

This history of the St.

George Light station was

compiled by the late Raymond

C. Burke, a resident of Eureka

who retired as a commander

in the U.S. Coast Guard.

Manuscript presented to

Historical Society in

August, 1989.

A digest of this paper

appeared in the Sept-Oct

issue of the Humboldt

Historian.

HISTORY OF
ST. GEORGE REEF
NORTHWEST SEAL ROCK
LIGHT STATION, CALIFORNIA

On May 19, 1866, the Lighthouse Board asked the General Land Office to reserve certain lands for lighthouse purposes. These included "that portion of Point St. George which remains unsurveyed and which is not understood to be included in the 27-50/100 acres sold to James H. Richey March 26, 1859." The General Land Office on June 5, 1866, certified to the Secretary of the Interior that these lands "appear on the books of this office to be undisposed of" and recommended that the President order reservation of them to be obtained "so that proper local land officers may protect the tracts of land from interference." These included "the unsurveyed part of Point St. George and also fractional section 14, of T.16 Range 2 West, Humboldt Meridian...containing 12-96/100 acres." On June 8, 1866, President Andrew Johnson reserved the lands requested for lighthouse purposes.

On January 21, 1867, the chairman of the Lighthouse Board requested the General Land Office to have reserved "all the rocky islets off Point St. George" as indicated in an accompanying Coast Survey Sketch. These were also reserved by President Andrew Johnson on January 29, 1867. State jurisdiction ^{was} ~~ceded~~ on March 12, 1872.

These ^{Two} ~~two~~ reservations were described in a letter dated January 20, 1875 from the 12th District Light Engineer to the Lighthouse Board as follows:

One is a small promontory, in form a rounded hill, 156 ft. high, and about 200 feet square, the other a fractional part of a quarter section lying to the north of the other and separated from it by another fractional part of another quarter section which lies directly south-east of the other, and which contains 27-69/100 acres. The unsurveyed portion of the point has an area barely sufficient for a lighthouse, though it might be enlarged, and probably will have to be enlarged, to a greater or less extent, by cutting off the top. The other reservation of 12-96/100 acres is large enough, but is separated from the promontory by the lot of 27-69/100 acres mentioned above. The promontory and 12-96/100 acre lot are not contiguous but are separated by a small distance...the land at Point St. George is practically prairie and sand hills, with a few scrub pines. There is no wood or water on the reservation. There is no one who owns or claims land at Point St. George besides White.

In another letter of the same date he observed, "...will be seen that the promontory is the highest land on Point St. George by some 70 feet and is evidently the proper place for the lighthouse tower. All the land in the vicinity is less than 90 feet. The promontory is the salient point of the cape and if the tower were located anywhere else, the promontory would obscure the light, unless it were on an unnecessarily high tower. The best angle of visibility, north or south, is from the promontory..." It would be very desirable for the United States to become "possessed of a portion of inland directly east and adjoining the promontory, particularly if it [the promontory] is not large enough for all the dwellings, or if the land to the east affords better positions for them. The land owned by White is of little value intrinsically, and some of it can doubtless be purchased for a trifling sum. Possibly an arrangement may be made by which an exchange may be effected between the 12-96/100 lot and an equal area directly east of the promontory. If not, then I would recommend the purchase of ten acres of land at that locality."

In reply to this letter, the Board suggested that "perhaps it would be better to locate the lighthouse on one of the outlying

✓

rocks off Point St. George. It is true that the structure would cost considerably more, but would not the advantages resulting from the selection of such a location, when the commerce along the coast increases, more than compensate for the extra cost?" The 12th District Engineer referred this inquiry to the U.S. Coast Survey, Los Angeles, who on February 15, 1875 replied giving the heights of the "Dragon Rocks" composing Crescent City Reef lying off Point St. George and pointing out that only 3 of the rocks could be taken into consideration for lighthouse construction. These were: (1) Star Rock, 64 feet high, on port side of channel going up; (2) N.W. Seal Rock, 45 feet high, distance $7\frac{1}{2}$ miles from nearest point of shore line; and (3) S.W. Seal, in a body of reef, 45 feet high. Star Rock was an isolated peak of Sandstone "on which it might be barely possible, as a feat in engineering, to locate a light. The sea in heavy weather breaks over the rock. Its area...will not exceed 200 meters in circumference...Being only a short distance from the mainland, although on the port side of the channel, a light on this rock would not subserve any better purpose than a light on the mainland."

