

# The First Powerboats

## What You Know About the First Steamboats Is Most Likely All Wrong

By Dave Gerr, © 2013 Dave Gerr

*Jonathan Hull*

*With his paper skull;*

*Tried to make a machine*

*To go against the wind and tide,*

*But he, like an ass,*

*Couldn't bring it to pass*

*So at last was ashamed to be seen.*

A clock repairer by trade, Jonathan Hull was—for some reason—overcome with the desire to drive boats through the water by engine-power instead of the tried-and-true wind or muscle. Being a clock repairer, and paid no more than average working-man's wages, he had nothing like the funds required for what was—in the early 1700s—such an earth-shaking undertaking. Even though he somehow managed to wangle a patent on his concept from Caroline, Queen of Great Britain, money for such obvious nonsense was in short supply. Nevertheless, in December of 1736, Hull pressed ahead. He very sensibly reasoned that—with the huge, glacially slow steam machines of the day—it would be impractical to fit an engine in a boat for self propulsion. Instead, Hull planned on building a tug—a steam tug. Lack of money, prevented successful completion of his project, however. So it was that the doggerel verse came to be. Mechanics of the day usually wore disposable paper hats (as did Hull), hence the “paper skull.” Such derision haunted Hull till he died destitute in London. A hundred and fifty years later steam tugs were masters of harbors around the world.

### Robert Fulton . . . Well No

The fact is, that—back in school—your books probably told you that Robert Fulton and his *Clermont* was the first successful steamboat ever built. This would, of course, make her the first successful powerboat, period. The fact is, though, that these books are wrong.

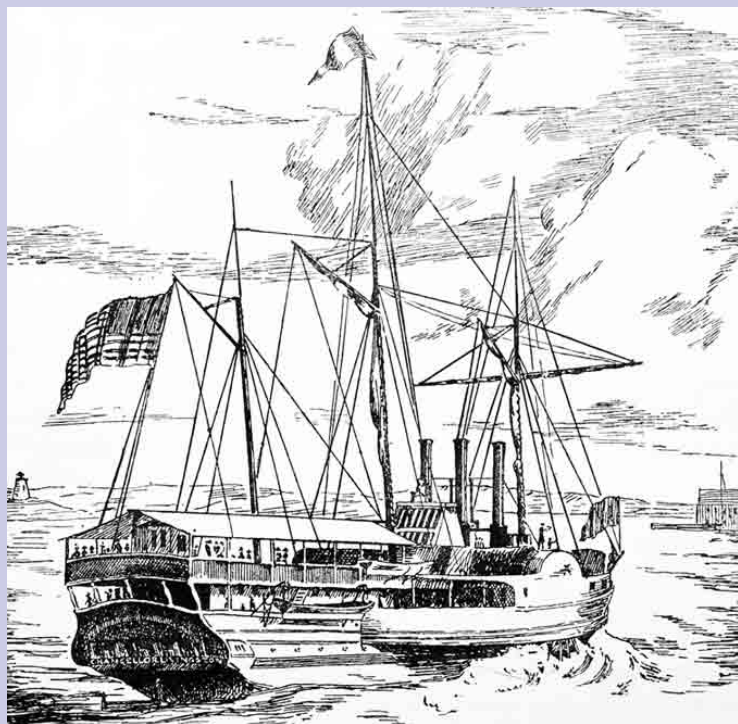
### Steam from a Marquis

Even before the unfortunate Mr. Hull, there had been serious attempts to build working steamboats, and the attempts continued. Some fifty years later a French Marquis—Claude Francois Dorothee, Marquis de Jouffroy, to be precise—caught the steam-power bug. Being a Marquis has its advantages, and de Jouffroy had the financial wherewithal to design and build a working boat. He named it the *Pyroscaphe* (literally heat boat), and built her in 1783. The illustration shows one of the original drawings de Jouffroy made for his *Pyroscaphe*. You can see that she's remarkably modern in basic concept. A slender hull powered by a pair of paddlewheels (side wheels), and driven off a single central steam engine. Forty-three feet long and 6 feet 4 inches wide, the *Pyroscaphe* was run successfully on the Saone, at Lyons.

