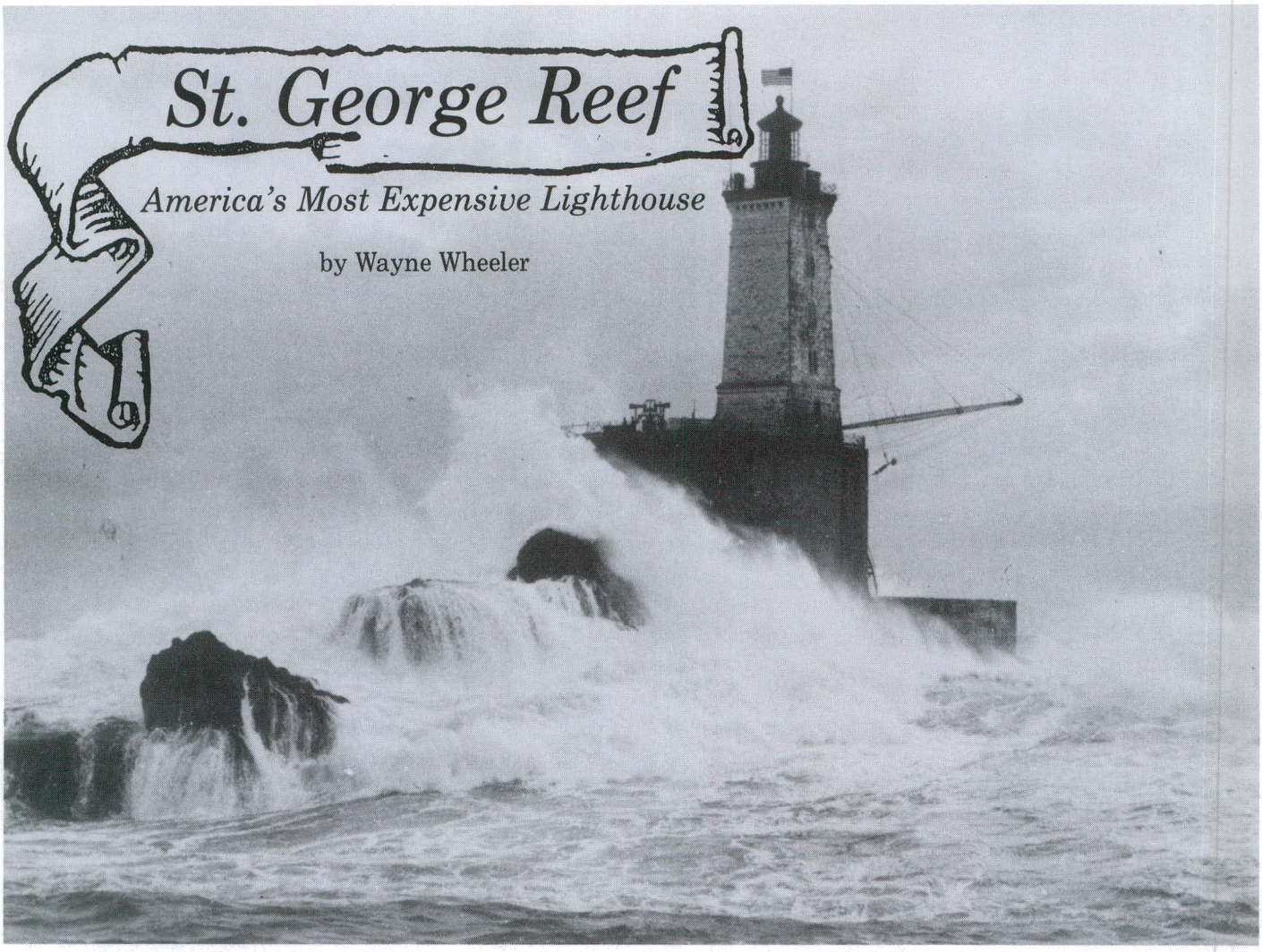


St. George Reef

America's Most Expensive Lighthouse

by Wayne Wheeler

In 1865 the shoals of St. George Reef (off the northern California coast) claimed the schooner *Brother Jonathan* and approximately 166 lives (only 19 managed to reach safety in a ships boat). This single wreck substantiated the U.S. Lighthouse Service's opinion that a lighthouse was needed on the outer reaches of the reef. In 1867 the Lighthouse Board unsuccessfully appealed to Congress to construct a lighthouse on the reef. Technology to build a structure on a wave swept reef was very new in that era and Congress was not favorably disposed to pour funds into the ocean, especially so soon after a very costly Civil War. However, years later in 1881 the successful completion of the Tillamook Rock Lighthouse, off the Oregon coast, gave the service hope that it was possible to construct a lighthouse on the reef of Saint George.

