

Chapter One



Submarine Armor (1820s–1840)

The founding father of American underwater exploration, William Hannis Taylor, began his career as a pirate. It was a label he desperately protested. It was also a term that investors in his later career probably used in a more figurative sense. However, the literal accusation came first: in December, 1828, Captain Daniel Turner of the United States Navy's sloop-of-war USS *Erie* was convinced that twenty-one-year-old Taylor was guilty of piracy. Taylor's ship, the schooner *Federal*, was seized by Captain Turner near St. Barts in the Caribbean and Taylor was taken into custody. At about the same time, naval vessels of other European powers also seized suspect ships in the Caribbean and accused them of the same high crime. As Taylor sat in confinement on the USS *Erie*, the punishment he faced was the same as that meted out to many of those other accused marauders—death by hanging.

Taylor's defense was that he had been acting as a privateer captain serving the government of the United Provinces of the Río de la Plata, now known as Argentina. Taylor carried letters of marque from that government authorizing him to seize ships belonging to—or carrying cargos owned by—the Provinces' declared enemy, the Empire of Brazil. Taylor's voyage that ended abruptly in St. Barts had begun in the port of Buenos Aires. He had left there hastily on the eve of ratification of a peace treaty between the Empire of Brazil and the United Provinces.

The treaty had already been negotiated and announced, and effectively meant an end to Taylor's legitimacy as a privateer. Leaving Buenos Aires hours before the formal ratification gave him the excuse of not having received notice to desist raiding. Communication of orders still depended on news traveling via ship, so this excuse left Taylor several weeks to continue to take prizes. His detractors suggested Taylor set sail with no intent to ever return to Argentina with any of those prizes, but instead had meant to head north with the objective of plundering as much as he could before returning home to New Bern, North Carolina.¹

At that time, privateering was an accepted occupation for American mariners. It held several attractions: the romance of travel to distant lands, the glory of battle, the prospect of easy riches, and the opportunity to serve as a senior officer without the years of service usually required for promotion. Some privateers may have even pursued a Byronic idealism in fighting for fledgling democracies. While in service to the United Provinces, Taylor's commander was Commodore George DeKay, another young American with many connections to New York City's literary community. DeKay would go on to be hailed as a great humanitarian for his actions later in life. Taylor's later activities suggest that decidedly less noble motivations led him to become a privateer.

Fortunately for the accused pirate, Captain Turner of the USS *Erie* had made some glaring procedural missteps in seizing Taylor and the *Federal*. The island of St. Barts was at that time a colony of Sweden. When Turner found Taylor's ship *Federal* at St. Barts, Taylor had already unloaded some freight from the ship he had seized. Unloading the cargo, instead of delivering the entire ship and its contents back to the United Provinces, was a violation of customary international law. Captain Turner contacted the colonial officials at St. Barts and demanded that Taylor and his ship be turned over to him. The local officials did not comply, asking for proof of the crime. Turner suspected the local officials were in business together with the privateers, and were intentionally stalling. Pressed for time and conscious of his orders to seize privateers, Turner decided to act without the consent of the colonial

council. He was not an inexperienced officer; in fact he had been a hero of the Battle of Lake Erie in 1813. On his own initiative, Turner decided to commandeer the *Federal* and seize Taylor. At one point the USS *Erie* was fired upon by the colonial St. Barts harbor defenses, but Turner wisely refused to return fire.

The Swedish government, as might be expected, protested Captain Turner's violation of their sovereignty. Turner's other miscalculation was trusting the assurances of his captive. While detained, Taylor argued that he needed to retrieve the letters of marque that would be crucial to his defense in any court or tribunal. After Turner granted his release to retrieve those papers, Taylor disappeared and never returned to custody. A couple of weeks later, Taylor materialized back at his home in North Carolina, where he immediately let it be known that he would be heading straight to Washington, D.C., to protest the actions of Captain Turner.² In Washington, a court of inquiry was convened, and no less an authority than President Andrew Jackson—mindful of the need for good relations with Sweden—concluded that Captain Turner had overstepped his authority. Taylor returned to North Carolina a man vindicated on principle, but one who had lost his ship, the *Federal*. On the plus side, he had narrowly escaped the hangman, and he had observed something while marauding in the Caribbean that he thought might prove more profitable than privateering. What he saw were pearl divers.³