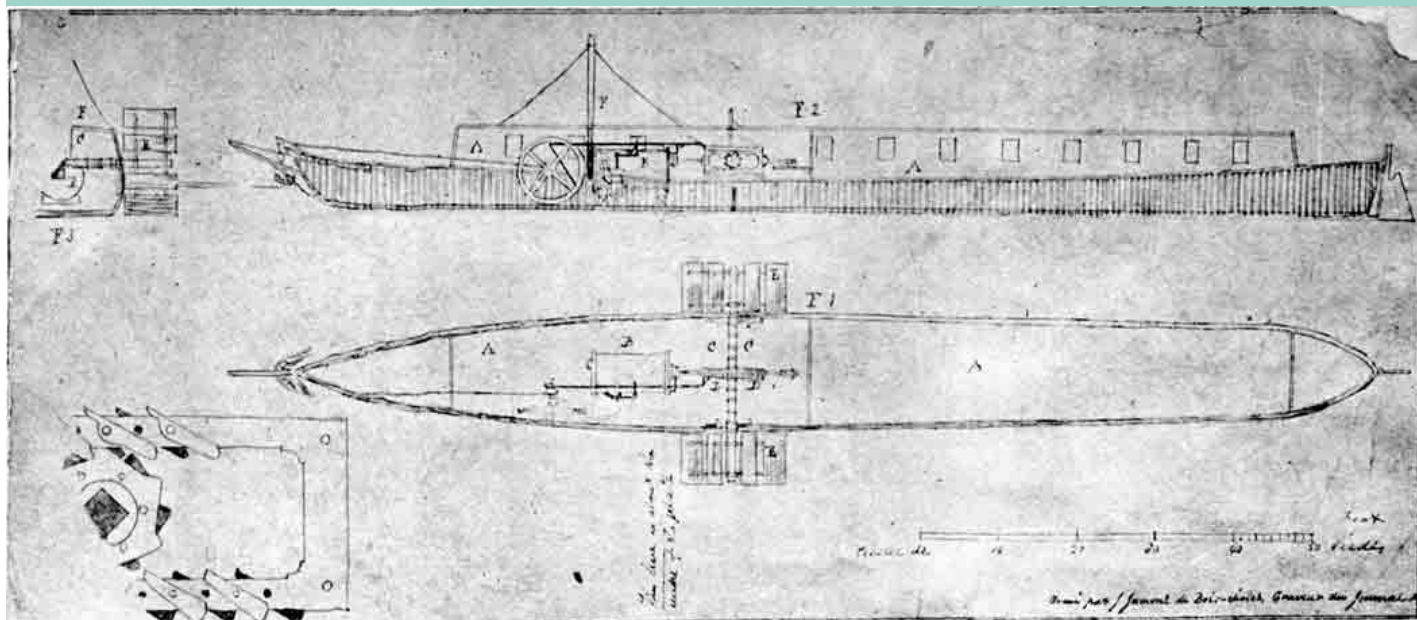
Thousands of spectators observed the trials, and local officials recorded the event. The French *Pyroscaphe* was the first successful, fully operational, self-propelled motorboat in the world. The drawing of her (above) is a real peek back into a forgotten history. Robert Fulton didn't get his *Clermont* going until twenty-four years later.

### A Failure for the Marquis

Indeed, de Jouffroy built a second steamboat in July 1783 that was 151 feet LOA and 14 feet 8 inches beam. This remarkable vessel carried freight and passengers against wind and current for sixteen months, between the ports of Lyons and Lile Barbe. Once again, there are thousands of eyewitness accounts and official records confirming de Jouffroy's triumph. At this moment, powerboats and steam navigation were all set to take off, when—as is all too often the case—bureaucracy stepped in. Our inventive Marquis applied to the government for permission to start a steamship company—really, in 1783! The government—acting as governments often do—passed the buck to the French Academy of Sciences for review. As luck would have it, one of the members of the board was Doctor Denis Papin. Papin was himself an unsuccessful steamboat tinkerer. Either because of his own failures or because of envy, he declared de Jouffroy's results inconclusive and recommended against the government license. So much for powerboats for a time.



