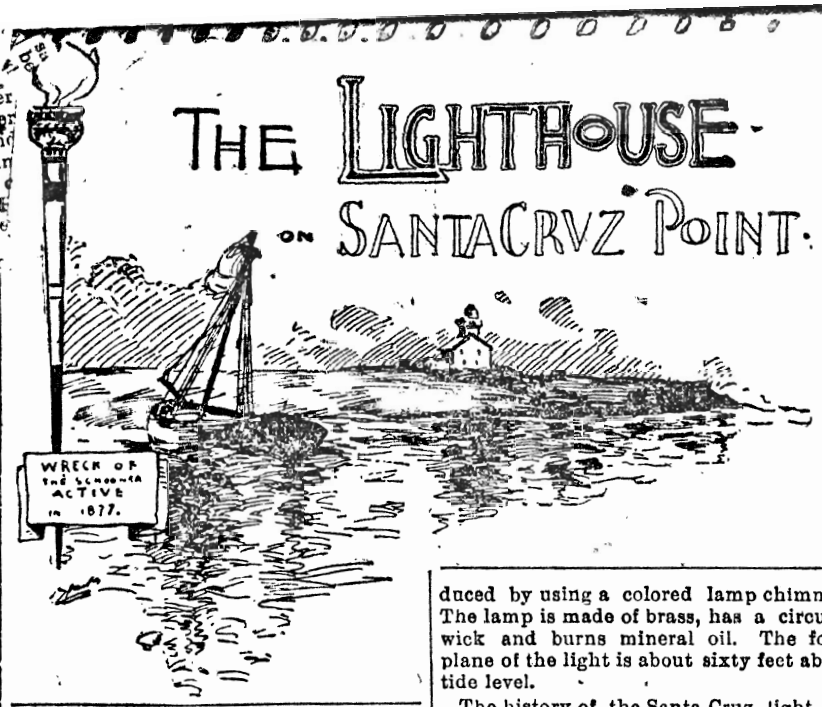
THE LIGHTHOUSE ON SANTA CRUZ POINT.





Miss M. Hicox, Keeper of the Santa Cruz Lighthouse.
[Sketched from life by a "Call" artist.]

OF ALL the lighthouses on the Pacific Coast, the one on Santa Cruz Point is perhaps the best known to the people of California. The reason for this is, of course, due to the fact that thousands visit the many summer resorts near by and look upon a trip to the lighthouse as a part of their vacation. On "visitor's days" during the season, there is a steady stream of people passing in and out of the tower from morning to night.

The location of the lighthouse is in one of the most beautiful spots on the coast, and within only a few minutes' walk of the center of Santa Cruz. It is not far from the beautiful Vue de l'Eau Pavilion and right on the ocean drive. For many years the surroundings were of the most barren description, but some cypress trees were planted some time ago that have attained a good growth and greatly add to the appearance of the place.

The lighthouse building on Santa Cruz Point can by no means be considered beautiful. In fact, it is extremely ugly. It is only a square box with a peaked roof and a tower, that looks very much out of proportion, at one end. The tower is the only thing about it that saves it from having the appearance of a down-east meeting-house.

Strictly speaking the Santa Cruz light is not intended for navigation, but is only made use of by vessels entering or leaving the harbor. In fact under ordinary circumstances it cannot be seen more than six miles, although on clear nights it can be seen eight. Old mariners say they have to take a telescope to find it. But for all that the light is of the most importance and must be lighted as regularly as those of the first order.

The Santa Cruz light is of the fifth order and in general construction the lamp is exactly like most of the others along the coast, but when burning it gives a steady red light. This is necessary on account of the numerous white lights in windows along the shore that might be confusing to navigators. The lenses were made by Sautter & Co. of Paris, France, and are said to be exceptionally fine. The lamp is very small, but capable on these summer nights of burning from sunset to sunrise without attention. The red light is produced by using a colored lamp chimney. The lamp is made of brass, has a circular wick and burns mineral oil. The focal plane of the light is about sixty feet above tide level.

The history of the Santa Cruz light begins in 1870, in which year the building was erected and the station established. At that time it was out on the end of the point, but was moved 500 feet inland to its present position in 1885. This was deemed advisable, as during stormy weather the building was shaken badly. The building was moved on rollers and the lamp lighted each night the same as if it were in its usual place.

During the quarter of a century the light has been in existence there has been but one shipwreck on the rocks near by. That was on October 26, 1877, at 4 o'clock in the morning. The weather was exceptionally stormy and the waves rolled almost to the top of the cliff. The roar of the surf was deafening so that the keeper, who was on watch in the tower hardly a hundred yards away, did not hear the cries of the men on the stranded vessel. He did not know anything about the disaster until daylight came. It proved to be the schooner Active, loaded with pig iron that had been driven ashore by the force of the storm. The crew had managed to hang onto the rigging for several hours, but nobody was drowned. The captain was slightly injured. The wreck lay on the beach a long time and numerous efforts were made to float it, but in the end it proved a total loss.

When the Santa Cruz light was first established it was put in charge of A. E. Hicox, who held the post until his death in 1883. His daughter then put in an application for the place. It was at once given to her and she has held it ever since. Miss Hicox is given no assistant, but does all the work about the place herself. She is thoroughly familiar with her duties, hving lived in the lighthouse for twenty-six years, and keeps everything in the best of order. Her mother lives with her. The lighthouse seems more like a country home than a Government station.

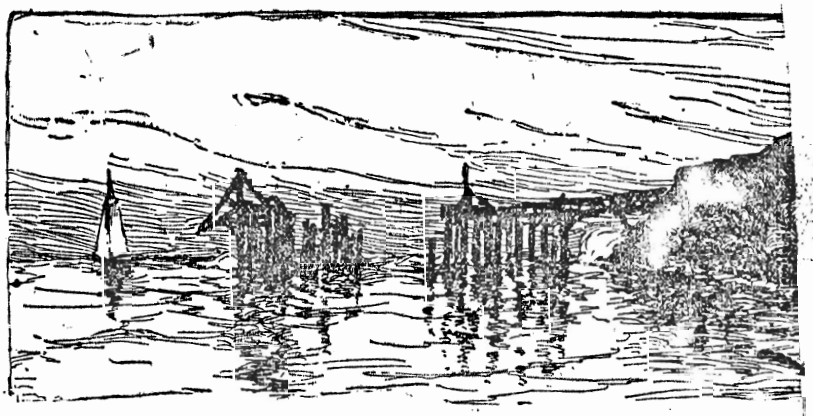
During the years she has lived at the lighthouse Miss Hicox has formed a collection of shells and other curios of the coast that is most interesting. There are hundreds of specimens all properly labeled and catalogued that fill one large room on the first floor of the building. On visiting days Miss Hicox leaves this room open to the public.

For the last ten years the Government has been contemplating the erection of a large station at Santa Cruz, and also putting in a fogbell. But as the traffic to that port has been on the decline instead of the increase it has been put off from time to time so that there is no telling when the work will be done.