In 1882 Congress provided an appropriation of $50,000 to begin construction of a lighthouse on Northwest Seal Rock, the outer reaches of St. George Reef. In August of that year the man who would supervise construction, A. Ballantyne of Tillamook Rock Lighthouse fame, surveyed the rock with the assistance of local seal hunters. They only managed to land on Northwest Seal Rock three times during the month. Surely an omen of things to come.

In March of 1883 Congress approved the requested appropriation of $100,000 to begin construction. On April 3rd the Steamer *Whitelaw,* towing the schooner *La Ninfa,* sailed from San Francisco to St. George Reef. After a long stormy passage the vessels arrived on the 8th only to find waves breaking over the crew's future place of work. The next day with great difficulty the *Whitelaw* managed to set one 12,000 mooring sinker and secure the *La Ninfa,* which would act as barracks, mess hall and staging platform, to the buoy. Immediately a furious gale arose which lasted for the next week.

When the weather abated the *Whitelaw* attempted to lay the remaining three anchors and mooring buoys. However, the water, reported to be 108 feet deep, actually was 180 feet deep and the buoys would not support the additional length of chain required for that depth. Ballantyne, in *Whitelaw,* sailed to Humboldt Bay to procure larger anchor buoys. When the vessel returned to Northwest Seal Rock on the 28th of April no trace could be found of *La Ninfa* nor the moorings. The *Whitelaw* managed to set the new mooring buoys and sailed to Humboldt Bay for fuel. On the 25th of May the *La Ninfa* was located 25 miles southwest

of Crescent City, towed back to the rock and secured to her moorings. Though weather, which was to plague the entire operation of building the lighthouse, delayed any real progress of rock cutting (blasting) until July.

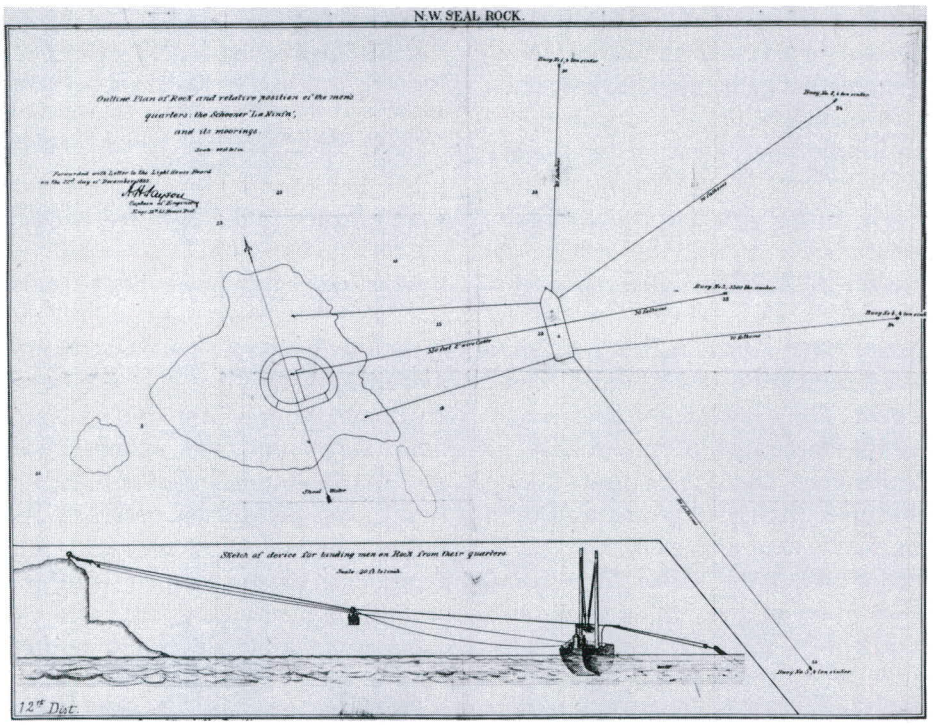
Generally, from this time forward (during this season) work progressed without event. That is to say, many days of bad weather were experienced and although they worked 25 feet above the ocean, the men were constantly drenched by waves pounding the rock. There were narrow escapes, but no one was killed or seriously injured... and work was progressing.

