

~ Dictionary of ~

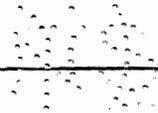
# American Biography

PUBLISHED UNDER THE AUSPICES OF  
American Council of Learned Societies

EDITED BY  
Allen Johnson & Dumas Malone

Fraunces — Grimké

VOLUME VII



NEW YORK  
Charles Scribner's Sons

MCMXLIII

## Fulton

FULTON, JUSTIN DEWEY (Mar. 1, 1828-Apr. 16, 1901), Baptist clergyman, was born in Earlville, N. Y., the son of John J. and Clarissa (Dewey) Fulton. He spent his boyhood in Michigan attending school at Tecumseh, and later the state university (1848-51). He was graduated from the University of Rochester in 1852, from the Rochester Theological Seminary in 1854, and in May of that year was ordained. He was a minister in St. Louis (1854-55), in Sandusky, Ohio (1855-59), in Albany, N. Y. (1859-64), in Boston (1864-73), and then for many years in Brooklyn; from 1894 till his death he was in Somerville, Mass. He edited three religious papers, a publication of the Bible Union in St. Louis, and the *Christian in the World* and the *Watch Tower* in Brooklyn. In St. Louis, he made himself objectionable by his drastic pronouncements on slavery; in Brooklyn he withdrew from one church to establish another, and was temporarily suspended from the preachers' association; in Nova Scotia he harangued the country-side with such rancor as to get himself chained up to a lamp post; and in Somerville, as an old man of seventy, he disagreed with his parishioners and in a huff broke off relations with them. Whether as a preacher or as a lecturer he was a fervid orator, "admirably fitted," according to a contemporary account, for out-of-door speaking; his utterance was "like the flow of a mighty river, with force enough to turn all the mills for miles" (*Genealogy*, p. 212). One of his dearest themes was that honesty and hard work, coupled with the avoidance of whatever is not "useful," will inevitably lead to wealth and power; and he was always alert to denounce drinking, woman suffrage, and the drama. During the first part of his life the chief object of his condemnation was slavery, but after the Civil War, he finished off his concern with this matter by his adulatory sermon on the death of Lincoln (*Sermons Preached in Boston on the Death of Abraham Lincoln*, 1865), in which the sole error attributed to Lincoln is frequenting theatres, and by his *Memoir* (1866) of the businessman abolitionist, Timothy Gilbert. An antipathy of his more disturbing than all the others was Roman Catholicism, first the object of his attack in *The Outlook of Freedom: or The Roman Catholic Element in American History* (1856) and later in book and lecture and sermon until he died. *Why Priests Should Wed* (1888), delayed in publication because of alleged obscenity, *The Fight with Rome* (1889), *How to Win Romanists* (1898), and many other writings thunder his notions with a vigor which is notable for unctiousness and sincerity but which seems in gen-

## Fulton

eral too reckless of fact and effect. He was married three times, first to Sarah E. Norcross, and last, in 1897, to a school teacher forty years his junior, Jennie A. Chapman, by whom he had two children. Among his writings not already mentioned are *The True Woman* (1869) and *Rome in America* (1884), with a sketch of the author by R. S. MacArthur.

[*Who's Who in America*, 1899-1900; *Geneal. of the Fulton Family* (1900), comp. and ed. by H. R. Fulton; *Univ. of Mich., Gen. Cat. of Officers and Students 1837-1911* (1912); *Univ. of Rochester, Gen. Cat., 1850-1911* (1911); *Rochester Theol. Sem. Gen. Cat., 1850-1910* (1910); *N. Y. Times*, Apr. 17, 1901.]

J. D. W.

FULTON, ROBERT (Nov. 14, 1765-Feb. 24, 1815), artist, civil engineer, inventor, was born in Little Britain (later Fulton Township), Lancaster County, Pa. His ancestors had emigrated from Scotland to Ireland, and it was probably from Kilkenny in the latter country that the elder Robert Fulton came to America. By 1735 the latter had settled in the town of Lancaster, and in 1759 he married Mary Smith of Oxford Township, Chester County, Pa. In 1764 he purchased a farm near Lancaster and it was there that his son Robert was born a year later. After experimenting with farming for two years without success, the elder Fulton mortgaged his farm and returned with his family to Lancaster, where two years later he died, leaving practically no estate. The widow managed to keep her family of five children intact and gave them the rudiments of an education. When Robert was eight years old his mother sent him to a private school where his preliminary education was somewhat augmented.