A PICTURESQUE RUIN.

ALL THAT IS LEFT OF ALEXANDER GORDON'S GRAIN CHUTE.

One of the first enterprises of any magnitude, outside of mining, ever undertaken in California was the construction of Alex-



A Picturesque Ruin on the San Mateo Coast—All That Is Left of Alex

There is an interesting story told in Santa Cruz about Adna A. Hecox, an itinerant preacher from New England. He arrived in 1869 town, entered local politics, served on the city council, cut wood for wages, bought an interest in the Santa Cruz *Sentinel*, and wrote a religious column for it. Hecox also went into real estate and later became town treasurer. His political influence enabled him to land the job of keeper when the tower was established. And in undertaking that job he established a "dynasty." Members of his family were connected with the Light for a half-century. Upon Adna Hecox' death in 1883, his daughter Laura succeeded to the job and retained it for thirty-three years.

SANTA CRUZ LIGHT

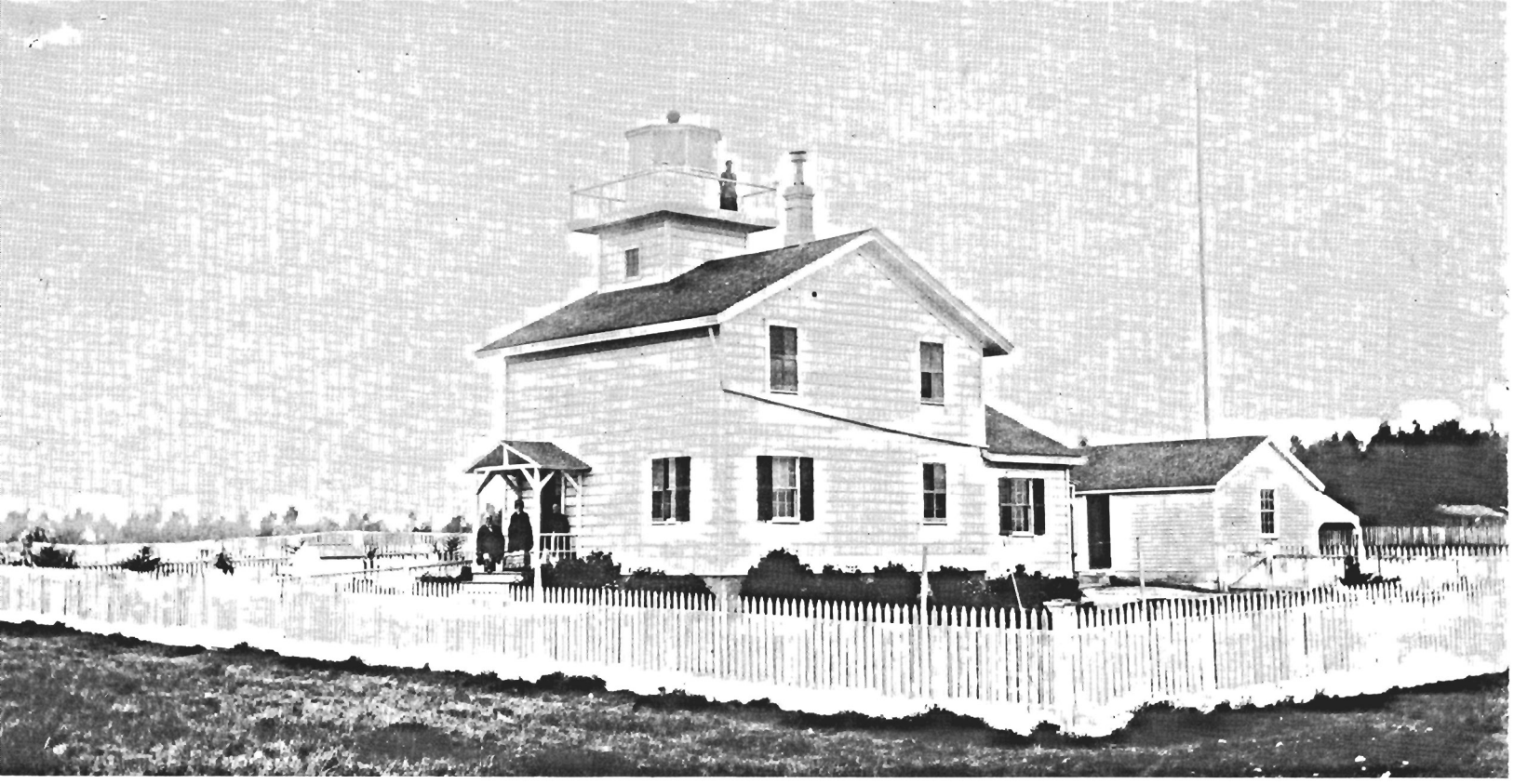
Santa Cruz Light Station was established on January 1, 1870 as a major aid to navigation. The light was described in the 1940 Light List as a group flashing white 3 flashes every 15 seconds. Its position was on the point, west side of entrance to Santa Cruz Harbor, geographical position 36-57.1N 122-01.6W, its candlepower 25,000, the light itself was on a white square tower on a dwelling.

In 1941 the Light was dis-established due to changed maritime traffic. The new traffic lanes did not need a major aid at Santa Cruz. In 1941 a minor light was established and is described in the 1966 Light List as a light in a white frame tower 39 feet above the ground and 55 feet above sea level, which flashes white every 7.5 seconds, the position the same as first established. The luminous range is 16 miles with 50,000 candelas intensity.

COMMANDER
12th Coast Guard District
630 Sansome Street
San Francisco 26, Calif.

15 May, 1956
A7/A12

Mrs. Sallie Russell Shearer
524 Lincoln Street
Santa Cruz, Calif.



CALIFORNIA'S LIGHTHOUSEKEEPER NATURALIST

Frank Perry

FEW WOMEN rose to prominence as naturalists in the nineteenth century and, unfortunately, even fewer from that era remain well known today. One of the lesser known California naturalists of that time, but one who deserves our recognition, was Laura Hecox. Miss Hecox was primarily a collector. Her sea shells, Indian artifacts, bird eggs, fossils, minerals, and other specimens and curios were at one time displayed in the lighthouse at Santa Cruz, California, where she was keeper for thirty-four years. She eventually gave her private museum to the people of that community, thereby establishing a small public museum there in 1905.

Laura's parents, Adna and Margaret Hecox, came to California in 1846, the same year the Donner party met tragedy on the snow-covered Sierra. The Hecox family left Illinois in March of that year, struggling overland with the Aram-Imus party. On October first, as the party descended from the Sierra, they spotted for the first time the vast Sacramento Valley stretched out below. Adna Hecox, a Methodist minister, is credited by many historians as having preached the first Protestant sermon in California—at Santa Clara in December of 1846. In the spring of 1847, the Hecox family, ill from spending the winter in the damp, cramped quarters at Mission Santa Clara, came to Santa Cruz where they soon made their permanent home. Four of the Hecox children crossed the plains with their parents. Laura, however, who was the ninth of ten children, was born in Santa Cruz January 29th, 1854.