The workmen traveled between the schooner and the rock by a cage which consisted of a 4 foot diameter horizontal iron ring secured to an overhead traveler line from which was suspended a round platform by three lines or ropes. Four to six men at a time were crowded onto the platform and were hauled to the rock where they would jump to, hopefully, safety. The return trip was faster as the cage traveled from the higher rock to the lower vessel. When the crew first started traveling to the rock they stepped about cautiously. However after several trips back and forth they were leaping about like mountain goats. One trip only took 3 minutes and they found that they could evacuate all hands from the rock in twenty minutes. As the men became more confident, or perhaps macho, they would wait until the last moment before leaving the rock in the face of growing seas. After lashing their tools to iron rings set into the rock they would leap onto the platform as spray drenched their clothing. On one occasion the line parted just as a group on the platform was about to depart dumping the men unhurt to the rock.

By the end of September stones weighing over a ton, which had been blasted and rolled over the west side of the rock were, in the words of the foreman "swept like chips up along the whole length and over again on the east side" by the seas. Also in September a rogue wave swept two quarrymen off the rock, fortunately they were rescued. In addition to the miserable working conditions the men were also required to work in the shadow of high explosives. Preparation of the site for the foundation of the lighthouse required that sections be blasted with an early form of dynamite. There wasn't time for the work party to return to the ship after the fuse was lit. When the foreman shouted "fire in the hole," the men scurried for any available niche in the rock. Each blast caused sparks and chips to rain over the entire area, often even over the top of the masts of the schooner. On the topmost part of the reef a heavy timbered magazine was constructed to hold some 600 pounds of blasting powder. As the supervising engineer put it in one of his reports, "The presence of this large quantity of high explosives, in close neighborhood of the blasting and exposed to flying fragments, was an unavoidable source of apprehension to the men." Rather an understatement!

The last days of September saw the waves preceeding the first winter gale hit the area. The men secured the rock for the season, anxious to return to civilization, and not a day too late at that. The day after securing the rock a vicious storm struck parting all but one of *La Ninfa's* mooring lines.

That fall and winter the District Engineer, Major Payton, laid plans for the following season. They included construction of a depot on the North Spit of Humboldt Bay to cut stone, store materials and house the shore based work party. He searched for a source of 10,000 cubic feet of granite. During the winter months, in an unused courtroom in San Francisco's Appraisers Building, huge zinc patterns of each foundation stone were constructed. The tolerance between each stone, to allow for mortar, was 3/16th of an inch. Drawings and specifications for the lighthouse were made as well as for improvements for Humboldt Bay's North Spit. The depot con-



