# Abraham Lincoln, Technologist

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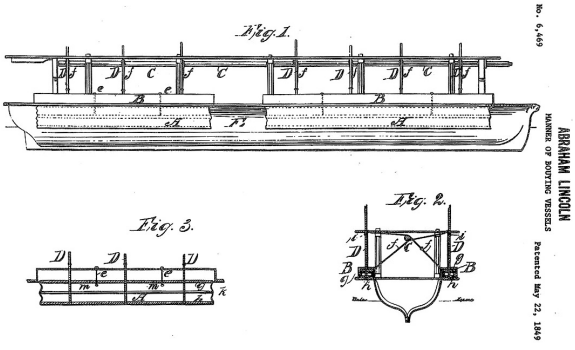


*Wikipedia* [2]

I thought there was nothing new we could learn about Abraham Lincoln, but I see I was quite mistaken after reading Sidney Blumenthal's article, "Abraham Lincoln, Tech Entrepreneur" ([1]).

In the current oppressive anti-science climate it is important to look back at our history and see how integral scientific thinking was to our founding and development. Not only were our Founding Fathers scientists, such as Jefferson and Franklin who with others founded the American Philosophical Society in 1743, but it turns out that President Abraham Lincoln could also lay claim to a scientific mind. Blumenthal's article describes in detail how Lincoln employed science to advance the development of our country. You should read the entire article, but I am including some highlights.

The president who created the National Academy of Sciences in 1863, Abraham Lincoln, did more to advance the scientific revolution in American life than any chief executive of the 19th century. … Lincoln's commitment to science was central to his rise, who he became, how he won the Civil War, and to the United States becoming a modern nation. …

In the early fall of 1848, an obscure, one-term congressman from Illinois campaigned throughout New England for the Whig Party ticket. "Yes," Abraham Lincoln recalled later when he was in the White House, "I had been chosen to Congress then from the wild West, and with hayseed in my hair I went to Massachusetts, the most cultured state in the Union, to take a few lessons in deportment." …

On Lincoln's way home, steaming through the Great Lakes, his boat became stuck on a sandbar. The captain lashed empty barrels to its side to buoy it over the barrier. Lincoln's mind remained fixed on the problem and once he returned to Springfield he enlisted mechanic and Whig activist, Walter Davis, whose shop was near his law office, to help him whittle a wooden model to illustrate his invention for raising ships above sandbars. Carefully carrying the model to Washington, Lincoln

**Figure 1 Patent Model of Abraham Lincoln's invention at Smithsonian Institution (*Wikipedia* [2])**

presented it to the Patent Office. “Be it known that I, Abraham Lincoln, of Springfield, in the county of Sangamon, in the state of Illinois, have invented a new and improved manner of combining adjustable buoyant air chambers with a steam boat or other vessel for the purpose of enabling their draught of water, without discharging their cargoes.” He was granted a patent, number 6469, on May 22, 1849, the only one ever held by a president, but no steamboat builder ever sought its application. Lincoln’s intricate design for clear sailing was stored to gather dust. …

Lincoln had an intense interest in how things worked—not only politics and the law, but also science and inventions. His friend and former Illinois state legislator Joe Gillespie observed that Lincoln “was less given to pure abstraction than most thoughtful and investigating minds. I should say that he was contemplative rather than speculative. He wanted something solid to rest upon and hence his bias for mathematics and the physical sciences. I think he bestowed more attention to them than upon metaphysical speculations. …”

Lincoln attributed the emergence of the idea of equality to the diffusion of scientific progress. “It is very probable—almost certain—that the great mass of men, at that time, were utterly unconscious, that their conditions, or their minds were capable of improvement,” he said.

“They not only looked upon the educated few as superior beings; but they supposed themselves to be naturally incapable of rising to equality. To emancipate the mind from this false and under estimate of itself, is the great task which printing came into the world to perform. …

Having only attended a backwoods “blab” school for a short session, he always felt his education rudimentary. “Education defective. Profession, a lawyer,” he wrote in his first autobiography. On the circuit, the traveling lawyers shared rooms. Late at night, while the others slept, Lincoln read the books of Euclid by candlelight. He had some knowledge of geometry from his days as a young surveyor, one of his earliest jobs. “He studied and nearly mastered the six books of Euclid since he was a member of Congress,” Lincoln wrote in another brief autobiography. “He regrets his want of education, and does what he can to supply the want.”

“In the course of my law reading I constantly came upon the word ‘demonstrate,’” Lincoln told an interviewer in 1860. “I thought, at first, that I understood its meaning but soon became satisfied that I did not…At last, I said, ‘Lincoln, you can never make a lawyer if you do not understand what ‘demonstrate’ means.” By studying Euclid, “I then found out what ‘demonstrate’ means.”

Case by case, he honed his logical skill sharpening each point with fact. And he applied that logic to the greatest case of his time. … He defied anyone to “demonstrate…the right of one man to make a slave of another without any right in that other, or anyone else, to object—demonstrate it as Euclid demonstrated propositions…” And to what ruling in what case was Lincoln referring? It was to the case of Dred Scott, a slave who sued for his freedom, whose case was denied in 1857 by the Supreme Court on the grounds that the supposed original intent of the founders was that blacks were “so far inferior that they had no rights which the white man was bound to respect.” …

The man of scientific advancement was responsible for a great leap in the industrial revolution and in technological innovation, chartered the National Academy of Sciences, and created the first system of modern, scientifically-based agriculture in the world through the establishment of land grant colleges. Lincoln personally approved the most significant projects down to test-firing rifles that would prove decisive on the Gettysburg battlefield. The technological foundations that Lincoln laid were the basis of the explosive growth in manufacturing that soon made the U.S. the world leader.