From childhood Laura was keenly interested in nature, particularly marine life, and spent countless hours exploring the deep green tidepools and intermittent sandy beaches along the northern rim of Monterey Bay. Her parents encouraged her greatly in her avocation. Her father, who had worked for a time as a carpenter, skillfully constructed several large, upright exhibit cases for her growing collection. Adna Hecox was heavily involved in county politics in the 1850's and 1860's, having been elected County Treasurer, Public Administrator, and several times Justice of the Peace. His political ties are no doubt what led to his appointment as lighthouse keeper in 1869. By December of that year the lighthouse was nearly completed. Around this time Mr. Hecox moved into the six-room structure with his wife and younger children. This was marvelous for Laura for now she lived only a few feet from the wave-swept shoreline and its never-ending natural bounty.

In the coming decade Laura became a more

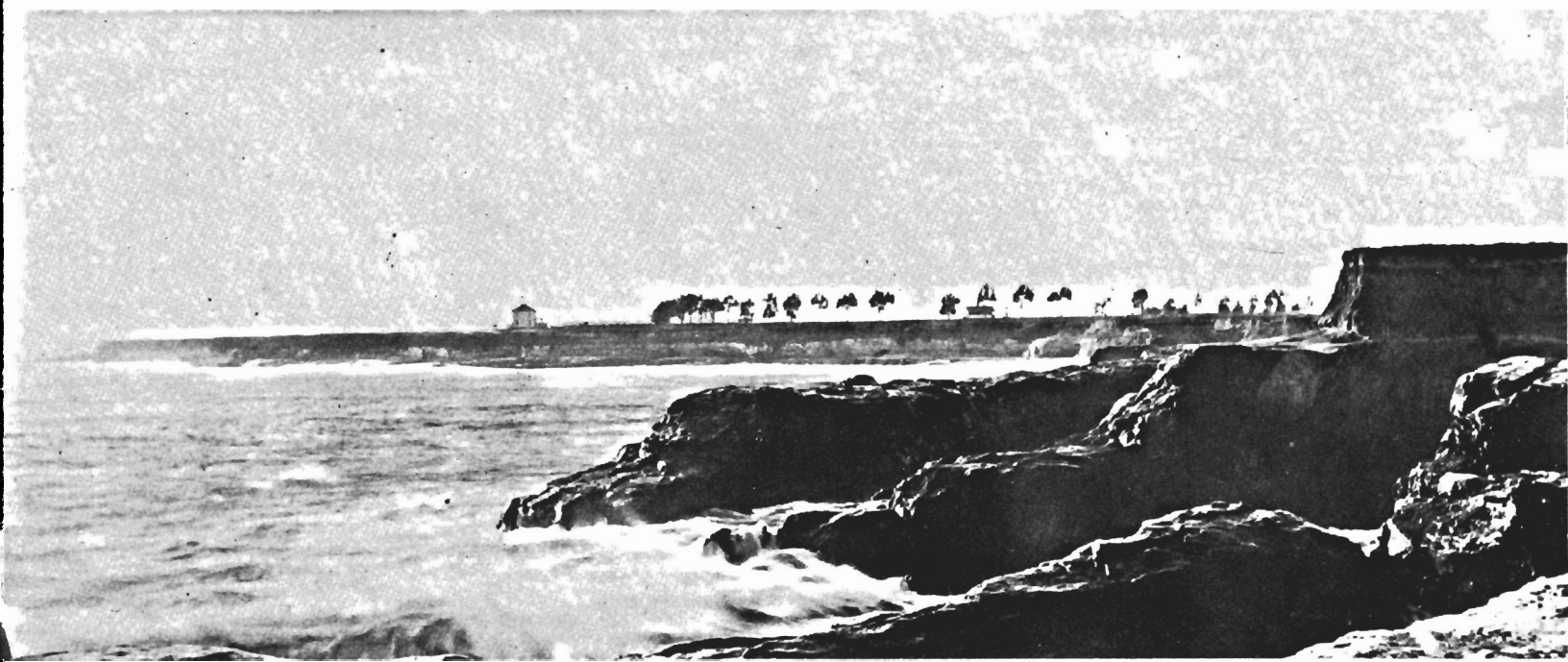
Above, Santa Cruz Lighthouse, where Laura Hecox worked and maintained her collections, in the early 1880s (Santa Cruz County Museum). Right, the ocean cliffs in the region watched over by the lighthouse (SCCM). Right above, Laura Hecox exploring the rocky beach below the lighthouse, September 1888 (SCCM).

serious collector and began chronologically recording and numbering specimens and artifacts received through gifts and exchanges. She received many gifts from friends and relatives throughout California and Nevada. Even articles donated by her father, brothers, and sisters were diligently recorded in her notebook. Her collection included not only natural history specimens but also artifacts of historical or potential historical interest. Entry number thirty-six, for example, reads, "A skylight out of the deck of the Schooner 'Active' that came ashore at Light House Point at 4 o'clock Thursday morning, Oct. 26th 1876. Presented by Capt. Peterson of San Francisco, Cal." The *Active,* through no fault of the lighthouse keeper, grounded itself on the beach immediately below the lighthouse. Mr. Hecox and his family aided the crew up the steep cliffs early that morning. Other entries in her catalog are somewhat more unusual. For number sixty Laura states only that, "This was taken from a cow's stomach by a man in Humboldt County, Nevada. Presented by Mrs. S. E. Stamply of Carson City, Nevada."

By 1879 Laura, now twenty-five, had become quite a student of conchology, according to accounts at the time, and had corresponded with at least one professional in the field, Professor A. G. Wetherby at the University of Cincinnati. On several occasions she sent Professor Wetherby numerous specimens of the land slug *Ariolimax* that she had found around Santa Cruz. Wetherby eventually named a new variety of slug after her. Though not the most glamorous tribute to the budding young naturalist, it was a tribute just the same.

In 1883 Adna Hecox died and daughter Laura was appointed keeper of the light. Several women served as lighthouse keepers at various times in California. Just twenty miles away at





Below, Laura Hecox and her mother on the front steps of the lighthouse, September 1888 (SCCM). At bottom, Santa Cruz lighthouse and the beached schooner *Active* in 1877 (SCCM).