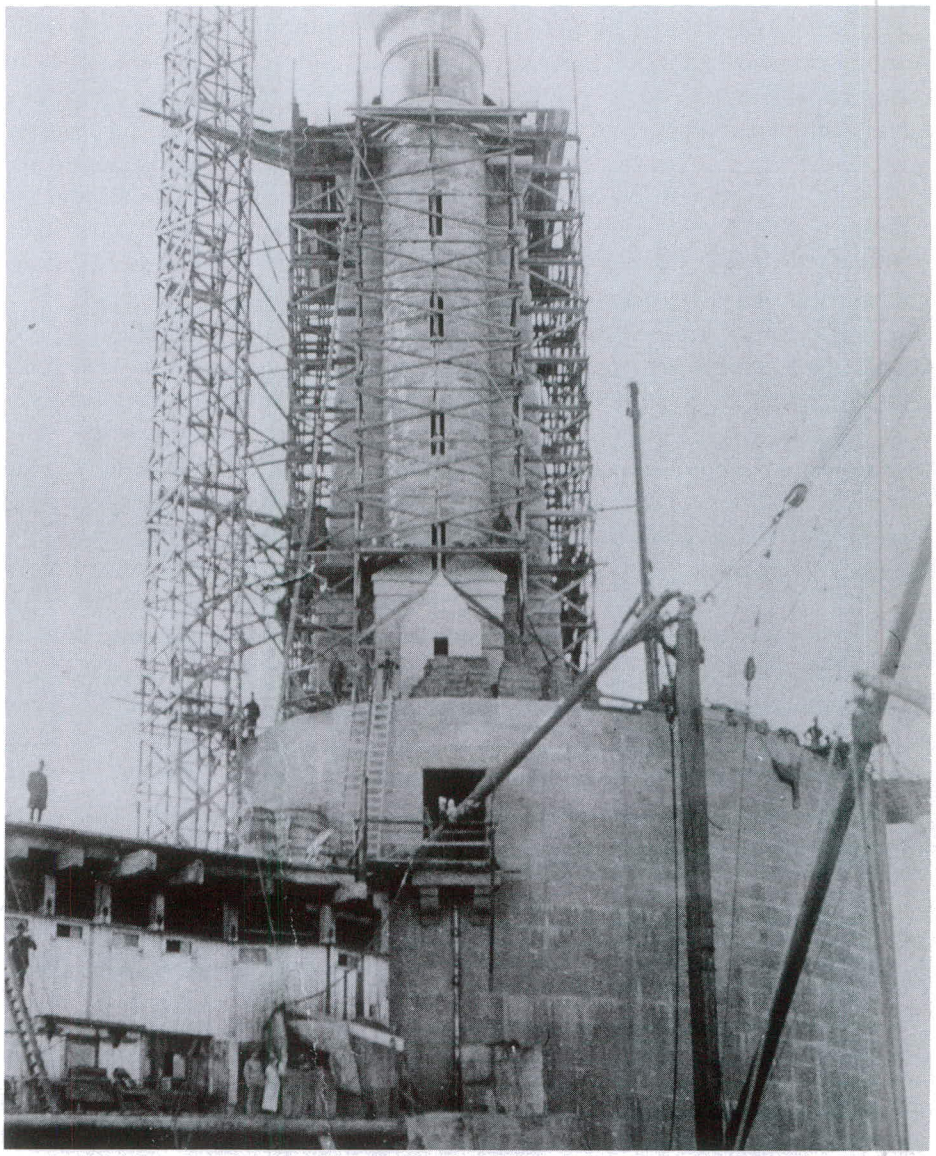
The La Ninfa was moored to four mooring buoys as well as to the rock. The men traveled between the ship and the rock via a "cage" and pulley arrangement. Official U.S. Coast Guard Photo

sisted of a 120 foot long stone cutters shed, bunk house, mess hall, wharf and two large cranes, one at the wharf and one in the stone yard. A short narrow gauge railway ran between the cranes. A total of $4,000 was allotted for the improvements on the North Spit which were built during the winter. To give you a perspective of this amount, the final cost for the St. George Reef Lighthouse was $704,000!

In December of that winter, while in Eureka on business, Ballantyne heard a rumor that there was a deposit of granite on nearby Mad River near an existing railroad line. He visited the site and found that not only was the granite of excellent quality but sufficient to meet the needs of the project.

The Mad River Railroad agreed to transport 100 tons of granite (later raised to 200 tons) a week from Mad River to the depot at Humboldt Bay for $2 a ton. The total cost of operations at the quarry that first year was $17,000, slightly higher than expected due to the haste in which work was accomplished coupled with lack of room and the "incessant rains." Excavation and grading was reported as especially difficult..."as the moistened earth slid like water almost as fast as it could be removed."

In anticipation of the passage of an ample appropriation for the following fiscal year, Ballantyne used funds from the past appropriation to secure, once again, the services of the vessel *Whitelaw*. She reported to Humboldt Bay on the second of June 1884. Because the *La Ninfa* had dragged her moorings the past season, plans were made to strengthen the moorings at the rock. The Lighthouse District requested, and obtained, three heavy anchors from the Navy Yard at Mare Island, California. *Whitelaw* sailed from Humboldt Bay on the 5th of June and returned on the 24th. She had been subjected to the typical bad weather that plagues the area. Although four of the five moorings had been set, she lost one of the spar buoys and broke her winch. Necessary repairs were effected and she sailed back to the rock on the 20th. Weather delayed the last mooring from being set until the 24th of June. Late June and early July were spent in constructing a derrick on the rock. It had a boom 20 inches square and was 50 feet long. Although good weather held during this important operation. the Lighthouse Service reported that the success was due to the skill and experience of the "super" and the zeal of the men who worked without complaint, up to 16 hours a day, during this critical time.