From all accounts Fulton was not a brilliant scholar, but at the early age of ten he exhibited a genius for drawing. He showed, too, an unusual inventive trait, making his own pencils by hammering out the lead from the bits of sheet metal which he could secure. In 1778, when thirteen years old, he is said to have invented a sky-rocket when the town council because of the scarcity of candles forbade the use of them in honor of Independence Day. At the time of the Revolution, Lancaster was an important center for gun making and many prominent gunsmiths resided there. Young Fulton, because of his interest in mechanics, early made the acquaintance of such men and by observation learned much of their craft. He quickly became an expert gunsmith and supplied to the several established makers drawings for whole guns, and made computations of proportions and performances which were verified on the shooting-range. He also made many decorative designs for guns and these were always in great demand with the

## Fulton

makers. As a boy, he enjoyed fishing but did not relish the physical labor of poling a boat, and as early as 1779 he devised a successful mechanism to propel a boat by paddle-wheels, manually operated, which he and his companions used on their fishing excursions on the Conestoga Creek at Lancaster. Meanwhile his talent for painting developed, and at the age of seventeen he went to Philadelphia to seek his fortune. Here he remained four years, supporting himself by making portraits and miniatures as well as by making mechanical drawings and painting landscapes. He was really successful in this work, and was able to save enough money to purchase a small farm in Washington County, Pa., for his mother and her family, giving her a deed to the property. Working so intensely, however, he seriously undermined his health and was advised to go abroad, preferably to London where an old family friend, Benjamin West, had settled and become famous. Accordingly, in 1786, Fulton left the United States and did not return to his native land for twenty years.

He spent his first years abroad in London, supporting himself by painting but following closely all scientific and engineering discussion and developments. Friendships formed with the Duke of Bridgewater and Lord Stanhope led to many schemes for the promotion of the useful arts which so engrossed Fulton's every thought that after 1793 he painted only for amusement or relaxation. Following his residence in London, he spent some time in Devonshire and was then for at least eighteen months a resident of Birmingham, whither he is thought to have gone because of his interest in the Duke of Bridgewater's canal projects then under way between Birmingham and the sea. His full time and thought were now given to engineering projects for internal improvements and the devising of mechanical equipment of various sorts. In 1794 he was in correspondence with Boulton & Watt concerning the purchase of a suitable steam-engine for boat propulsion. That year he secured a British patent for what he called a "double inclined plane" for raising and lowering canal boats; and soon thereafter patented a machine for sawing marble, for which he afterward received the medal of the Society for the Encouragement of Arts, Commerce, and Manufacturing; as well as a machine for spinning flax and one for twisting hemp rope.

Although reaching out in many directions in an endeavor to solve industrial problems, Fulton's energies were directed chiefly toward the development of canal systems, and one of his most widely used inventions of this period was a

## Fulton

dredging-machine, or power shovel, for cutting canal channels. This was for a long time afterward a common machine in England. As his ideas on inland navigation matured, he wrote many essays, pamphlets, and letters upon all phases of the subject and sent them to persons who, he felt, could promote their advancement. In 1796 he published *A Treatise on the Improvement of Canal Navigation*, profusely illustrated by himself and containing drawings of many mechanical designs and even boats to show "the numerous advantages to be derived from small canals." He signed himself "Robert Fulton, Civil Engineer," which was the first formal announcement of his new occupation. Copies of this treatise were sent to Gen. Washington and the governor of Pennsylvania. It not only dealt with the practical contrivances for canals and the technicalities of his own inventions but also contained complete and accurate computations of all construction and operating costs. It contained, too, much argument and prophecy in regard to the economic and political advantages which would accrue to nations adopting great inland systems of canals.

That he was prepared to go further than the writing of treatises is well illustrated in his proposal for the construction of cast-iron aqueducts made in March 1796 to the Board of Agriculture of Great Britain. This contained complete plans and working drawings and involved the use of castings which could be "cast in the open sand" and erected with only the simplest and most inexpensive kind of staging. His plan required but few patterns, easily and cheaply made. One of these aqueducts was afterward erected over the Dee, twenty miles from Chester, consisting of eighteen spans of fifty-two feet, supported on pillars, the tallest of which in the middle of the valley was 126 feet high. The total length of the structure was about 300 yards, its width twenty feet, and its depth, six feet. Fulton also designed cast-iron bridge-structures for the carrying of roads across deep and wide valleys and inclined gradients. With all of his later proposals to the Board of Agriculture for these as well as for aqueducts he furnished complete detailed drawings and models and accurate computations of all costs. His double inclined plane invention of 1794, which is described in his canal treatise, was probably his most daring innovation. He proposed to take canal boats out of the canal and transport them overland by rail at certain parts of the route so as to avoid the high cost of construction in difficult country. Such inclined planes were actually built and found practicable in both England and the United States.