✓ "Northwest Seal Rock is the outermost rock of the reef. A light on this would undoubtedly be of very great benefit to general commerce, but I would conceive it a very difficult task to procure foundation for it, as the rock is exposed to the full force of the sea, and is even less in area than Star Rock. With any unusual swell, the sea breaks over it." "S.W. Seal is the largest in area, of the three rocks of Crescent City Reef proper indicated; but it is located in the body of the reef, and a light on it would, I think, serve to mislead rather than to benefit. The cost of constructing and and the difficulty of maintaining a light on any of these rocks would, in my opinion, be very great." "There remains only one rock, or rocky

island to be considered and that is one called "Castle Rock" on my sheets, the highest point of which is 208 feet. This large island lies south of Point St. George, proper, and you will see its shape and configuration on the tracery furnished you. The island is on the starboard side of the channel going up. A light on the highest point of this island would overlook Point St. George proper, and there is sufficient area for the buildings. A shipping point could be built inshore in the little bight off White's house, and the ground, or island, is, I suppose, owned by the Government. But the erection of buildings on this island would be attended with very great expense, and I do not believe a light there would subserve a more useful purpose than one on the mainland. The light on the mainland would serve all outside coasters; the island referred to would cut off its rays in one direction, as indicated on the tracing, and would serve all useful purposes for steamers and vessels attempting the channel at night at vastly less cost to the government."

The 12th District Lighthouse Engineer remarked on the above, "It is very evident in my mind, from his letter, and from the study of the chart which was sent to you with my last letter on this subject, that the only point for the lighthouse is on the promontory I have already described to you." The Engineer recommended the purchase of a small piece of land directly to the east of it. This land is described as the fraction of the N.W. quarter of the S.W. quarter of section 13 of T.16 N.R. 2 West Humboldt Meridian, comprising 27.69 acres. The land is principally prairie and sand hills, with some scrub pines and no wood or water. I believe it is not fenced. The intrinsic value must be very little and probably if it were purchased for \$5.00 an acre that sum would be several times its true value. I have written to Crescent City to ascertain from Mr. White, the owner of the land, if he will sell that small piece of

land and at what price." If the land could purchased by July 1, when the money would be available, the engineer suggested that the lighthouse could be built that year (1875).

On August 26, 1876, Mr. Theodore White proposed to sell to the Government of the United States for the sum of \$500, ten acres of land "lying in said county and state, in section # 13, in township #16 N. of Range #2 West, base and Meridian of Humboldt, lying east of Point St. George"...the land was completely described in the proposal by its *metes* and bounds. Further description of the mainland site is contained in a letter of September 16, 1876, from the 12th District Lighthouse Engineer in part as follows:

A good natural road, about 3 miles in length, leads from Crescent City to Point St. George...this smaller reservation I find...to be in the shape of a truncated cone with an elliptical top. The coast survey map says it is 164 feet above mean low tide. The cone is quite symmetrical, and its slope is about 35 degrees from the horizontal. The truncated top, which is quite flat, I measured and found to be 75 in a meridinal direction, and 40 feet from east to west. It is, therefore, amply sufficient in area for the site for a lighthouse tower, but not large enough for both tower and dwelling house. The promontory is composed of sandstone, but slightly metamorphic, and apparently can be easily worked with the pick. The general direction of the coast in the immediate vicinity of the promontory is northwest and southeast, the promontory jutting out from it westwardly. The coast on either side of it has a bluff band about 75 feet high, but the land slopes gently inland, the crest being the highest part. It would seem that this slope and the slope of the cone originally met each other, but from some cause or other the rock has been worn away, forming a hollow, the lowest part of which is about 40 feet lower than the crest. The distance across the hollow, I measured and found to be 260 feet...to comprehend and complete this description, I must add that the highest part of the crest is to the south of the promontory, and within less than a quarter of a mile of it. This high ground would be the best locality for a water shed, to supply the fog signal with water. I would recommend that the tower be placed on the top of the promontory, the dwelling near the crest opposite. A bridge 270 feet long... should be built the very first thing, from which a winding road must be cut out of the slope of the cone leading to the top. I would also recommend that a tunnel be cut directly through the promontory at about an elevation of 60 feet above the water, or a few feet lower than the bottom of the cistern, at the water shed, which is to furnish water to the

fog signal to be place at the western extremity of the tunnel.