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The world's first working powerboat: Claude Francois Dorothee, Marquis de Jouffroy's 1783 Pyroscaphe

### Cannon Boats

Of course, there was some good reason for skepticism. For one thing—until the *Pyroscaphe*—no one had ever succeeded in making any motor-propelled boat (and there had been many attempts). Second, the folks who dreamed up such ideas were often madder than fruit bats. One scheme for instance was to propel a boat forward by the recoil from a cannon. Talk about loud engines! The indefatigable Scotsman who dreamed up this approach actually tried it. After consuming some 30 barrels of gunpowder, the boat had barely made 10 miles. Rocket-propelled boats would remain unworkable for 300 years.

### America Takes a Whack at It

Wacky ideas, or skeptical bureaucrats notwithstanding, the tools were at hand and success had been achieved. It was now just a question of time. In fact, a fellow named James Rumsey—a former Revolutionary-War veteran, and a native of Maryland—purchased a large pond expressly for experimenting with steam navigation unhindered. Rumsey's boat was demonstrated successfully on the Potomac, in December 1787, just four years after de Jouffroy's successes in France. Not only did hundreds of witnesses confirm Rumsey's solid results, but no other than the esteemed General Horatio Gates attested to it in writing. (Surely you remember General Horatio Gates? No. Well, he was the Revolutionary-War general who defeated the British General Burgoyne. If it wasn't for Gates, American readers would probably still be paying for things with pockets full of pounds and pence.)

### Oared Steamers?

Rumsey's great rival was another American, John Fitch. Fitch tried paddle wheels on his steamboats, but found that they, "labored too much in the water." He replaced the paddlewheels with banks of independent steam-driven oars. As you can see from the drawing, an odder method of propulsion would be hard to conceive. Nevertheless, Fitch suc-

ceeded in persuading the states of New Jersey, New York, Delaware, Pennsylvania, and Virginia to grant him sole and exclusive rights to steam navigation on their waters. His first boat was launched, in Philadelphia, in 1787 (the same year as Rumsey's). Incredibly enough, it ran. Fitch built two other still larger boats, and one operated as a passenger boat from Burlington to Philadelphia at about 7 knots.

### Fitch's End

Now, Fitch was ready to roll. He built a still larger boat called the *Perseverance*. It would take advantage of his exclusive steam-vessel rights in Virginia by operating on the Ohio River. (The U.S. was divided up rather differently back then.) Storm damage kept the boat from being completed on time, and Fitch's exclusive state steaming rights were in default. This caused Fitch's financial backers to desert him, and dashed his dreams. Though Fitch traveled about and experimented with numerous boats—one even propeller driven, in New York City—no one paid much attention. Despondent, Fitch committed suicide by taking poison. His journal reads:

The day will come when some more powerful man will get fame and riches from my invention, but nobody will believe the poor John Fitch can do anything worthy of attention.