No one in the year 1828 would have called pearl diving a promising field of endeavor. The pearl industry in the Caribbean had been in a long decline, leaving an infamous legacy of human exploitation and ecological damage. During the heyday of the Spanish Empire in the New World in the sixteenth and seventeenth centuries, pearl-fishing operations flourished, and bushels of the oyster gems were delivered to Old World treasuries. The work of harvesting was done first by

coerced native labor, and later, after that labor source was exhausted, by imported slaves from Africa and other colonies. It was dangerous work with a high mortality rate.

Soon after pearl harvesting was set up on an industrial scale, divers were forced to move into deeper depths to find untouched oyster beds. As depths increased, so did the dangers. Free-diving pearl gatherers risked burst eardrums, jellyfish stings, hypothermia, eye damage from prolonged exposure to salt water, and drowning from shallow- and deep-water blackout. The greatest risk—and source of countless horror tales—was of shark attacks.⁴

During the early 1830s, Taylor mulled over the physical dangers and limitations of free diving and considered the possibility of employing an assisted-breathing diving apparatus. The concept was thousands of years old, and had been realized to some degree by diving bells. However, diving bells required large ships and support personnel, and were less than practical for pearl harvesting. In the 1820s, English brothers Charles and John Deane invented a helmet into which air could be pumped; the device was initially developed for use by firefighters. By the early 1830s, the Deanes had adapted their design for use under water. Aided by another engineer, Augustus Siebe, they fitted the helmet to a waterproof body suit and added a valve to the exhaust outlet, which proved to be the most critical feature. By 1836, the Deane diving dress was being marketed to the public.

One year later, in 1837, Taylor published a booklet titled *A New and Alluring Source of Enterprise in the Treasures of the Sea, and the Means of Gathering Them*.⁵ In it, Taylor made references to the Deane apparatus. Whether he had seen or tried to obtain a Deane suit is not known, but later that year, he submitted his own diving-suit design to the U.S. Patent Office. When one newspaper writer suggested that he had copied the English efforts, he wrote a prompt reply to refute that assertion: “the one [diving dress design] established by me in New York is of entirely different principle and construction, and has never been known until used by me in New York.”⁶ Taylor’s patent draw-

ing suggested a cylindrical helmet that was different from, but not as strong as, the Deane and Siebe rounded design. Aside from the helmet, the major difference was that in Taylor's version, the arms, legs, and entire torso were covered by protective hoops of plate metal; in the Deane and Siebe design, only the upper shoulders and neck were encased by metal. Taylor called his outfit "submarine armor," a name that persisted for decades, even after most of the metal sheet covering had been abandoned in favor of an outer layer of duck canvas. Taylor devised the protective armor plating for the purpose he had in mind: pearl harvesting in shark-infested waters.

Taylor first tested his submarine armor in August, 1837, in the waters of the Hudson River "a few miles above the city."⁷ The exact location is not known, but the widening of the river at Haverstraw Bay and the Tappan Zee would have provided gentler currents. He not only publicized the test, but invited newsman James W. Hale of the Tontine News Room to try out the equipment. The account of this demonstration clearly stated that Taylor's aim was to prepare for a pearl-fishing venture.⁸ Therefore the initial public displays of his patent-pending equipment were not intended to garner investors to set up manufacture of the diving apparatus; rather, they were meant to attract investors in an expedition to South America.