The tower portion of the lighthouse was constructed during the summer of 1891. This photo was taken just before the scaffold was removed, probably September 1891. The structure in the lower left was the temporary barracks used by the workmen. Official U.S. Coast Guard photo

Congress passed an appropriation to continue work that summer of 1884, but it was for a scant $30,000, in lieu of the $150,000 requested. The contractor, and district engineer, were crushed. The appropriation was "deemed" not sufficient to continue construction during the 1884-1885 year. Bitterly disappointed Major Payton decided the best he could accomplish with the funds allotted was the preparation of some stone at the depot and maintenance of the existing plant.

In March of 1885 the project suffered another setback. Congress only appropriated $40,000 of the $150,000 requested. And construction at the rock was delayed a second year. The appropriated funds were used to maintain the plant, service the moorings and install some scaffolding on

the rock. The District Engineer complained in his report to headquarters that, "It would be difficult to point out more clearly than has already been done, the uselessness of beginning construction without money enough to push to the uttermost this difficult work during the short favorable season." He further stated that a good deal of the funds were wasted in making preparations that would have to be repeated the next year as funds were not sufficient to continue work. "To these important sums, wasted through the present system of making appropriations, must be added the unavoidable extravagance of the attempt to carry on important work with scanty means." The whole situation made the project more expensive than need be and impossible to estimate. Each year the project had to await the passage of funding prior to starting work, this coupled with a short working season (because of weather) made planning very difficult. If Congress had a short session funds might be appropriated by, say, March or April. Time to take advantage of the good weather. However, should Congress become embroiled in a long session funds may not be appropriated until August, far too late in the season for anything to be accomplished.

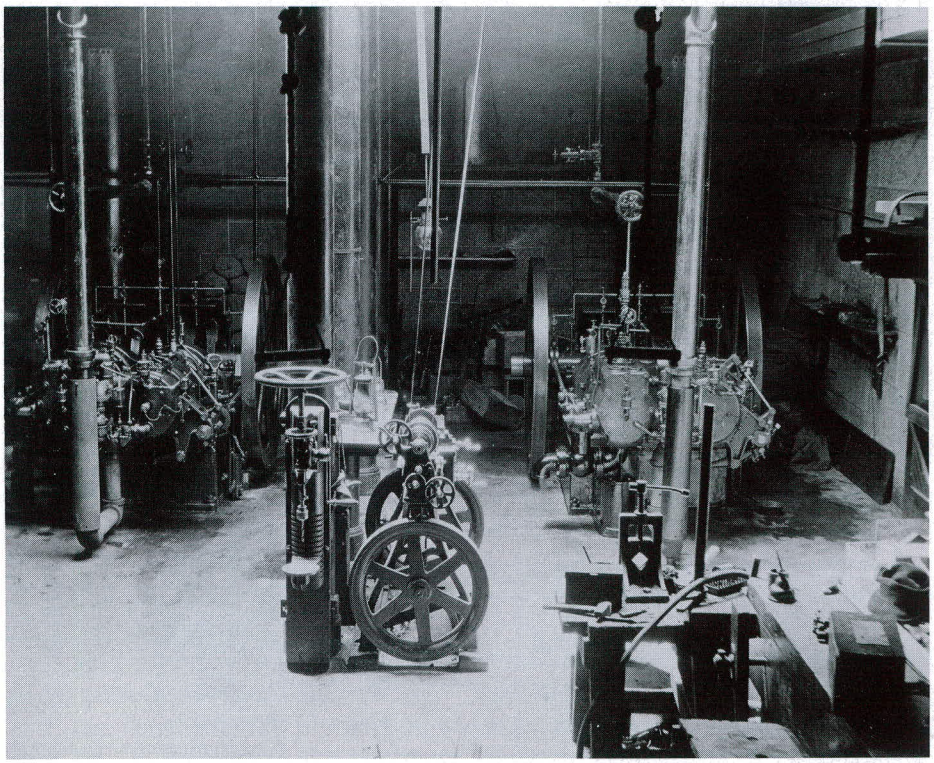
To the consternation of the District Engineer, the contractor and all involved in this heroic project, Congress saw fit not to pass any funds for the 1886 fiscal year. A request for $150,000 was made for the next fiscal year.

