

engaged in ship-building and repairing, and through the encouragement and patronage of some of the largest shippers, in whose employ he had been, he continued the business successfully through several years, and in 1853 he organized the Long Island City Marine Railway Company, with a capital of \$80,000, and was the managing director and superintendent. This railway was of sufficient capacity to take up the largest North River and Sound steamboats. In 1859 he organized the New York Submarine Engineering Company, capital \$50,000, of which he was a director and superintendent, and commenced the reduction of Coenties Reef and other rocky obstructions, and wrecks which interfered with navigation.

After the breaking out of the civil war, in Dec., 1861, both the War and Navy Departments applied to the last-named company to aid them with their skill and experience in placing and clearing obstructions under water. Mr. Hayden and Prof. Maillefert responded, and reported to General Burnside at Annapolis, and accompanied the Burnside expedition to North Carolina; were present and participated in the capture of Roanoke Island, and also Newbern, demolishing the channel barricades of the Neuse River; also rendering important service at the reduction of Fort Macon. He next accompanied a force of 8,000 men under General Reno to obstruct the Dismal Swamp Canal by blowing in the locks. An engagement with the Confederates, occurring at South Mills, precipitated the evacuation of Norfolk and the destruction of the rebel ram Merrimac. He was next ordered to proceed, under the protection of the gunboats, to the mouth of the Albemarle and Currituck Canal, and thoroughly obstruct it, which was accomplished by mining and blowing in the banks and filling with a net-work of trees. News of the occupation of Norfolk by the Union forces having reached General Burnside, Mr. Hayden was ordered to clear out all obstructions from the canals and other channels in the direction of Norfolk, for the passage of our fleet. This was accomplished with great dispatch by the free use of submarine blasts and a working force of contrabands. At Coin Jock Bridge a plot was laid by the enemy for his capture, but it was discovered by his corporal and handsomely defeated.

Mr. Hayden remained in this service until Nov., 1862, sometimes in