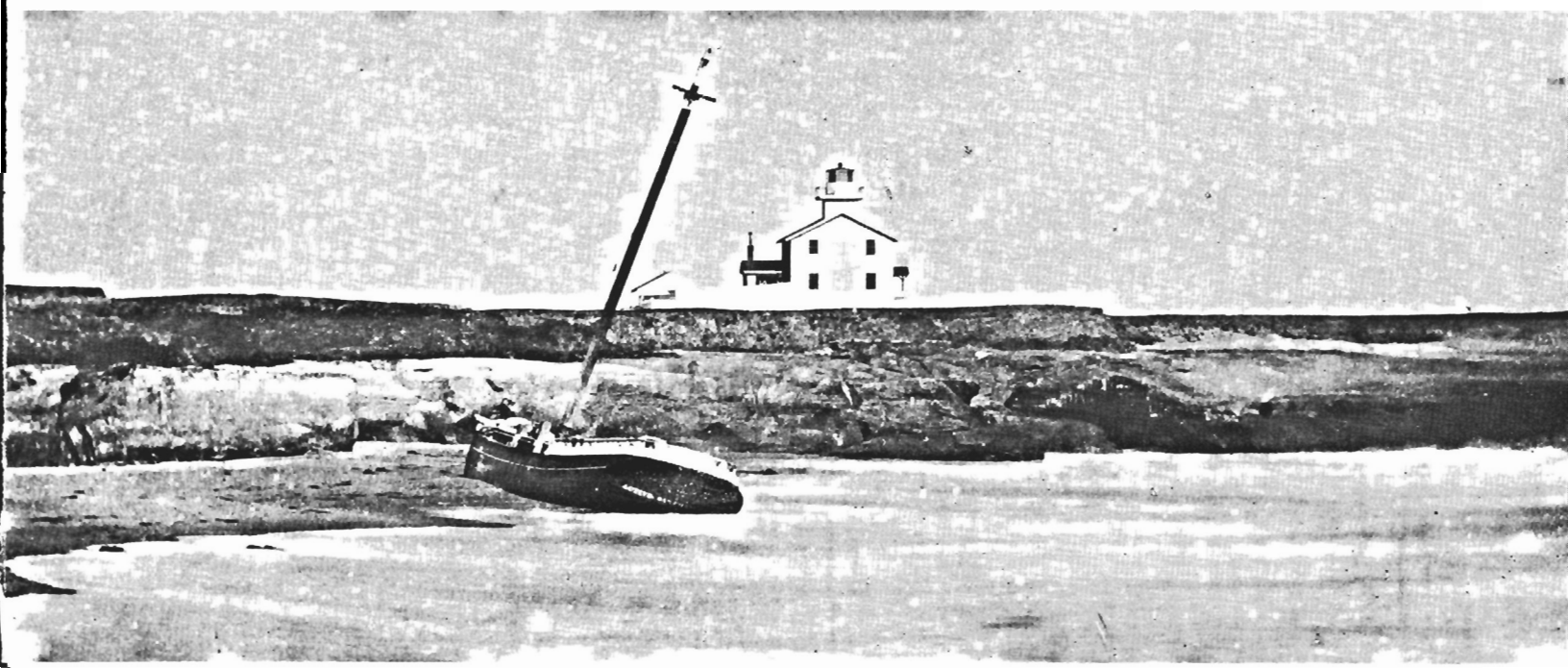


Point Pinos, on the opposite side of Monterey Bay, Mrs. Charles Layton was appointed head keeper in 1856 following the death of the previous keeper —her husband. The foremost duty of every lighthouse keeper was, of course, to keep the light burning through the nights and through the times of heavy coastal fog. The Santa Cruz light ran on high quality lard oil which was filtered from a half gallon reservoir located up near the wick so that the heat would keep the oil fluid in cool weather. The fourth order Fresnel lens, which measured about one and one half feet in diameter, consisted of eighteen levels of polished flint glass prisms which focused the light to a plane sixty-seven feet above mean sea level. The government must have been pleased with Laura's performance as keeper, since she remained at the post until retirement in 1917.

Phil Francis, in his 1896 booklet *Beautiful Santa Cruz County,* gave the following account of the lighthouse and its keeper:

> Within the city limits and on the first stage of the magnificent Cliff Dr. is the United States Lighthouse. The house is kept by Miss Laura Hecox, a most estimable and entertaining lady. She succeeded her father as keeper, and no lighthouse on any coast is kept more faithfully and well than that which sends its flashes across the waters of the Bay of Monterey. The lighthouse is open to the inspection of the public three days in the week, and Miss Hecox not only exhibits to visitors the curious and costly mechanism of the great lamp, but takes pleasure in showing her own fine and interesting collection of marine curiosities. . . .

Laura eventually devoted one entire room to her private museum, the rest of the lighthouse being occupied by her and her elderly mother. Also exhibited were sculptures by her nephew,



Douglas Tilden, who had studied in Paris and was widely known for his fine work. Tilden, who had been deaf since age five, taught for a time at the California School for the Deaf in Berkeley and frequently visited his grandmother and aunt Laura at the lighthouse. He often brought with him students and friends from the school, some of whom took the photographs on these pages.

Laura's interests were remarkably diverse. Scrapbooks kept by her during parts of the 1870's, 80's and 90's include magazine and newspaper clippings on taxidermy, architecture, literature, archeology, numismatics, philately, astronomy, religion, geology, botany, and California history.

Laura kept fairly well abreast of activities in the scientific community throughout California. With regard to ornithology, she benefited substantially from her acquaintance with Ed H. Fiske and Richard McGregor, who for a time studied the birds of central California. After extensive collecting and observing, they authored in 1892 a checklist of birds found within a twenty-mile radius of the Santa Cruz Lighthouse. Ed Fiske gave his Santa Cruz area collection of eggs, nests, and birds to Laura, who displayed them for many years. McGregor deposited nearly one thousand bird study skins at the California Academy of Sciences. Tragically, these and virtually all the other Academy collections were destroyed in the 1906 earthquake and fire.

Laura Hecox frequently collected fossils and rocks along the coastline near her home and along creekbeds in the nearby hills. Around the turn of the century she met Ralph Arnold, who was studying geology and paleontology at Stanford University and working for the U.S. Geological Survey. Arnold was quite impressed by her fossil collection and, in a report on Santa Cruz Mountains fossils published by the U.S. National Museum, named a new species of fossil spindle snail in her honor. He stated that her "collection of specimens and interest in natural history has been an inspiration to all who have had the pleasure of her acquaintance."