In March 1887 Congress appropriated $120,000 to continue work on the lighthouse. The quarry and depot began work in late March. However, much of the initial work consisted of digging out from the winter rains of the past few seasons. Immense quantities of earth had slid down the slopes of the quarry clogging the spur tracks and derricks. The main pile of 1,500 tons of dressed stone had plunged down another slope. At the depot the pilings of the wharf were badly damaged by the Teredo worm and the wharf was almost completely rebuilt. Derricks were rerigged, moorings repaired and machinery and equipment prepared to begin work.



Original 12" diameter steam powered whistle fog signals located on the deck of the caisson. The deck was used as a catchment to collect rain water. Official U.S. Coast Guard photo

By the 18th of May the Schooner *Sparrow,* with quarters for 50 men, was secured to her moorings. The crew began repairing the damaged derrick on the rock, installing the engine and constructing a platform for landing stone. The *Alliance,* because of boiler problems, did not deliver the first load of stone to the rock until early June. When *Alliance* did reach the construction site it was discovered that she was poorly fitted for the job at hand. The contractor's riggers had to rerig the vessel before stone could be unloaded. Finally, on 7 June 1877, some five years after the first appropriation had been made, the first stone of the first course, or tier, of the lighthouse pier was set. It weighed six tons. After the initial trip it was obvious that the *Alliance* was not suitable to the task. The contractor chartered the *Santa Maria* to supplement the *Al-*



The cavernous engine room of St. George Reef was located in the caisson. It provided steam and later air for the fog signal and in later years electricity. This and the one above are circa 1900. Official U.S. Coast Guard photo

liance. By the 26th of June the workforce was out of stone. *Alliance* arrived on the 27th but heavy seas delayed her mooring and unloading cargo until the 8th of July. The *Santa Maria,* in the meantime, had completed her voyage and began transferring stone to the rock. The ninth course, or tier, of the pier was in place by the end of the season.

The ninth course or tier of the pier was in place by the end of the year.

An appropriation of $150,000 was passed by Congress for the 1888-1889 fiscal year. Two vessels were chartered, our old friend *Whitelaw* and the steam schooner *Del Norte.* The *Whitelaw* sailed through lousy weather, as usual, to Humboldt Bay, loaded men and materials and set out for the rock. Upon arrival the crew quickly finished the landing platform on the rock and constructed quarters for 50 men under the platform. Moorings were reset and the derrick and machinery repaired and set in place. On the 26th of May, the *Del Norte* arrived with the first cargo of stone. *Del Norte* proved more than able to meet the demands of delivering stone and cargo and the *Whitelaw* was discharged on July 1st. By the end of the season the 13th course had been laid. Having the men living on the rock greatly enhanced the operation. The pier was now 32 feet above the first course.

In March of the next year, 1889, the Lighthouse District's luck held as the requested $200,000 was appropriated. *Del Norte* again won the bid to transport stone and materials. The usual initial preparations of setting moorings and repairing damage to the quarters and platform made by winter storms was completed and the 14th course in place by the end of April.

One morning in May the men's quarters were inundated and, although no one was injured, the crew was washed from their bunks, truly no rest for the weary! By October the pier, save a small amount of paving on the deck, was complete. Work continued through the season at the quarry and the stoneyard. The end was clearly in sight.



St. George Reef Light. Official U.S. Coast Guard photo

The final appropriation, in 1890, was not made until the 30th of September, far too late in the season to attempt any work on the rock.

In March of 1891 the vessel *Sunol* won the bid for transporting material. She departed for the rock on the 21st of April after a lengthy delay in Humboldt Bay due to heavy seas on the entrance bar. Upon arrival at the rock they found the quarters wrecked and no mooring buoys in sight. By May 1st mooring buoys had been set, quarters repaired and the machinery placed in operation. The first stone of the lighthouse tower was set in place on the 13th of May and the last on the 23rd of August.

Tragedy struck in September when a man holding a tag line to the boom was pulled off the pier, and fell to his death. September and October saw the crew completing the interior of the tower and removing the scaffolding. All machinery was installed and the lighthouse turned

over to a crew of three. However, the lens had not arrived from France, so the crew was merely a caretaker of a very expensive tower.