## Fulton

British interference with commerce during the European wars made of Fulton an avowed advocate of the freedom of the seas and led him to seek means of combating what he regarded as sea piracy, by whomever practised. He chose submarine warfare as the most effective weapon and for nine years, beginning in 1797, applied his energies and genius almost exclusively to the development of the submarine mine and torpedo. He was not in a financial position to undertake the necessary experiments alone, but believed that he might interest France sufficiently to gain her assistance. Accordingly, after preparing an essay on the general subject and forwarding it to the Directory, he repaired to Paris. Official France failed to recognize him immediately, but a fellow American, Joel Barlow [*q.v.*], residing in Paris, whom Fulton met on his arrival, became greatly interested and was his main financial support. His first experiments, made at Brest, were with a self-moving torpedo. The machine was intended to drive a cigar-shaped torpedo in a definite direction and to a predetermined place, there to fire a charge of gunpowder. The experiments were unsuccessful, however, and many months elapsed before Fulton could continue them, chiefly because of the lack of sufficient working capital.

Meanwhile, he obtained French patents for his several earlier inventions of canal equipment, and in order to support himself secured the adoption of his plans for the canal from Paris to Dieppe. He also painted in Paris what is thought to be the first panorama ever built. The subject was "l'Incendie de Moscou." A share in the admission fees yielded Fulton additional income. He also continued his submarine studies and finally, about 1799, obtained an audience with the French Directory only to have his plans summarily rejected. In 1800, however, Napoleon appointed a commission to examine thoroughly the schemes Fulton had in mind. Thus encouraged, he began experiments again, this time at Havre, and in the course of the winter of 1800-01 built a "diving boat," as he called it, which seems to have been remarkably successful. Accompanied by three mechanics he descended under water to depths of twenty-five feet. The depth was determined by the use of the barometer and the boat was directed by means of a compass. Fulton found that the boat steered as easily under water as above. Air was supplied to the occupants from a compressed air tank which enabled them to remain under water as long as four and a half hours. The performance of the *Nautilus*, as the boat was called, in its official trials before the French commission, was

## Fulton

all that could be desired, and on Feb. 28, 1801, the Minister of the Marines and Colonies, under instructions from Napoleon, made a proposal to Fulton to proceed against British ships. His remuneration was to be proportional to the size of the vessel destroyed, a thirty-cannon frigate to yield the maximum, 400,000 francs. Fulton spent the summer reconnoitering the coast with the *Nautilus* but failed to overtake a British ship and accordingly received no reward for his efforts or for any of his experimental expenses. After this failure the French were no longer interested in his schemes. Had Napoleon been a naval man rather than an artilleryman, Fulton's chances might have been better. The British meanwhile were by no means unaware of his experiments, for he still corresponded with his friends in England, and in 1803 the ministry, through a third party, made overtures to him, the result of which was that he agreed to discuss the character and applications of his invention and to demonstrate its practicability. The latter he tried to do in 1804 in an expedition against the French fleet in the harbor of Boulogne. Failure was again the result, caused by defective torpedoes. In spite of the fact that a year later, on Oct. 15, 1805, the value of his boat was proved by blowing up a heavy brig near Deal, England, British conservatism decided against the adoption of Fulton's invention and nothing came of his efforts. During the whole course of these experiments and negotiations Fulton had kept the United States officially informed of his activities, even though he did not believe that these inventions would be of immediate benefit to his native country.

He was greatly disappointed in his double failure with France and England, but was soothed somewhat by the revival of his interest in steamboats. This came about through a meeting with the newly appointed American minister to France, Robert R. Livingston [*q.v.*], who had been for a number of years deeply interested in steamboat developments in America and was still in possession of a monopoly granted by the New York legislature for the navigation of state waters by steamboats. The upshot of the meeting of these two men was that, while still experimenting with the *Nautilus*, Fulton entered into a legal agreement with Livingston, dated Oct. 10, 1802, to construct a steamboat for the purpose of navigating the Hudson River between New York and Albany. Livingston furnished the capital and Fulton applied his genius and energies to designing an experimental boat. By the early spring of 1803 the boat was completed and launched on the Seine, but the weight