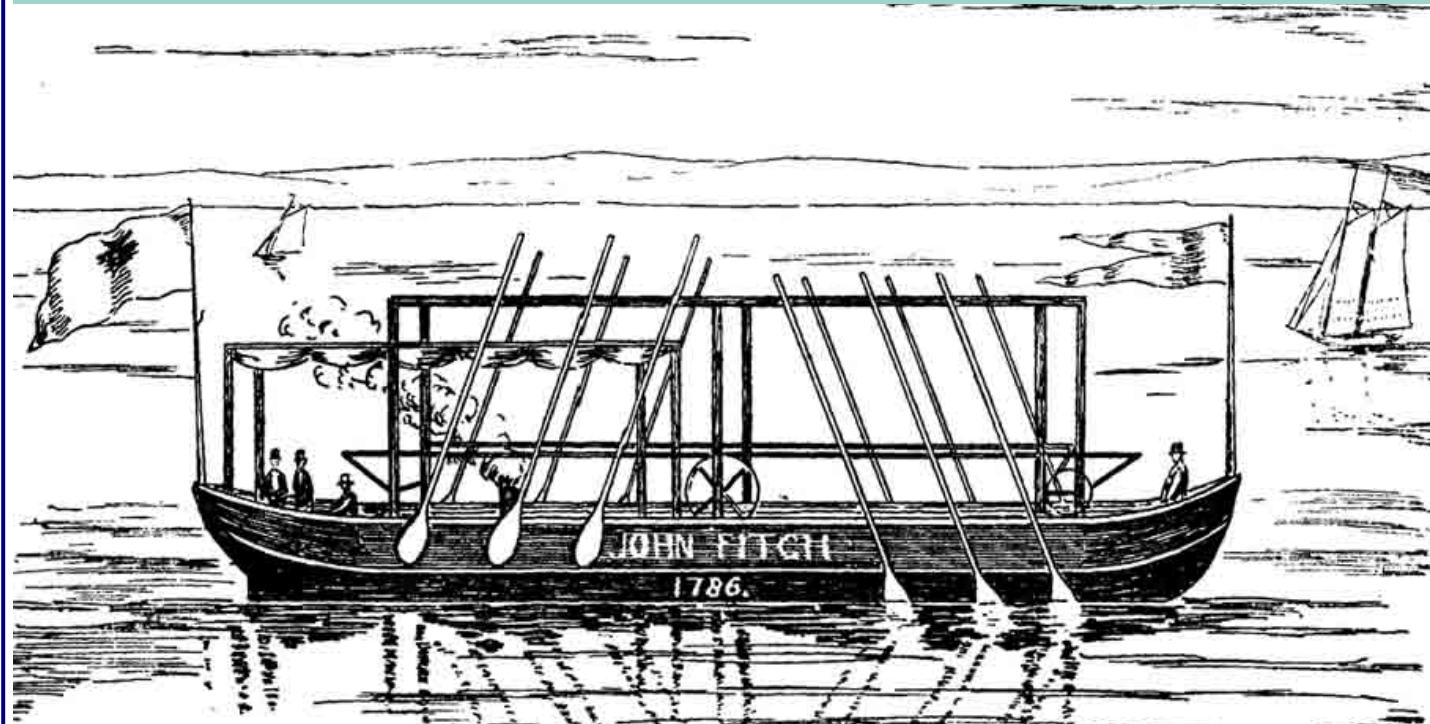
One has to sympathize with Fitch, but neither he nor anyone else in America could know that he'd been beaten out by almost a quarter of a century by the Marquis de Jouffroy.

### Stevens, Livingston, and Roosevelt

Not long after Fitch still another American inventor took up the case for powerboats. John Stevens, working with his brother in law, Chancellor R. Livingston, and a friend, Nicholas J. Roosevelt, set out to build a working steamer.

Livingston and Chancellor had made a trip, back in 1790, on

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John Fitch's steam-powered, 1786 oared powerboat.

still another experimental steamer built by Samuel Morey, and run on the Connecticut River. (Powerboat nuts were popping up everywhere.) Morey's odd boat had a single paddle wheel on the bow, and ran at the disappointing speed of 3.5 knots. Sevens, Chancellor and Roosevelt went on to build a couple of modestly successful boats of their own, when Livingston went off to France. Here, he met up with one Robert Fulton. But more about this in a bit.

### The Modern Powerboat

Stevens—now left more or less on his own—continued his efforts, and in 1804, he launched and ran the boat shown in the photograph. This is a truly remarkable boat. The photo (taken in the early 1860s) is of the first replica of the boat, and it shows the first fully modern powerboat. It's driven by a centrally located steam engine powering twin counter-rotating propellers. Yes indeed, in 1804 Stevens was propelling a powerboat with a modern screw propeller. You can see in the photo that these are almost exactly the same as today's standard props. You'd hardly look twice if you saw them on an old small tug hauled out in some boatyard. What's more, Sevens used twin counter-rotating props because he found that the single propeller had a tendency to drive the boat to one side (in circles), an effect only recently fully understood. Twenty-five feet overall, and 5 foot 6 inches beam, Steven's powerboat did a reliable 9 knots on the Hudson over 200 years ago! In every respect the modern powerboat was born. The engine of this boat is still at Steven Institute, in Hoboken, New Jersey.