The engineer recommended the purchase of the connecting 10 acre strip of land from Mr. Theo. White at the price of \$500.

"The intrinsic value of the land as grazing land is probably not more than \$5.00 an acre," he added, "but as Mr. White considers it a detriment to him to have a piece taken away from the middle of his farm," and he recommended paying it, "as the expense of condemning the land would be much more that the sum mentioned."

Regarding the comments of the coast survey on the various proposed sites on the rocks there were only two practical sites among these according to the Engineer--Star Rock and N.W. Seal Rock. "I cannot feel," he added, "that any material advantage would be gained by placing a light on Star Rock rather than on the mainland, and certainly the very great additional expense that would have to be incurred would, in my opinion, make a light there out of the question." "As for N.W. Seal Rock," the Lighthouse Engineer concluded, "after quoting what the Coast survey engineer had to say about it, "I do not know of how much importance the inner channel is between Point St. George and the reef. If it could be safely used at night and in foggy weather, if a light and fog signal were on the point, it must be considered of importance. If, on the contrary, it is only used during the day and in clear weather, it must be of very little value and it would be far better to put the light on N.W. Seal Rock if possible. Whether so serious an undertaking shall be attempted is a matter for the [Lighthouse] Board to decide. If a first order light and fog signal are to be established on Point St. George the necessity for the present harbor light at Crescent City will not be apparent, and it is possible that it may be considered advisable to abandon it when the other is established. If, however, the future light is to be placed on N.W. Seal Rock, then the Crescent

lead ✓

Light should be continued."

The importance of a light at Point St. George was first stressed in the 1874 annual report of the Lighthouse Board which read in part:

This is one of the most important points for a sea coast light on the coast of California. The bluff point is about 130 feet high, with level land for some distance back of it. Off the point, extending some six or seven miles, is a very dangerous reef of rocks, quite a number of which show above water and many are awash at low tide; others have from three to four fathoms of water on them. The passage between the outlying rocks of this reef and Point St. George is quite wide and is used by the coasting steamers and sailing vessels. The Steamer BROTHER JONATHAN was wrecked on this reef some years ago during a fog and many lives were lost, among them General Wright and staff with families of himself and several of his staff. A lighthouse and fog signal should be erected here. An appropriation of \$50,000 is asked to commence the work.

This recommendation of the Board to Congress was repeated each year thereafter until Congress acted.

On August 7, 1882, Congress appropriated \$50,000 "to commence the construction of a lighthouse and fog signal at or near Point St. George, California." The place chosen by the Board for the lighthouse was Northwest Seal Rock off Point St. George, and in its annual report for 1882, the Board stated, "It is estimated that it will cost \$333,000 to build this structure. Of this amount \$100,000 can be profitably expended during the coming year." In October 1881, a surveyor was landed on the rock. The sea began to rise immediately after so that it was necessary to take him off after a stay of only an hour, during which he succeeded in getting a few rough measurements and sketches of the rock. On April 8, 1882, a civil engineer was sent to Crescent City to await suitable opportunities for a landing. Although his attempt was made during the best season, and he had a crew of men who had been in the habit of hunting sea-lions on the reef, in the four weeks of his stay he was able to make but three landings on

the rock. He succeeded, however, in making a good survey and the results on his return to San Francisco were embodied in a plan with 3 foot contours and a model, both on a scale of 15 feet to the inch. With the first appropriation of \$50,000 on August 7, 1882, the rock could now be prepared for the reception of the foundation of the pier during the time that remained of the 1882 working season and the spring of 1883. Contracts could then be made for the entire granite masonry of the pier and an appropriation of \$100,000 could be profitably be so expended during 1883.

An additional \$50,000 appropriation was made for the light on March 3, 1883. The 1883 report of the Board states that plans and estimates for its construction were made early in March 1883 and soon after skilled and experienced workers were engaged and organized into a working party for the preliminary work, which involved great risk, labor and exposure. As there was no place of shelter near the rock, a schooner of 127 tons was secured and fitted for accomodation of 25 or 30 men, to be moored near the reef. This was towed from San Francisco by the Steamer WHITMAN who laid the moorings and attached the schooner to them.