How did the U.S. under Lincoln win the Civil War? Certainly, it required his political genius. Then, it took four years for him to find General Grant. But there was something else that was central.

It was Lincoln's deep commitment to technological breakthrough and his understanding that the advancement of science was intrinsic to progress and a larger emancipation. One statistic tells the story. During the war, Lincoln's government issued more than 30,000 patents while the Confederacy only issued 266.

Lincoln first saw a telegraph work in 1857 in a hotel lobby in Pekin, Illinois … By May of 1862, Lincoln had built the telegraph office inside the War Department next to the White House and commissioned the U.S. Telegraph Service. It was the first Situation Room and the first branch of the U.S. government based on electronics. Lincoln virtually moved into the telegraph office, monitored the movements of the armies in real time, communicated directly with generals, and projected himself into tactics and strategy. … For Lincoln, the telegraph was a revolutionary tool. …

Throughout the war Lincoln frequently sought the advice of Dr. Joseph Henry, the first secretary of the Smithsonian Institution, the nation's leading scientific center. … Dr. Henry introduced Lincoln to Professor Thaddeus Lowe, who was experimenting with balloons to determine the weather. … He also wrote a memo about how military intelligence could be conducted by balloons from which more than twenty miles of countryside could be observed. Lincoln commissioned Professor Lowe to head the U.S. Army Balloon Corps, the first air force anywhere in the world. On June 16, 1861, Lowe ascended 500 above the Independence Mall in Washington near the Smithsonian with a telegraph wire running to the ground and then trailing all the way to the White House. "I have pleasure in sending you this first dispatch ever telegraphed from an aerial station," Lowe tapped out in Morse code to Lincoln. …

Lincoln's most fateful intervention into the development of technology, with the most far reaching consequences, arose around the invention of a new type of warship. The Confederates salvaged a scuttled U.S. warship, the Merrimack, and refitted it with armored plate, as the first ironclad warship, renamed the Virginia. Learning about the Confederate progress in building the Virginia, Secretary of the Navy Gideon Welles, who Lincoln dubbed "Father Neptune," called for designs for a U.S. ironclad. One of those producing a model was an inventor, John Ericsson, who had designed the navy's first screw-propelled ship, the Princeton. …

On March 8, 1862, the Virginia steamed out into Chesapeake Bay at Norfolk, destroyed two U.S. frigates, and ran another aground, the worst defeat in the history of the U.S. Navy until Pearl Harbor. The next day, Secretary of War Stanton, who Lincoln dubbed "Old Mars," ran to the White House in a panic. He shrieked that the Virginia would burn Washington and bombard Philadelphia and New York. "I have no doubt that this minute the monster is on its way to Washington," Stanton said. He sent messages to the governors that their ports would soon be under attack from the unstoppable menace. But at the very moment that Stanton was issuing apocalyptic warnings, a low-slung, flat bottomed ironclad with a moveable turret following Ericsson's design steamed out into the water to meet the Confederate behemoth. The engagement of the Monitor and the Merrimack, or the Virginia, in the Battle of Hampton Roads, ended in a draw, but really a defeat for the Virginia, which was now neutralized. Two months later, when Union forces captured Norfolk, its crew blew it up.

The launching of the Monitor was the beginning of mass production of its prototype. The Monitor itself had included at least 40 new patents. To manufacture more demanded revolutions in technology, metallurgy, fabrication, spare parts, specialized skills, and a new system of military contracting. More than 84 ironclads were constructed, 64 of which were of the Monitor class. According to the naval historian Craig Symonds, the Ironclad Board and Monitor system "allowed the nation to develop what economists call the second stage of a modern industrial system."

So it was that a patent lawyer and inventor from Illinois won the war and created a modern nation. Lincoln's intense quest for knowledge, his insistence on hard facts and evidence, his respect for science and the scientific method, and his inquisitiveness about how things really worked never

faltered. At the height of his power, he still had the same curiosity he had always had when he was arguing patent cases.

# References


[1] Blumenthal, Sidney, "Abraham Lincoln, Tech Entrepreneur", *Washington Monthly*, July 17, 2020 (https://washingtonmonthly.com/2020/07/17/abraham-lincoln-tech-entrepreneur/, retrieved 7/17/2020)

Sidney Blumenthal is the author of *All the Powers of Earth, The Political Life of Abraham Lincoln 1856-1860, A Self-Made Man*, and *Wrestling with His Angel*, the first three volumes in his five-volume biography. He is a former assistant and senior adviser to President Bill Clinton and senior adviser to Hillary Clinton. He has been a national staff reporter for the Washington Post, Washington editor and writer for the New Yorker, and a contributor to the Washington Monthly.

[2] "Abraham Lincoln's Patent", *Wikipedia* (https://en.wikipedia.org/wiki/Abraham_Lincoln%27s_patent, retrieved 7/17/2020)