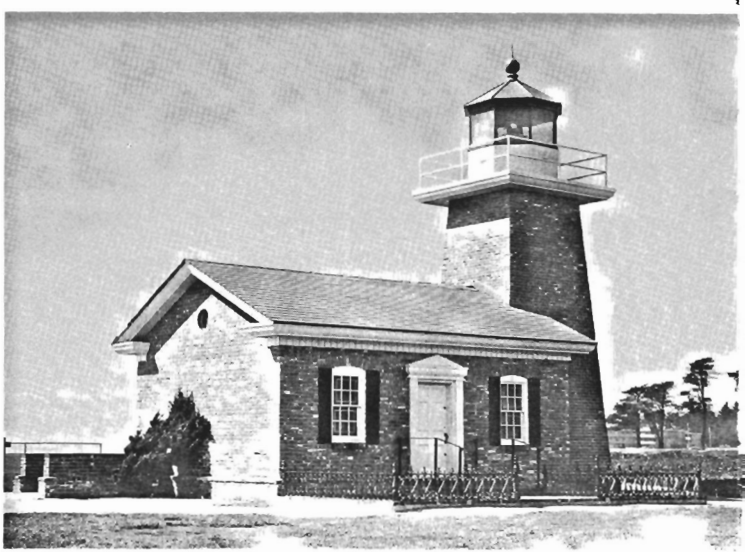
In 1902 Andrew Carnegie agreed to finance the construction of a new public library for Santa Cruz. Among the prominent local citizens on the library Board of Trustees at that time was Dr. Charles L. Anderson. Dr. Anderson, though a medical doctor by profession, spent a substantial part of his time studying natural history. In fact, one wonders how he had much time to take care of patients. Dr. Anderson arrived in Santa Cruz in 1866 and over the next forty years became the leading authority on that area's natural history. He authored numerous published articles on natural history, particularly plants, and contributed a number of botanical specimens to various museums. As a Santa Cruz library trustee he persuaded Laura Hecox to donate her entire collection to the city for permanent exhibit in the soon to be completed library.

A newspaper account at the time noted that, "Museums in connection with libraries are beginning to be quite the thing and (are) advocated at all gatherings of librarians." Dr. Anderson explained the relationship in more detail:

> A library and a museum should go side by side. In fact, they are necessary to each other. They are partners—both active—one illustrates and explains, the other serves a good purpose as an example. Used together intelligently, the museum becomes as fascinating as a story, and many times more useful. Of course, it should be an educational museum, and have its foundations in an intelligent classification. Miss Hecox has been many years in arranging and accumulating her collections. Now it has become valuable and interesting, but the care of it has become burdensome. She has been renumerated in the pleasure she has obtained from contemplating it. But the children of Santa Cruz, and especially those who are seeking an education, may also find pleasure and benefit by having this collection placed so they may be bene-

Below, the Santa Cruz lighthouse around the time Laura Hecox retired as keeper (U.S. Coast Guard). Below right, the present Santa Cruz Lighthouse, constructed in 1967; only the light-tower resembles the original, which was dismantled in 1948 (B.F.).



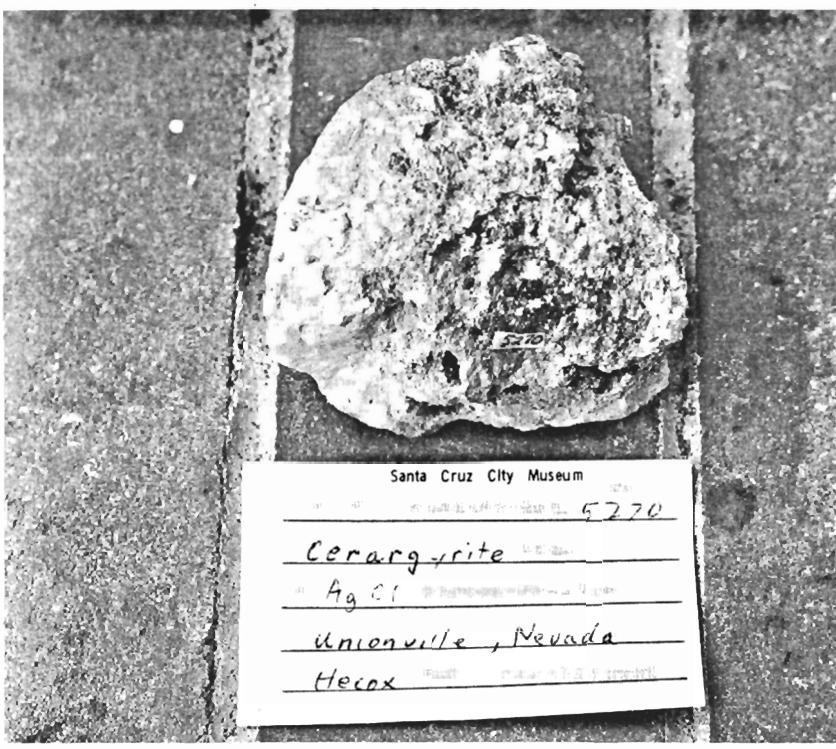


fited. Children are never too young to begin study of nature's book, and never too old to quit.

During the summer of 1905 Laura was hard at work removing her collections from the lighthouse and arranging them in a room in the library. On Monday, August 21, 1905, the Hecox Museum opened. According to the *Santa Cruz Sentinel* newspaper, "A large number of Santa Cruz citizens and citizenesses called at the Free Library rooms during Monday afternoon and evening to pay their respects to Miss Hecox. . . . " The lighthouse keeper, described as a woman of quiet, unasuming demeanor and devout religious habits, received most graciously the many fine compliments. In a short speech, she said that she did not feel that she was losing anything in giving the collection but rather was merely taking everyone else into partnership with her in the enjoyment of it. Each of the many exhibit cases was devoted to a different category. Included were dried starfish, crustaceans, Indian baskets and mortars, Eskimo artifacts, minerals, agates, gems, south sea island curios, petrified woods, coral, several cases of shells including two hundred local species, and an unusual collection of turtle and tortoise carapaces. Also exhibted was Ed Fiske's collection of bird eggs neatly arranged in their nests.

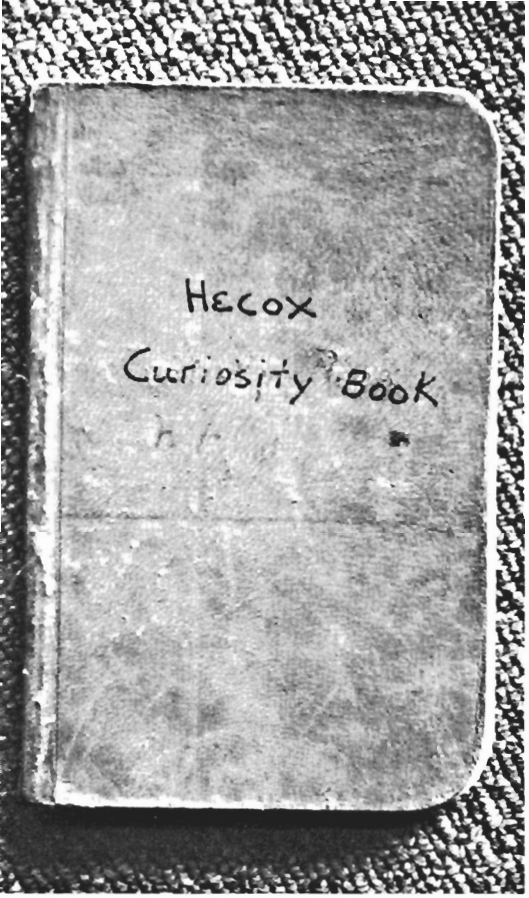
In January of 1908, Laura's mother, now ninety-two, passed away, leaving her daughter alone in the small, white lighthouse. The cypress trees around it had grown considerably through the many years as had the surrounding town, now bustling with streetcars and tourists. She continued quietly tending the light and grounds for which she was paid, in 1910, a little over sixty dollars per month. She retired in 1917 and died two years later. Sadly, except for parts of her collection winnowed by the years, and a few faded scrapbooks and photographs, little remains to remind us of this nature lover, lighthouse keeper, and indefatigable collector.