On April 3, 1883, a start was made by the WHITMAN and her tow from San Francisco, and after a very stormy passage the vicinity of the rock was reached on April 8th only to find the sea breaking completely over it. The next day a 12,000 pound sinker was laid with difficulty, and the schooner made fast to the buoy; but immediately after there was a change in the weather, and from then until the 16th a furious gale prevailed from the southeast to the southwest, reaching its maximum on the morning of the 14th. On the 16th the sea permitted another attempt at laying the remaining anchors, when the fact was developed that the water in which they were to be

paced was from 8 to 10 fathoms deeper than the soundings had indicated and that the buoys were too light. The superintendent of construction took the WHITMAN to Humboldt Bay, 60 miles distant, for new spars. They had to be cut in the woods, and the irons of the old ones used for them, so that the WHITMAN did not return until the 28th when no trace could be found of either the schooner or the buoy. This was May 1st and advantage was taken of a little good weather on that and the following day to set the remaining moorings with the new buoys, and of grappling, unsuccessfully, for the lost one. The WHITMAN started again for Humboldt Bay on May 3rd to seek the missing schooner which was found on the 7th, 25 miles southwest of Crescent City. The schooner was again placed in position and a landing made on the rock and the work continued with suspensions of from one to ten days, on account of weather, parting of lines and other gear, but without accident to anyone. By mid 1883, sufficient progress had been made to justify the belief that the top of the rock would be prepared before the winter set in.

Although the Board asked for \$150,000 to continue the work for the fiscal year ending June 30, 1885, only \$30,000 was appropriated for the purpose on July 7, 1884, and as the work could not be conducted advantageously on a less expenditure than \$15,000 per month, it was discontinued. In the 1884 report the Board declared, "the erection of the lighthouse cannot properly be resumed with due regard for economy until \$150,000 is provided for its continuance. The \$30,000 actually appropriated was to be used in getting dimension stones ready for use when work on the site was resumed.

In its 1884-1885 estimate the Board asked for \$150,000 for the work, but Congress appropriated only \$40,000 on March 3, 1885. This inadequate sum did not enable the Board to resume work on the site. The Board in its 1885 report hoped the amount requested (150,000) would be appropriated as "the delay is injuriously affecting the plant

in its exposed position on the rock." The \$30,000 appropriated on July 7, 1884, had been used in the preparation of material in the quarry and stone-yard on Humboldt Bay, where 6 to 8 stone cutters and 12 to 20 laborers were employed for about 11 months. With the second suspension of work on the site due to the lowered appropriation of March 3, 1885, it was decided to provide against further deterioration and possible loss of the large derrick and moorings by chartering a steamer and sending a working force from Humboldt Bay who spent the month of June in lifting all the moorings but one which was relaid and rebuoyed and in putting in good order and securing the large derrick. A temporary scaffolding the full height of the rock was raised on which was supported a light platform covering the foundations of the pier. On this platform the pier outline was carefully laid off and the points plumbed down to the different levels of the foundation. The junctions of the different curves and centers of each header were then marked by brass brads driven into leaden plugs in the rock. The zinc patterns of stone were also applied all the way around the pier outline and found to fit in with the benches satisfactorily. It was proposed to continue work at the quarry until October 1885, and then suspend work until spring. "A new appropriation," the report stated, "can hardly be made available before July 1886 when two months of the short working season will have already lost. Six weeks, at least, will be needed to get moorings down, derricks and engines in place, and vessels ready for actual construction, leaving only six weeks or two months at most before the winter storms can be expected. The alternate of last year will again be presented, that of making in advance costly preparations which would be useless should Congress fail to make sufficient appropriations or of sacrificing another working season altogether...It

would be difficult to point out more clearly than has been already done the uselessness of beginning construction without money enough to push to the uttermost this different work during the short favorable season." In May and June 1884, it was pointed out that about \$9,500 had been spent in preparations which not only became useless through the subsequent failure to make due appropriations, but which left valuable property to unavoidable deterioration and possibly total loss. This year about \$6,000 was again spent in removal of such property as could be taken away, and in taking precautions for the safety of the plant left on the rock. The preparations made in 1885 would have to be repeated the following year, with the same risk that they might be more futile through a third failure to secure sufficient appropriation. To these sums had to be added unavoidable extravagance of attempting to carry on important work with scanty means. Exaggerated cost of superintendence, hiring plant which should be purchased, deterioration of property from disuse and exposure, with other less important causes combined to make the cost of the work excessive and correct estimated for it impossible. It was again stressed by the Board, therefore, as it had been in previous years, that \$150,000 was the least sum that could be appropriated during the 1886-87 fiscal year. In the meantime, work at the stone yard had been continued and between July 1, 1885 and October 31, 1885, 5,439 cubic feet of dimension stone had been quarried, making 15,152 cubic feet on hand with 419 blocks on hand cut and 133 blocks on hand uncut. No appropriation at all was made for the work in 1886.