### Robert Fulton at Last

Well then, what about Robert Fulton? It's a bit of a mystery as to why he and his *Clermont* usually get the credit as the first successful steamboat. The *Clermont* wasn't run until

1807, years after all the other boats mentioned so far. Still, Fulton was a successful inventor who had witnessed John Fitch's sea trials when he was a boy. Fulton met up with Livingston in France in 1801, and Livingston—as we've seen, already a steam enthusiast—had the kind of personal fortune needed to make a go of this sort of mania. By 1803, the pair had combined forces to build a 70-foot steamer. This boat broke in half from the weight of her heavy engine, but the machinery was salvaged, and she was rebuilt, but only made 4 knots.

### Clermont on the Hudson

In 1806, Fulton returned to the U.S., and with Roosevelt's backing, started building the now-famous *Clermont*. The drawing (next page) shows a general impression of her from a contemporary newspaper. Little more is definitely known, but the *Clermont* was about 150 feet LOA and 13 foot beam. She was rebuilt and strengthened several times early on to permit her to carry the weight of her engine safely. Eventually, she ended up at 16 feet beam. Thousands lined the Hudson on trial day to jeer at *Fulton's Folly*. Perhaps this is the key to Fulton's and the *Clermont's* fame. The incredulous multitude's jeers became cheers as the bizarre—for that time—*Clermont* powered her way up the Hudson at a stately 4 knots.

It's hard to recapture the amazement, shock, and even horror of the average man who first viewed this unfathomable development. Fishing boats scuttled back in to port. Unwary spectators gazed on transfixed in horror. One "honest countryman" ran home to tell his wife that he'd just seen: "the devil on his way to Albany in a sawmill." When the truth of the *Clermont's* purpose and triumph became known, however, the congratulations and jubilation were universal. All

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this fuss—right in the middle of the nation's largest port and major city—perhaps, overshadowed the earlier more successful and better-fitted-out powerboats, which had preceded her.

### Stevens and the Phoenix

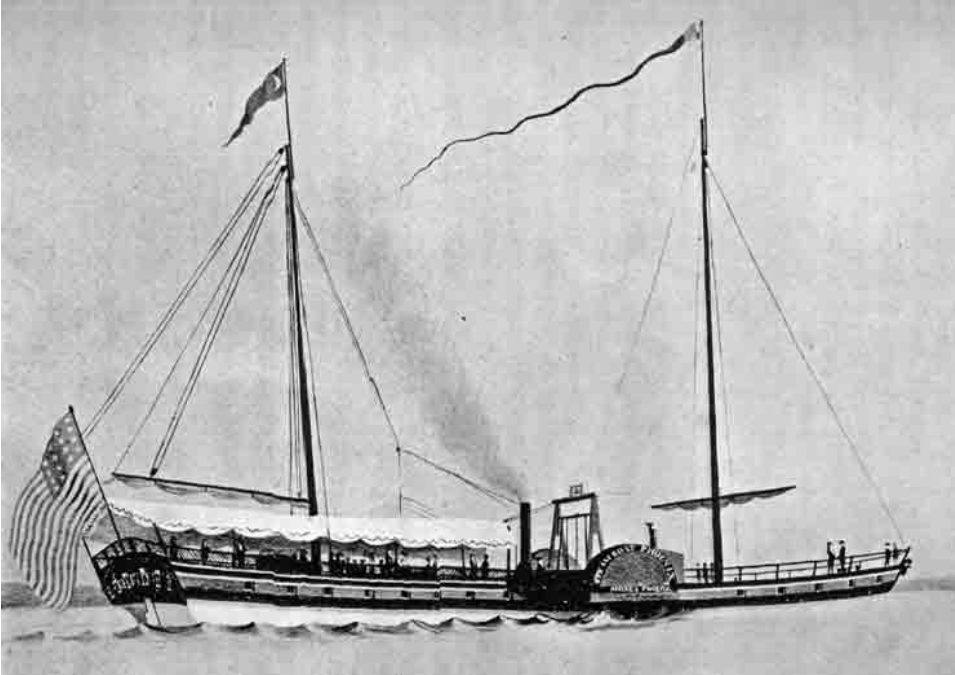
John Stevens, in fact, had—in the mean time—built a much larger boat, the *Phoenix*. As you can see from the picture, she was not only larger than the *Clermont*, but was faster and better conceived. Among other refinements, she had boxes or splash guards around her paddlewheels which the *Clermont* did not. The *Clermont* was a wet, wet boat on deck as the paddles threw a great deal of water. Still, Fulton and Livingston had beat out the passenger-carrying *Phoenix* by a few days and so obtained the exclusive steam-navigation license for New York. Undaunted, Stevens motored his *Phoenix* offshore and down to Delaware, where the boat served quite successfully commercially for six years. This was, incidentally, yet another first for Stevens—the first open-ocean passage by a powerboat.