Since only a handful of people could witness a shipboard demonstration, two months later Taylor brought his diving dress to a large wooden vat set up in New York City's leading entertainment venue, Niblo's Garden. He descended into the water and stayed down for part of an hour, "much to the amusement of a large number of spectators."⁹ After a few more demonstrations, Taylor's associates convinced him that it would be easier to attract investors to a local manufacturing venture than to a fishing expedition thousands of miles away.¹⁰ Moreover, pearl harvesting in territorial waters required the cooperation of the host country, and offered no long-term stable income. And so, in January of 1838, a notice appeared in newspaper classified sections announcing the formation of the New York Sub-Marine Armour Company.¹¹

It appears that one of William Hannis Taylor's associates, a man named George W. Taylor (not directly related to W. H. Taylor), took the lead in pursuing the manufacturing business.¹² George Taylor had signed as a witness to W. H. Taylor's patent application, but his background, other than claiming New Jersey as his birthplace, remains a mystery. George W. Taylor realized that selling submarine armor to wrecking companies—and investing in specific ad hoc salvage operations—offered better business prospects than pearl harvesting. Consequently, in June of 1838, the Taylors personally began cargo-recovery operations on America's two most recent, infamous shipwrecks, the sailing ships *Bristol* and *Mexico*, both of which foundered near Rockaway Beach, Long Island, with heavy loss of life. These two wrecks had shocked the American public in 1836–37, a fact that the Taylors must have realized would help advertise their recovery efforts. They were able to recover some metal bar freight—enough to cover their expenses and provide a small profit—but publicity was their ulterior motive.¹³

At about the same time, the Taylors added a new selling point to their marketing efforts: the ability to place and detonate underwater explosives. The brilliant British military engineer, General Sir Charles William Pasley, had already used divers to accomplish this feat. Wrecked ships stuck in sandy or muddy seabeds often could not be freed without blasting away the sediment that trapped them. Once again, it is not known whether the Taylors copied the idea from the English or developed it independently, but staged explosions soon became a staple of their submarine armor demonstrations. William H. Taylor's restless mind turned toward experimenting with the use of electric batteries to detonate the explosives as an alternative to unreliable waterproof fuse lines.

Later in 1838, the Taylors headed south to Florida in an effort to open a new market for their wares: the U.S. government. To promote the military value of their equipment, they offered to demonstrate the raising of a private launch that had been sunk in the St. Johns River during the Second Seminole War. They arrived first in St. Augustine and offered the public their standard diving and detonation show.¹⁴ However,

William H. Taylor also showed off a small engine powered by galvanic cells—one of the first electric-battery motors ever invented.¹⁵ Taylor's mind must have raced with the possibilities of that motor; after this Florida salvage operation, he left partner George W. Taylor in charge of the diving business. By the next year, William Hannis Taylor was exhibiting his electric motor in European engineering competitions, and vowed that he would only return to America “by lightning”—that is, in an electric-powered ship.¹⁶ With William Taylor off the stage, George W. Taylor then inherited the role of America's foremost diving entrepreneur. The new “Captain Taylor” never publicly mentioned William H. Taylor again, and did not correct news reports that ascribed the invention of the Taylor submarine armor to him rather than W. H. Taylor.

From 1839 through 1841, George W. Taylor traveled up and down the Atlantic coast conducting more demonstrations and recruiting local dealers to sell the submarine armor. He quickly became the first person people thought to contact whenever there was a horrific shipwreck. Therefore, when the luxurious, state-of-the-art passenger steamer *Lexington* caught fire and sank in Long Island Sound in January, 1840, Taylor was called in to help recover bodies trapped in cabins and packages of money belonging to Harnden's Express.¹⁷ Adolph Harnden, one of two brothers involved in the express business, perished on the *Lexington*. James W. Hale, the news agent who in 1837 had been one of the first persons to try Taylor's submarine armor, was an associate of the Harndens. It is likely that Hale urged the surviving brother, William F. Harnden, to bring Taylor in to explore the wreck of the *Lexington*.

Taylor reported that he found the wreck at a depth of 114 feet, which was far deeper than any of his previously recorded dives. He was able to recover a piece of the boat with metal attached, but otherwise was not able to make progress while operating at that depth.¹⁸ A few years of experience informed Taylor that wrecks seldom took place in optimal diving locations for his apparatus: they were sunk too deep, or in powerful currents, or encased in sediment. What he needed was a showcase shipwreck in shallower, calmer waters.