On March 3, 1887, Congress appropriated \$120,000 for the work. On March 7, 1887, a project was begun for preparing and laying stone by hired labor for the purchase of a plant in the open market and for the charter of the necessary vessels. Specifications were prepared

to get bids for transporting material from the Humboldt Bay depot to the rock, where work at both quarry and yard were resumed March 21, 1887. At both places ravages of weather and insects had to be repaired following the long period of idleness. The schooner SPARROW (200 tons) was chartered at Humboldt Bay on March 29, 1887 and fitted out with quarters for 50 men. Equipment was purchased and shipped by the steamer SANTA MARIA, which was chartered to lay moorings and set derricks on the rock, and she left San Francisco April 5 for Humboldt Bay. The steamer ALLIANCE, having furnished the lowest bid for transporting the stone from Humboldt Bay, was employed. Because of bad weather slow progress was made by the SANTA MARIA in laying moorings. On May 11, she reached the rock towing the SPARROW and by the 18th five sets of moorings had been laid and the SANTA MARIA discharged. The working force living on the SPARROW spent the rest of May 1887 putting up the rigging and the four small derricks, setting up the engine and boiler, building the timber landing stops, and making preparations for landing material. The big derrick mast was found to be cracked half through from a blow of the sea, at a point 40 feet above sea level and had to be fished with heavy iron bands. The benches cut in the rock were found to be practically uninjured, though a good deal of material was broken out of the vertical walls left standing around the cistern space, which were probably shaken by the blasting. The ALLIANCE with the first load of stone blocks from Humboldt Bay reached the rock June 5, 1887, where she first had to be fitted with gear to handle the dimension stones, the first of which weighing 6 tons was landed on the 7th and laid in the wall on the 8th. By the 11th all the material she had brought had been put in place and the construction force was out of work. The ALLIANCE proving utterly unequal to the amount of transportation required, authority was given to charter the SANTA MARIA at \$7,000

per month to supplement her efforts, but that vessel, then on voyage could not be secured before the 1st of July. The ALLIANCE reached the rock on June 15, 1887, with her second load, but in a gale on the 16th narrowly escaped a collision with the SPARROW, finally putting into Crescent City on the 17th for shelter as the gale continued. The rock was not finally discharged until the 22nd. During the storm one of the dimension stones already laid on the north face 30 feet above the sea weighing over 2 tons was washed out of its bed and tipped over against the back of the bench where it broke. On the 26th the construction force was again idle having laid all the stone brought by the ALLIANCE on her second trip. The vessel couldn't land her third load of stone before July 8, because of incessant gales. Meanwhile, the SANTA MARIA had been chartered and had left Humboldt Bay with her first cargo of dimension stone. It was now hoped that by October 1st, when the working season ended, the pier, including the 8th and possibly 9th course, would be finished. So far, the necessity after the March 3, 1887 appropriation had become available, of making the utmost haste, and the scarcity of vessels resulting from the immense lumber trade developing to Southern California, had caused the work to cost materially more than estimated. The balance available on October 1, 1887, it was now feared, would no more than suffice for the preparation of material with a small force during the winter and not justify any steps toward construction during the summer of 1888, in advance of a new appropriation. All the work had to cease, as it turned out, in September 1887, with the eighth course of masonry of the pier laid. Stone cutting at Humboldt Bay proceeded during the winter of 1887-88 but had to be suspended on March 20, 1888 because of lack of funds.