## Fulton

of the machinery placed in it was too great and it broke in two and sank. By Aug. 9, 1803, however, a new and stronger hull was built, the machinery installed, including Joel Barlow's patented steam boiler, and before a large crowd of spectators including a select committee of the National Academy, the new boat was successfully launched and was propelled slowly by the force of steam against the current at a speed of about four and a half miles an hour. This was so encouraging to Fulton that a day or two later he mailed an order to Boulton & Watt of England for a steam-engine for use in the boat proposed to be built in New York. Livingston also secured an extension of his New York monopoly for twenty years from 1803. Some years before this Fulton had about made up his mind to return to the United States, primarily to do what he could to bring about the adoption of his canal plans and the general improvement of inland conditions. This determination was materially strengthened by his friendship with Livingston, the success of his steamboat trial, and finally the failure of both France and England to take up his submarine schemes. Fully two years elapsed, however, after he placed his order for a steam-engine before he could return to America. He still had hopes that the British could be made to appreciate his submarine inventions; he had to secure permission for the export of his engine, and to keep after Boulton & Watt to hurry the building of it. He used the time also to gather all the information that he could relative to steamboat developments in England and France. Finally, in October 1806, Fulton sailed for New York, arriving two months later.

While the *Clermont*, as his new steamboat was named, was under construction, Fulton publicly demonstrated in the presence of naval experts the effectiveness of his torpedo invention by blowing up a brig in New York harbor, July 20, 1807. The *Clermont* was built by Charles Brown, a well-known New York ship-builder. It was 133 feet long, seven feet deep, and eighteen feet broad, and was decked over for a short distance at bow and stern. Under Fulton's immediate direction the Watt steam-engine was placed in the forward part of the boat and left open to view. Back of it was installed the twenty-foot boiler set in brick-work and housed over. Two side paddle-wheels, fifteen feet in diameter, propelled the boat. On Aug. 17, 1807, the *Clermont* began her memorable voyage up the Hudson to Albany and return. The elapsed time for the round trip was five days, but the *Clermont* was actually under way only sixty-two hours,

## Fulton

the speed attained having been close to five miles an hour.

Until his death eight years later, Fulton was occupied with the establishment and management of steamboat lines, as well as with steamboat construction. The monopoly under which he operated caused many legal entanglements. Under his direction no fewer than seventeen steamboats, a torpedo-boat, and a ferryboat were constructed, after his designs and incorporating several patented details of both steam-engines and steam-vessels. At the time of his death a steamboat for the Russian government was in the process of building. While the War of 1812 was in progress, Fulton designed a steam war vessel in response to the demands of citizens of New York City for a means of harbor defense. The design was later submitted to Congress, which body after an investigation by naval experts authorized its construction in 1814. *Fulton the First*, as this vessel came to be known, was enormous for her period. The hull was double, like a catamaran, with a sixteen-foot paddle-wheel between the two parts, and was 156 feet long, fifty-six feet wide, and twenty feet deep. Her steam-engine cylinder was four feet in diameter and the engine stroke was five feet. Her armament consisted of thirty 32-pounders designed to discharge red-hot shot. Fulton did not live to see the boat in service. During these last years, too, he conducted many experiments on the firing of guns under water, which formed the foundation for subsequent developments.

"The grand achievement of Fulton was the direction of an enterprise which resulted in the production by Watt and his partners in Great Britain, and by Brown in New York, of a steamboat that could give commercial returns in its actual daily operation, and the institution of a 'line' of boats between New York and Albany, the success of which insured the introduction and continued operation of steam-vessels, with all the marvellous consequences of that great event. He was a prophet, inasmuch as he foresaw the outcome of this grand revolution, in which he was so active a participant and agent; and he was a statesman, in that he weighed justly and fully the enormous consequences of the introduction of steam navigation as an element of national greatness; but he has been recognized neither as prophet nor as statesman, both of which he was, but as the inventor of the steamboat—which he was not" (Thurston, *post*, pp. 48-49). Fulton married Harriet Livingston, the daughter of Walter Livingston, of "Teviotdale," Livingston Manor, N. Y., on Jan. 7, 1808, and died in New York at the age of fifty, sur-

## Fulton

vived by his widow and four children. He is buried in Old Trinity Churchyard, lower Broadway.