In 1892 the 1st Order Fresnel lens arrived from France and was installed. The red and white light, alternating every 15 seconds, flashed out over the Pacific in October of that year. St. George Reef also provided the mariner with a steam powered fog signal in the form of a 12″ whistle. The whistle was changed to an air siren in 1931 and to an air powered diaphone horn in 1936.

St. George Reef was one of the least sought after stations in the service. One District Inspector stated, "It tries and proves men. Show me the man who has put in the required time of service there, and I'll show you a man ... and a lighthouse keeper, too!"

This station was one of the few with five keepers assigned. The families of keepers resided in small houses in Crescent City eight miles to the southeast.

Some ten years in the building, St. George Reef Lighthouse is one of the premier engineering feats of the Lighthouse Service and at the time, America's most expensive costing over $700,000. Some of the statistics are awesome; 1,339 dressed stones in the pier alone, none weighing less than two tons, many as much as 6 tons. In all 14,000 tons of stone went into the structure.

However the lens had not arrived from France...

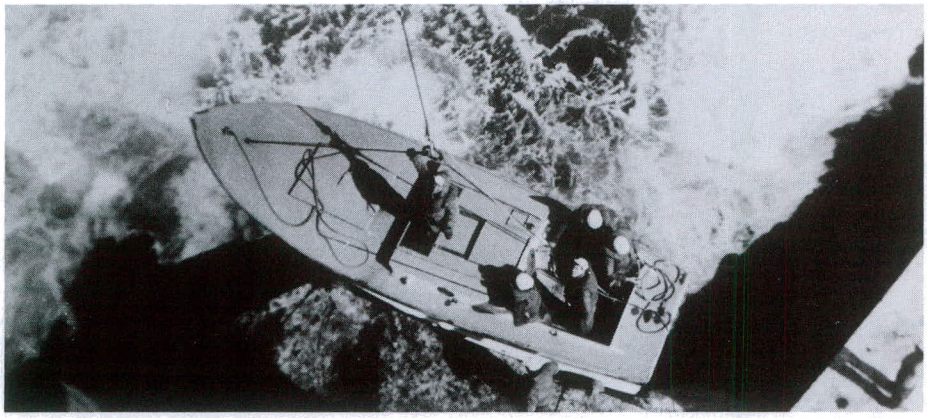
In 1939 the U.S. Lighthouse Service became part of the Coast Guard and enlisted personnel began taking over for the "wickies" (the affectionate term for lighthouse keepers). With the exception of the man killed in the construction of the lighthouse and one keeper who drowned when his boat capsized as he returned to Crescent City, many, many keepers arrived and departed the reef without incident. This held true until April of 1951.

Two young Coast Guard electrician mates visited the station to make repairs. At the end of the day they prepared to depart with the three man relief crew. All five donned their life jackets and stepped aboard the station boat. They were lowered towards a seemingly calm sea...then tragedy struck! A freak, rogue wave struck the boat filling it with water and causing the forward lifting eye to part. The bow dropped throwing the men into the water. The Officer-In-Charge, who was watching the operation, leaped into the water with a rubber raft. He managed to pull one man to the raft and lashed him to the side, however he was already dead. He then paddled to two men still alive clinging to a nearby mooring buoy. The other two could not be located. Three men dead. The Coast Guard, long aware of the dangers of



boarding and servicing St. George Reef sought a means to close this miserable and dangerous duty station. In 1975 a means arrived in the form of a Large Navigational Buoy (LNB) which could provide the mariner with almost the same aids that were furnished by the lighthouse. In 1975 St. George Reef was closed, some 83 years of faithful duty completed.