On March 30, 1888, Congress appropriated \$150,000 more for the work; a new working force was organized; two new steam vessels chartered

and by June 30, 1888, the 9th, 10th and 11th courses of masonry had been laid. The workmen now living in quarters constructed on the rock, and could lay the masonry as fast as the stone could reach them. By May 1888, 52 men were working on the rock, with no room for any more to work to advantage. The quarries at Humboldt Bay were crowded with all the men who could be worked and the stone cutters at the yard were dressing the rock as fast as it reached them. The smaller of the chartered steamers was discharged July 1, 1888, and the larger one was running nights and as her services were required, the working on the pier working on Sunday when there was any stone on hand ready for setting. The weather had been very favorable and the work was progressing rapidly. The total estimated cost of the completed structure was not estimated to be \$721,000 which was, in fact, exactly what it did cost. A steam fog signal was to cost \$5,000 more bringing the total to \$726,000. The expenditures were now running at about \$30,000 per month, and up to June 30, 1888, \$347,762.34 had been expended. A new appropriation of \$200,000 for the 1889-90 fiscal year was now requested. Work continued until August 19, 1888 when the 13th course of masonry was completed. Work was continued uninterruptedly after that at the quarry all through the fiscal year of 1889 with as large a force as practicable..

Congress appropriated the \$200,000 additional asked for on March 2, 1889, and in April the Steamer DEL NORTE was chartered at \$5,000 per month. She arrived at the Reef on April 29, 1889, with men and material to begin the new construction season. About 50 men were put to work and by the end of the 1889 fiscal year the 17th course of masonry had been laid. The weather during this season had been unusually severe, and the men's quarters, though very strongly constructed and braced like a ship, were several times

washed by the heavy sea and damaged, though no one was injured. The walls of the engine room, coal house, and tower, all within the pier, were being built as rapidly in height as the pier progressed. Of the eight courses required to complete the pier when the season begun, four were laid during May and June, and weather permitting, it was hoped to complete the other four by the end of August. The wall were already 61 feet above sea level, yet the spray dashed over the top of the pier that it was frequently impossible, for hours at a time, to lay masonry, as the spray would wash the cement mortar off the beds before the stones could be set. While the work done thus far had been expensive, it had been kept within estimates and had been well and substantially done. \$81,000 more was estimated to be necessary to complete the work. At the stone yard and quarry, all dimensions stones for the pier had been finished with the exception of 23 stones. When these had been set, the entire force at the quarry would begin preparing the flagging for the top. It was hoped to complete the work during the following season, in 1890. By October 8, 1889, the interior walls of the engine room, store room, etc., were up and arched over, and the pier entirely finished except for a small area at the top left unpaved. This was securely covered with planking, the skylight space roofed in and everything left in secure condition until resumption of work in the spring of 1890. At the quarry all stone required for completion of the station had been secured by April 1890 when the quarry was abandoned and the plant stored at the Humboldt Bay depot. Dressing of stone continued, with all arch, lintle, and other dimension stones finished by June 30, 1890, and only a small force employed in storing them away, ready for shipment. By early 1891 it was expected to discharge the entire force at the yard. On September 30, 1890, Congress appropriated the final \$81,000 requested..

Early in April 1891 the steamer SUMOL was chartered and sailed for Humboldt Bay with a load of supplies and men. She loaded material for setting mooring and started for the rock. Little was accomplished, however, due to very bad weather, but by the end of April the moorings had been set and the first landing of the season made on the rock. The workmen's quarters were found to have been utterly destroyed by the waves and had to be rebuilt. The mooring buoys had disappeared, but were grappled for and the buoys reset. By May 1, 1891, actual construction had been resumed and was vigorously pushed whenever weather permitted. At times, however, the wind was so violent that the steamer was unable to land material and the masons were driven from the outer walls by its force. Nevertheless progress was excellent and at the end of the fiscal year 1891, the pier pavement had been finished, the base of the tower completed and the tower with its brick lining was built and backed up for 30 feet above the base, or nearly to the window sills of the third story..

During July 1891, the lens reached San Francisco, and was erected in the site in August. The light was of the first order, flashing alternately red and white, with 15 second intervals between flashes illuminating the entire horizon. It was exhibited for the first time on October 20, 1892.

The superintendent of construction had been Mr. A. Ballantyne who prepared an interesting 8 page appendix to the annual report of the Lighthouse Board for 1892. The lighthouse, this report states, had been constructed under the overall supervision of Major H.W. Hauer, U.S. Army Engineer of the 12th Lighthouse District. Mr. David Chalmers was foreman of stonecutters and Mr. Thomas W. Brown was in charge of quarrying. The work had been begun in 1883 under the direction of Captain A.H. Payson, Corps of Army Engineers, U.S..

Army until the latter part of 1887.