### Turbine Speed

The rest of course is history. Steamboats continued to evolve, growing

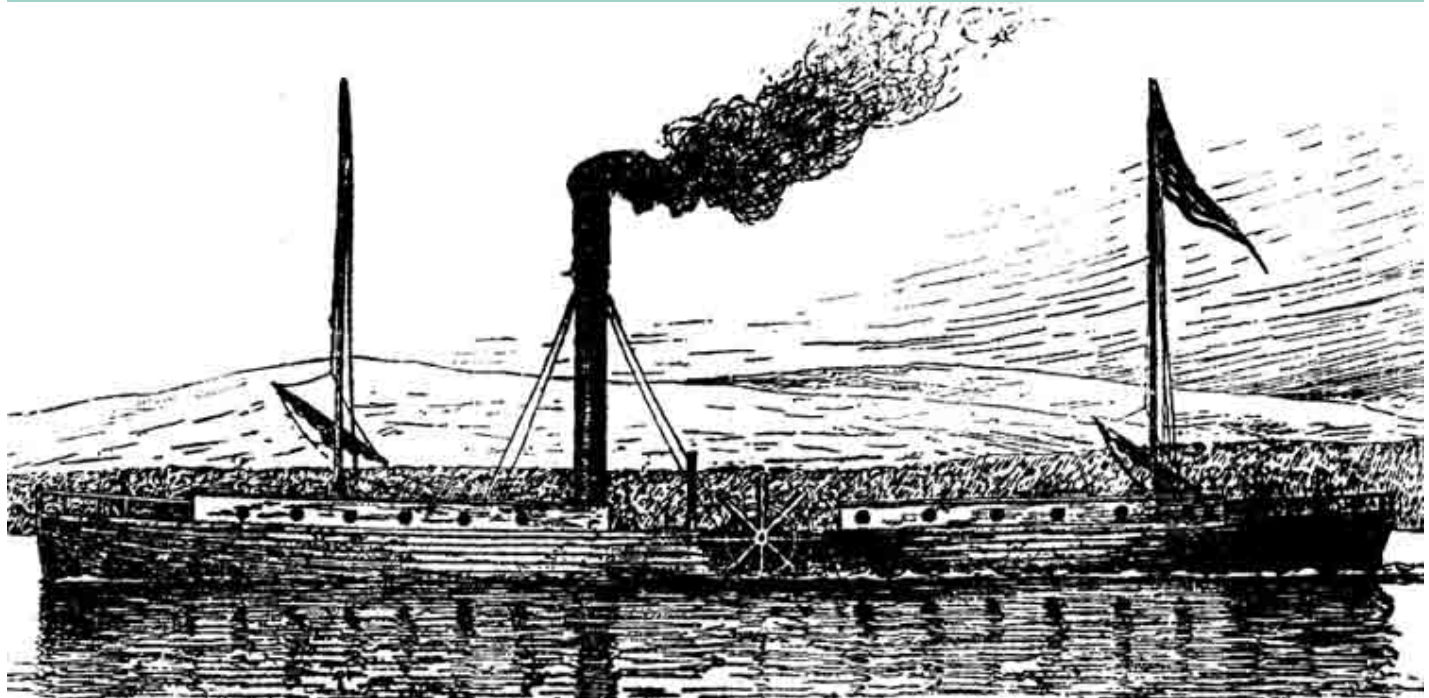


John Steven's 1804 steam-powered motorboat, with twin counter-rotating propellers.