[C. D. Colden, *The Life of Fulton* (1817); Robt. H. Thurston, *Robt. Fulton* (1891); Alice C. Sutcliffe, *Robt. Fulton and the "Clermont"* (1909); H. W. Dickinson, *Robt. Fulton—Engineer and Artist—His Life and Works* (1913); W. B. Parsons, *Robt. Fulton and the Submarine* (1922); Geo. Iles, *Leading Am. Inventors* (1912); J. T. Lloyd, *Lloyd's Steamboat Directory* (1856); C. B. Todd, *Life and Letters of Joel Barlow* (1886); E. B. Livingston, *The Livingstons of Livingston Manor* (1910).] C. W. M.

**FULTON, ROBERT BURWELL** (Apr. 8, 1849–May 29, 1919), teacher, university executive, was born on a farm in Sumter County, Ala. His parents, William and Elizabeth K. (Frier-son) Fulton, devoted their resources principally to the education of their children. In his seventeenth year he entered the sophomore class in the University of Mississippi, from which institution he graduated in 1869 with first honors in a class of twenty-one. After teaching a short time in Alabama and in New Orleans, he returned to his alma mater in March 1871 as assistant in the department of physics and astronomy. He continued his studies until he received the degree of M.A. in 1873, and maintained connection with the institution for thirty-three years thereafter, becoming professor in 1875 and chancellor in 1892.

During his first year as the executive head of the University, he abolished the preparatory department and in 1893 he introduced a summer session. Through his efforts the endowment was substantially increased by congressional grant of 23,040 acres of land in 1894. He was chiefly responsible for the development of a system of affiliated high schools which soon resulted in doubling the number of students and instructors in the University, for the enlargement of the physical equipment, the extension of the curriculum, and the addition of three professional schools. Owing to his initiative, the National Association of State Universities was organized in 1896, and in recognition of this service he was annually elected president of the association until 1903. He was president of the Southern Educational Association (1899), three times head of its department of higher education, and once head of the same department in the National Education Association. When the Mississippi Historical Society was organized (1890), he became a charter member, and served as archivist and member of the executive committee until the Society turned over its archives to the state in order to induce the legislature to establish a state department of archives and history. Elected to the first board of trustees of this newly created

## Funk

department in 1902, he served upon it until his removal from Mississippi four years later. At the same time, he was an active member of a commission in charge of the geological survey of the state. Forced from the chancellorship in 1906 by Gov. Vardaman, after the dismissal of a student with powerful political influence, he became superintendent of the Miller School in Albemarle County, Va., where he remained until his final retirement on a Carnegie pension twelve years later. In 1871 he had married Annie Rose, daughter of Landon C. Garland [*q.v.*], an educator of distinction. Before her death in 1893 she bore him four sons and a daughter. On Apr. 2, 1903, he married Florence Thompson, a member of a prominent family in New Orleans. Fulton was a man of striking personality. He had a keen sense of humor and his conversation abounded in choice epigrams and apt anecdotes. He made his home in New York City during the last months of his life and was buried in Rock Creek Cemetery, Washington, D. C.

[Sketches of Fulton will be found in *Univ. of Miss. Mag.*, Apr. 1902, pp. 20–21; *Bull. of the Univ. of Miss.*, "Hist. Cat., 1849–1909" (June 1910); *Who's Who in America*, 1918–19; *N. Y. Times*, May 31, 1919. For a list of his writings, see T. M. Owen, "A Bibliography of Miss.," in *Ann. Report of the Am. Hist. Asso. for 1899*, I, 710–11.]

F. L. R.  
D. M.

**FUNK, ISAAC KAUFFMAN** (Sept. 10, 1839–Apr. 4, 1912), clergyman, publisher, editor, was born at Clifton, Ohio, of Holland-Swiss stock. His father, John Funk, was a Universalist, and his mother, Martha Kauffman, a Lutheran. Isaac was educated for the Lutheran ministry, graduating from Wittenberg College, Springfield, Ohio, in 1860, and from the theological department there in 1861. Ordained that same year, he began his ministry in Indiana and later held pastorates in Carey, Ohio, and in Brooklyn, N. Y., where he was pastor of St. Matthew's English Lutheran Church from 1865 to 1872. Upon resigning this charge, he traveled in Europe, Egypt, and Palestine. After his return, he engaged in editorial work on the *Christian Radical*, then published in Pittsburgh, Pa.

In October 1876 Funk started in business, with desk room at 21 Barclay St., New York. He began by supplying books, pictures, and sundry necessities to ministers, of whose needs he was well aware. To meet one of these he founded the *Metropolitan Pulpit*, an aid in sermonic themes and Biblical exegesis. Two years later he changed the name to the *Complete Preacher*, changing it again in 1878 to the *Preacher and Homiletic Monthly*, and finally in 1885 to the