The outline of the pier having been blasted off, the outer base ring 10 feet wide was accurately finished with patent hammers, the center cone roughly stepped to receive the mason work, provision being made for storing 77,000 gallons of water in the base. The outside courses of pier were 2 feet 6 inches high built in Flemish bond, headers 5 feet deep in bed, 2 feet 6 inches wide on face, the stretchers 2 feet 6 inches on ^{BED} by 5 feet 8 inches on base. All the horizontal beds were connected by a 2 inch diameter dowel of gun metal in each block and projecting half its length with course below except the upper course, in which the dowels were omitted, all vertical joints of outside stones were dovetailed or joggled into each other. All the outside joints were 3/16 of an inch wide, the faces of pier stones being pointed off fine with 2 inch margins out on joints. The top of the pier was laid with stone flagging 12 inches thick. This served as a watershed with a fall of 3 inches from center to gutters cut in stone at the outer rim, and from this the water is carried in a 4 inch diameter pipe to cisterns in the base of the pier. All walls of rooms inside the pier, namely, fog signal room, coal rooms, storerooms, hallway, etc., were of square rubble laid with $\frac{1}{4}$ inch joints and faces finished with point and pointed with round jointer, leaving a concave joint. The corners, jambs, lintels and sills of the tower were natural face with 2 inch margin joints, the corner belt courses, and porch were 8-cut patent hammer work and all the outside joints of the tower were called the same as top of pier and finished with key jointer. The trick inside of air spaces was laid in cement mortar, the brick work in staircases and lower entrance hall was laid in black mortar and finished with raised bead joints. All outside pier and tower was laid in mortar composed of one part Portland cement to one part of sand; a;; inside filling and backing stone was laid in one part Portland cement to two parts

sand; etc. The keeper's quarters were of seasoned Humboldt pine 1-1/18 x 3 inches vertical grain, tongued and grooved, laid on joists beveled on upper side and set into concrete arches, all surfaces and floors being polished and varnished. The inside doors, mainscoting, etc. were of Port Orford cedar with redwood panels, all trimmings in redwood; the outside doors and windows of oak, all polished and varnished. The keeper's rooms were finished with 3 coats of plaster, sand finished. All metal work recieved 4 coats of paint..

The total cost of the structure was \$704,633.78 of which 42.91 percent was for labor, 21.90 percent for transportation, 9.45 percent of buildings and plant, 8.09 percent for moorings, 6.00 percent for superintendence, 2.19 percent for lens, 2.39 percent for cement, 1.74 percent for plate glass and metal work, and 1.52 percent for vessels for quarters; the balance of 3.97 percent being distributed over a wide variety of items such as fuel, bricks and lime, office expenses, powder, oil and waste, fog signal apparatus, plumbers materials, carpentry work, hardware, paint, bronze dowels, gravel, drugs, adomite, royalty on stone, plugs and feathers, right of way to quarry, and boats..

On October 17, 1893, the first assistance keeper was lost in attempting to land on the rock in a standard station boat. No vestige of boat or man was ever discovered. In 1896 the famed blacksmith shop built on the pier was destroyed by the sea and had to be rebuilt. In 1901 it was reported that the boom of the hoisting derrick was not long enough to reach beyond a dangerous eddy just off the rock and this was the cause of a serious accident to one of the keepers when attempting to hoist the launch from the water. In 1902, anew boom 90 feet long was placed on the derrick and

properly guyed to the tower. The rigging was also renewed and this improvement greatly facilitated the landing of supplies and taking the launch from the water, as the boom extended farther from the side of the rock, reaches a point beyond a bad eddy and swell which hitherto had made landing dangerous..

In 1930 the equipment on the St. George Reef Lighthouse Reservation, which was valued at \$1,061.700 on .15 acre of land was a masonry tower for light; quarters and fog signal apparatus; radio-beacon equipment for Crescent City Light Station, and necessary equipment for isolated station. In addition to the above, there were 14.5 acres on the seacoast of California in Del Norte County, T.16 N, R.2W Humboldt Base Meridian and unsurveyed part of Point St. George valued at \$1,450.

In the 1950 Light List, St. George Reef Light Station is described as a white, square, pyramidal tower on a pier, built in 1891, and the light being 141 feet above the water, a 110,000 candlepower, first order electric, visible 18 miles, which flashes white 2.5 seconds and is eclipsed 12.5 seconds. Also a diaphone two tone air fog signal. The tower is located on Northwest Seal Rock, at 41 degrees, 50.2' N, 124⁰ 32.5' W.