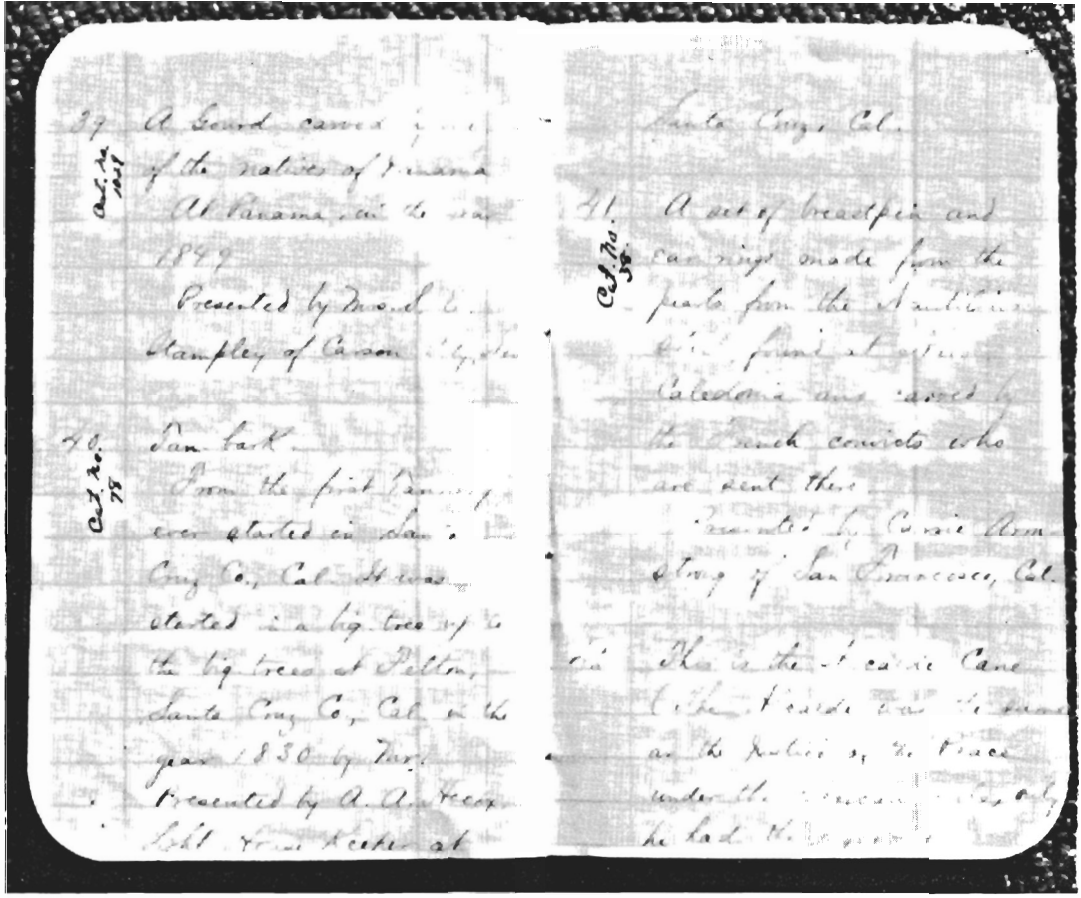






Left, present Santa Cruz Museum building as it appeared in the 1920s, as the Seabright branch library. The collections instituted by Laura Hecox are now housed in this building (SCCM). Top, present Santa Cruz Museum fossil exhibit (B.F.). Above, one of Laura Hecox's mineral specimens (B.F.).





Chitons.

NOTES OF SHELL GATHERING AT SANTA CRUZ, CAL.

I will begin with the multivalve shells. They are composed of eight pieces, or separate valves, placed in a longitudinal series, being joined to each other by inserted lamina, and named Articulata, by De Blainville, on that account. The genus Chiton is the only example of multivalves that is a true mollusca. The animals are somewhat like a limpet in shape, and like them cling to the rock by a broad, flat foot. Take and separate the valves of some of the species, and they look very much like a butterfly. We have here, according to Dr. J. G. Cooper, sixteen species, but I have only ten in my cabinet.

Cryptochiton Stelleri, *Midd.* is the largest. It is sometimes a foot long when it is alive, but as it dries it shrinks up shorter. Its white valves are concealed beneath the reddish brown mantle, which covers the whole back of the animal. C. Stelleri is the only species that the mantle covers the whole back. It lives on the rocks in deep water.

Tonicia Lineata, *Wood.* is a small species about an inch in length. It is the most beautiful one we have here. Its polished valves are beautifully striped and painted. The color is orange, with marking of white and reddish brown. Within, the valves are white, shaded with orange. They can sometimes be found at very low tide, but not often, but single valves are often washed ashore.

Mopalia muscosa, *Gld.* is common all along the west coast of the United States. It is found quite plentiful here. A person would walk over them time after time, and would never think to look for them where they live. They live in little depressions in the rocks and the sea-anemones cover them over so they cannot be seen. Outside its color is dark, and it is sometimes covered with seaweed, but within the valves are a beautiful light green. Length, two inches.

Mopalia Kennerleyi var. Swannii, *Cpr.* lives under the rocks. They can only be found at very low tide by turning over the rocks. The valves of this species are different colored. In some of the specimens two or three of the valves are red, and the rest are brown, and in some they are yellow and brown. Within, they are a very light green, shaded with pink. Length about an inch.

Ischnochiton Magdalensis *Hds.* is not common here, but may be found by turning over stones at low tide. It is long and lean. The valves are light-colored, spotted without and white within, and its grayish mantle is set with little scales, Its length is from one to three inches.

Katherina Tunicata, *Sby.* is not common here; it is more plentiful farther north, on the Oregon coast and about Sitka. Its form is long and oval. The manthe is black and heavy, nearly covering the white valves. Length, two to three inches.

LAURA J. F. HECOX.



Top left, Laura Hecox used this small leatherbound book to catalog her collection. Top right, an entry from her catalog, detailing a gourd from Panama, the first tannery in Santa Cruz, a nautilus-shell breastpin from New Caledonia, and an Alcade cane from Mexico. Above left, article by Laura Hecox, on chitons, in the Santa Cruz newspaper. Right, cabinet containing Laura Hecox's collection of shells at the lighthouse (SCCM).

TWO WOMEN WHO SIT UP ALL NIGHT.

How Two Plucky California Ladies Watch Over the Safety of Those Who Go Down to the Sea in Ships.

There are two women in California who are regularly authorized keepers of lighthouses, and upon whom depend the personal care of the great lamps and the safety of uncounted numbers of lives.