John Steven's Phoenix

into ocean liners and cargo vessels of several hundred feet, and into fast patrol boats and yachts. Perhaps, the greatest of the early high-speed boats was *Turbinia* (photo next page). Designed by Sir Charles Parsons, and built in 1894, *Turbinia* was 103-feet 9-inches overall, an amazingly narrow 9-foot beam, and displaced 44.5 tons. After adjustments and propeller redesign, she did 32.76 knots in 1897, making her the fastest boat in the world and the fastest boat in history to that time. She was powered by a 2,100-hp steam turbine. Her engine turned three prop shafts, each fitted with three propellers. (The steam turbine engine was the first of its kind in a

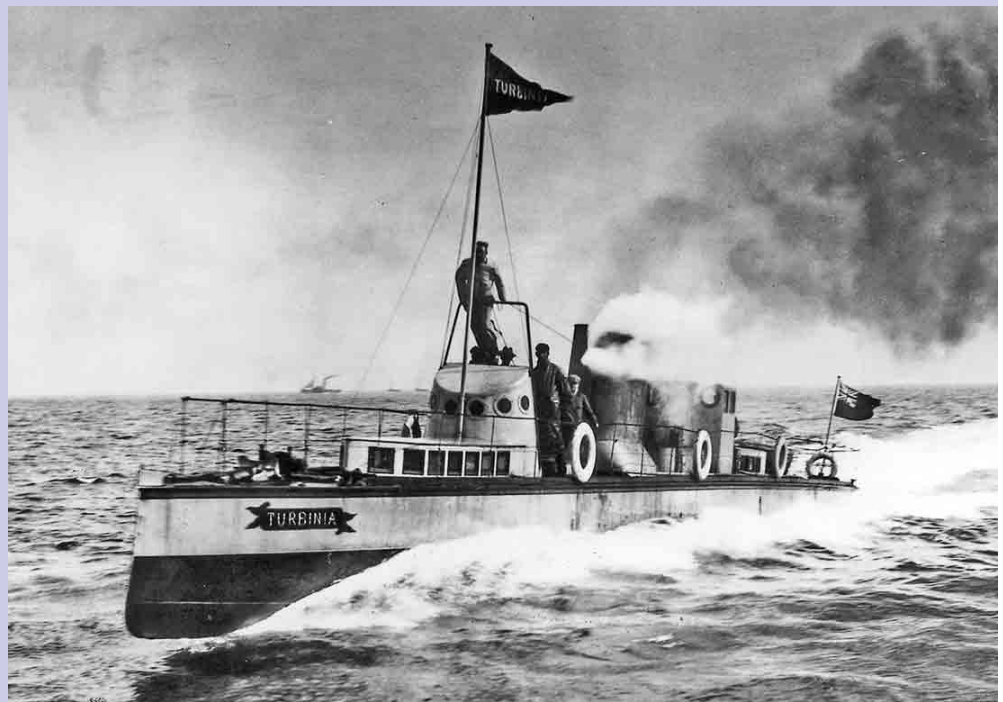
*The First Powerboats - continued*Robert Fulton's *Clermont*

boat, hence her name).

Speed-length ratio works out to 3.5 (supposedly planing, but not fully the case for this ultra-narrow round-bilge hull).

**Internal Combustion Wins Out**

As light and powerful as *Turbinia's* steam turbine was, it couldn't compete with the new internal combustion engine. Not long after *Turbinia*, triumph, the internal combustion engine started to grow markedly lighter and more compact. Since the heat of the fuel combustion is all released inside the cylinder, there's much less heat loss than in steam engines, which burn their fuel outside the cylinders in an external boiler. The means fundamentally greater efficiency for internal combustion, and the steam-engine's days as the principle marine powerplant were numbered. Nevertheless, your boat is driven by a powerplant and drivetrain first worked out over two hundred years ago. If any one man can be said to have gotten it all right first it would be John Stevens, who lived and worked near New York City, on the banks of the Hudson.



Sir Charles Parsons's *Turbinia*, the fastest boat in the world and the fastest boat in history in 1897

Photo: G. West and Son, Southsea