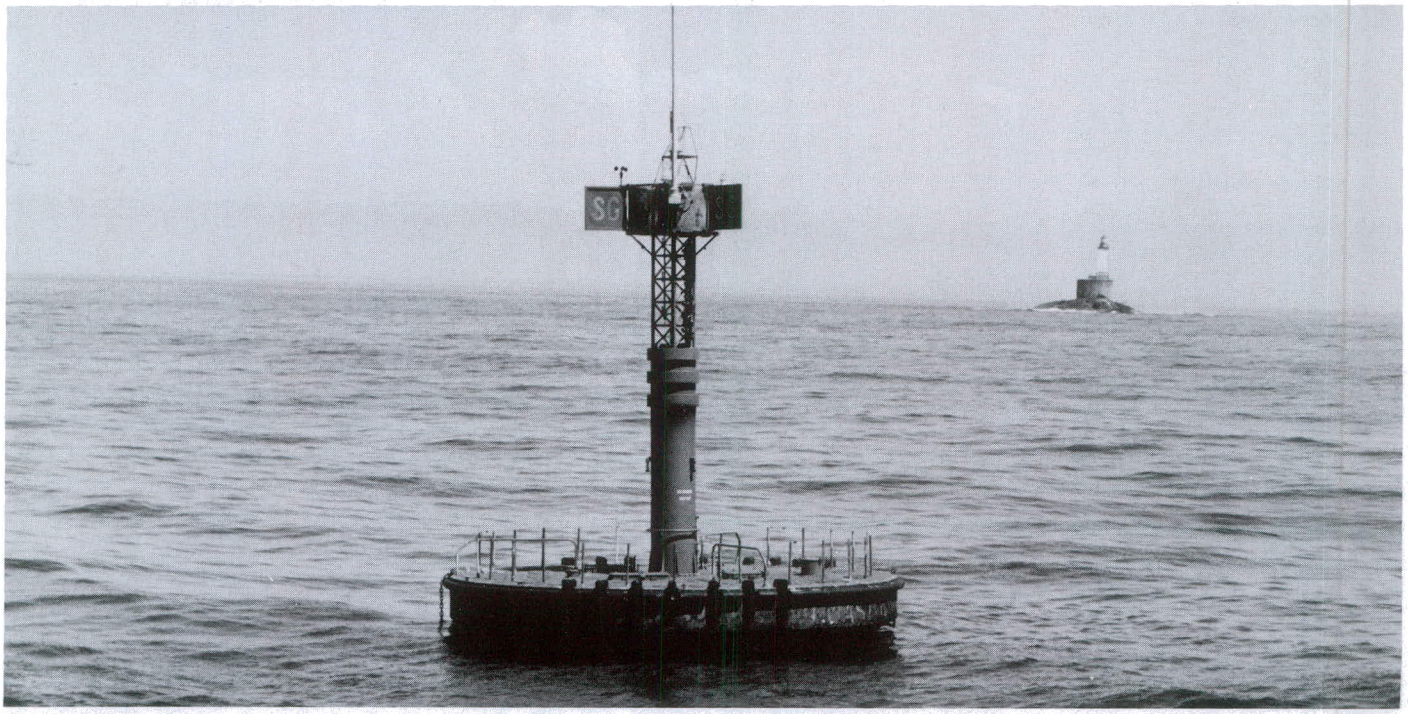


(Above) The station relief crew and electrician mates are preparing to depart in the station boat. Petty Officer Beckett, sitting on the inboard side, is talking to Walker who is fastening his life jacket. These two men and Costello, who is at the helm, will die within minutes. The other two, Mulcahy and Vandenburg will survive the disaster.

Official U.S. Coast Guard Photo

(Left) The Station Boat being lowered just a minute before the hoisting sling parted throwing the men into the frigid water.

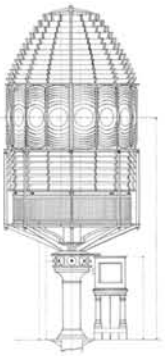
Official U.S. Coast Guard photo



The St. George Reef Large Navigational Buoy (LNB). This 40 foot diameter "floating lighthouse" weighs 200,000 lbs. and contains small diesel powered engines that provide electrical power for the 17 mile range navigation light, radiobeacon and fog signal. The light is displayed from a 40 foot high mast. The buoy also contains U.S. Weather Service equipment. St. George Reef Lighthouse can be seen in the background.

Official U.S. Coast Guard photo

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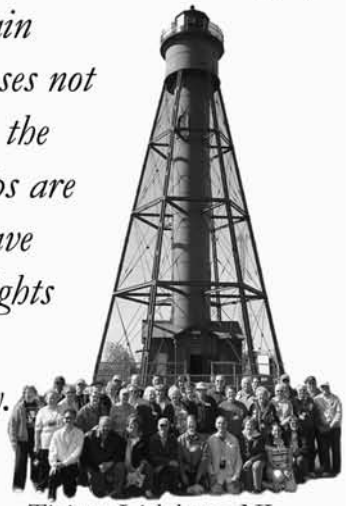
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