanics and Tradesmen—decided to march in his cortege in membership groups. Led by all the federal, state, and city officials then in town, the mourners followed the simple coffin whose sole adornment was a small metal plaque engraved "Robert Fulton age 49." To the dull beat of guns fired from the West Battery and from the *Fulton I*, the mourners marched to Trinity Church, where Fulton was interred. No New Yorker had ever been accorded such a splendid burial.

Fulton's public heritage remained strong. Towns and counties were named after him. Americans gloried in the transportation system he set in motion; it made the country a leader in the global transportation revolution. People still argue exhaustively about who really invented the steamboat, but not until the advent of the airplane was there an invention that so transformed the world both at peace and at war. The airplane, too, was the result of the labors of individuals who worked independently while gleaning from their competitors as much knowledge as they could.

In his eulogy before the American Academy of Arts, delivered shortly after the burial, De Witt Clinton summed up Robert Fulton's life and being with a poetic passage to which all can agree:

> While he was meditating plans of mighty import for his future fame and his country's good, he was cut down in the prime of life and in the midst of his usefulness. Like the self-burning tree of Gambia, he was destroyed by the fire of his own genius and the never-ceasing activity of a vigorous mind.[31]

Pax Tecum Robert Fulton.

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