They are Miss Hecox, stationed at Santa Cruz, and Mrs. Fish, at Monterey.

They are two very remarkable women. In the first place, because they are an absolute refutation of the time-worn slander of "tyrant man" as to a woman's reliability in responsible places; in the second place, because they are content to pass their lives so far from human companionship, and in the third place, they know the points of the compass.

I spent a night in each of those lighthouse towers watching the women take care of the light and keep it bright for the lonely ships that pass in the night in the dark, and which but for it might be lying in the gray of the dawn shattered wrecks on the cruel rocks. If anybody thinks that a lighthouse-keeper's life is a merry and frolicsome one, let him go down there and see if it is. The worry and care of keeping that light lit is bad enough, but the daily attendance on it is an added strain. There are rules for the ceremony of lighting it and rules for the ceremony of putting it out, and more printed rules in a great book for keeping it clean and free from dust, one speck of which, they say, might cost a good crew their lives. The bother of an ordinary lamp pales into insignificance beside this solemn duty, where no less a housekeeper than the Government is to be pleased, and everybody knows what a strict master that is.

The first night I spent at the Santa Cruz lighthouse I arrived there just before sundown, in time to see the light lit. Sundown may be a very picturesque time for the scenery-mad person, and for the horny-handed son of toil it means dinner time, and there its interest for people usually stops, but to the lighthouse-keeper, burdened with the anxiety of keeping the life-saving lamp trimmed and shining it is a most critical and important period.

Miss Hecox, the quiet little dark-eyed woman with the grave responsibility, didn't do any guessing about what moment that Santa Cruz sun would go down. She frowned in a calculating way over a book full of dry looking columns of figures and nodded briskly to show that the moment had nearly come.

"It's nearly time to light the lamp—the sun is almost down now," said she as she shore.

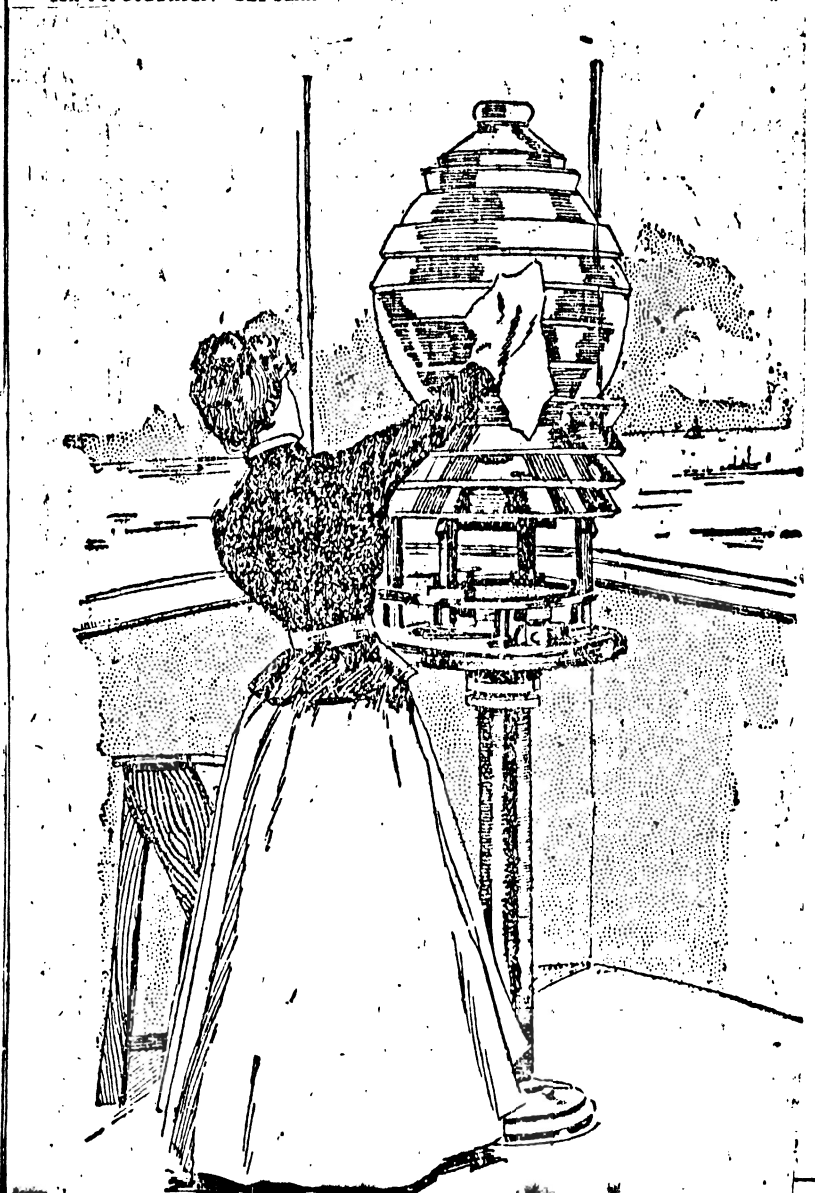
"It is time to light the lamp," said Miss Hecox, suddenly.

Then she took off the white covering that had hidden the lens from view and folded it and put it away in the brass basket. She looked up silently at the lamp with a look of positive adoration.

"I have grown to love it in all these years," she murmured apologetically. "And I cannot understand people who sometimes come up here and say, 'Now, you must tell me what to admire.'"

All this time she was preparing her matches and unfastening the rear of the lens, which was in the shape of a brass door.

"Isn't it beautiful?" she said.



is put out," said she. Then she shivered and shaded her eyes with her hand and looked out over the tossing water.

"I must record the weather 'foggy,' variable winds, north to northeast," she said, slowly. It seemed more like a pilot-house than ever then.

Once downstairs she wrote this down in a great daily journal that she keeps, and the night's vigil was done.

"Isn't it all a dreadful responsibility?" I asked.

"Well," said the little keeper, slowly, "it is always there."

And so it is, sleeping or waking, it is always there.

The second night was spent at Monterey Lighthouse, the oldest on the coast and of a higher order than the one at Santa Cruz. There the lamp is so large that Mrs. Fish can stand in it when she dusts it. There they sometimes have heavy storms owing to the large exposure to the ocean on one side. The little house stands white and shining in a tiny green inclosure, for Uncle Sam is very particular about his housekeeping, and flowers bloom in the damp winds that blow across the headland.

"Here is where we are," said Mrs. Fish, pointing out Monterey lighthouse on the map, a curious, figure-dotted affair with arrows and stars and very little else on it.

Monterey lighthouse was represented by a little red tongue and a huge circle drawn around it.

After lighting the lamp, which was a white one, and the lens of which was very much like the one at Santa Cruz, only it was larger, Mrs. Fish explained a good many things about the light and its care that only a person who knew it all intimately could repeat. Things that one would never think of asking, for, as she said, "there are more things about the lamp than one would ever imagine. It is the most important thing in the house. Everything else is subordinate to it." And so it proved.

"We are ninety-one feet above the sea level and the light can be seen fifteen and one-half miles out. This light is 1,000 candle power and is a fixed white of the third order," and Mrs. Fish amiably rattled off a great deal more of equal mystery and technique, but then she says "there are so many visitors that she knows just what questions they will ask."

"The lamp burner rests every month or so," continued Mrs. Fish, "it always burns the brighter for it—it is just like a person, you know." And the wonder was that they didn't *salaam* to it as they entered its throne room.

"See these clamps," she said, "they are for use in great storms. When a pane is broken we can fasten an extra one in by means of these. Every precaution is taken to prevent the light being hurt or disabled for an instant. I have storm-panes at my hand when I wake in the night and can put them in in a few minutes. There are duplicates of everything besides."

The "service-room" in this case was a very large storeroom, with linen and oils and glittering brass measures and tools for every use and emergency imaginable.

"All of this as well as the house and grounds must be kept like wax," said Mrs. Fish, "for the Inspector insists upon these things."

Then she went up and looked at the lamp again. "Though I would know without looking at it just what it was doing," said the woman keeper.

Outside the lateen sails of the fishermen were bobbing up and down, the horizon showed one vivid streak of red, and 'Cypress point" with its monkish associations still was outlined against the gray and lowering sky.

Some microscopic speck of dust may have lingered on the lens that throbbed like a great diamond above us, for before we left Mrs. Fish swept a gossamer fine duster over it; though the common eye would never have discovered anything.

During the night it was necessary to ex-

and there its interest for people usually stops, but to the lighthouse-keeper, burdened with the anxiety of keeping the life-saving lamp trimmed and shining it is a most critical and important period.

Miss Hecox, the quiet little dark-eyed woman with the grave responsibility, didn't do any guessing about what moment that Santa Cruz sun would go down. She frowned in a calculating way over a book full of dry looking columns of figures and nodded briskly to show that the moment had nearly come.

"It's nearly time to light the lamp—the sun is almost down now," said she as she shut the book up and set down a few more dry figures of her own on a slate. Outside of the lighthouse it was foggy and gray, and the sun, if sun there was, showed not the slightest sign of what it intended to do.

"That was the log slate," she explained as we started up the stairs; "that is where I prove mathematically the correctness of the time set down in the charts. I will explain more about it when we come down."

By this time we had climbed one flight of narrow, winding stairs and were in a small, dark room lit by the feeble light from one little window.

"This is the 'service room,'" said Miss Hecox.

The "service-room" had a tiny cupboard and nothing else in sight but another flight of stairs. In the cupboard were wicks and chimneys and shining brass things whose uses could not be guessed at. From this storehouse Miss Hecox took a well-packed brass basket and started up the next flight of steps.

"I will go up first," said she, "because the keeper must be the first to enter the presence of the lamp."

In a moment more we were in the lamp-room—if room it could be called. A small, septagonal place in the top of the lighthouse tower, about six feet in diameter. There was nothing particular to be seen at first, for the blinds were down at all the panes. Miss Hecox lifted them carefully up, closed the trap-door near which she stood with great deliberation and exposed the panorama of the harbor view. The mist drove against the panes of glass on the outside of the tower, the clouds scudded rapidly along and the surf broke with a mighty roar on the giant rocks of the lonely little promontory.

The little room was exactly like a pilot-house, with only the sky and the seagulls to be seen and the sullen water. To add to the illusion the fittings were all shining brass and copper, and everything was polished like a black shoe of a Sunday.

"It lacks two minutes and a quarter of being sundown," said Miss Hecox, consulting her watch methodically, and smiling that enigmatical smile that people who live lonely, retired lives are prone to smile at worldlings; "it looks dark, of course, but it lacks two minutes and a quarter of lighting."

This sounded rather minute, but, then, a lighthouse-keeper's life is laid along lines of exactitude that would fret the ordinary person into fidgets in a week.

The two minutes and a quarter seemed like ages. The lines along the horizon grew darker, the sails on the water less distinct, and the whitecaps could hardly be seen any longer. The buoy disappeared, but its moaning could be heard mingling with the pounding of the breakers on the



Miss Hicox of Santa Cruz.
[From a photograph.]

In the dim little turret the body of the unlit lamp shone like a giant bubble. It was about the size and shape of a small keg, to be more exact, with a middle part of smooth, gleaming glass as clear as spring water, while at the upper and lower ends there were corrugations made of fitted lenses, separate and of a triangular shape. This all stood on a pedestal about a woman's waist from the ground.

Pouf! The lamp was lit. And the ruby light of the chimney, reflected from the countless sides of the prisms and shining through the clear crystal, made the whole look like some great jewel glowing and sparkling up there. As Miss Hecox had said, it was certainly beautiful.

"That lens is made in the same way as the telescope ones—it is a Fresnel," she said, "and polished with the thumb. It is so soft and fine. It cost $5,000, I think, and came from Paris twenty-five years ago or more. I have tended it twelve years myself."

Then she started down the stairs again and left the light steadily burning and alone in the quiet tower, the outside world having apparently fallen away, for nothing could be seen but impenetrable darkness.

"I will go last," said the little keeper, "for I must be the last to leave the presence of the lamp."

Again that peculiar personification of the lamp, bred by that twelve years' followship.

We went immediately to bed, for the lamp had to be tended in the night and we would have a broken rest at best.

At 3 o'clock Miss Hecox called me, and hurriedly dressing we went up again.

"It is all right," said Miss Hecox as she examined the light with wide-awake, critical eyes—singularly wide-awake, it seemed—and then went down again.

"It is good to fall asleep," said the little woman, "with that light burning so steadfastly above my head, warning the mariner from death and peril, and with the sound of the whistling buoy and the surf in my ears."

That might exhilarate some women.

At sunrise Miss Hecox consulted some more mysterious charts and put the lamp out and the curtains were drawn again in the silent little turret chamber. Then we went out on the little balcony that runs around it up there.

"It always seems like a corpse to me," said the strange little woman as she closed the door behind us and we stood in the wind and wet. "I mean the lamp, after it

Outside the latteen sails of the fishermen were bobbing up and down, the horizon showed one vivid streak of red, and "Cypress point" with its monkish associations still was outlined against the gray and lowering sky.

Some microscopic speck of dust may have lingered on the lens that throbbed like a great diamond above us, for before we left Mrs. Fish swept a gossamer fine duster over it; though the common eye would never have discovered anything.

During the night it was necessary to ex-



Mrs. Fish of Monterey.
[From a photograph.]

amine the light twice, for the post is a very important one, though the anxious stewardess always found it in the same position that her "fixed threads" and "leveler" had left it in in the morning previous.

At sunrise she was again in the turret. The oil was slowly turned off and the light went out of itself.

The pale dawn slowly straggled in through the ten windows at the sides, the white line of the breakers grew visible, and in the distance one or two sails beckoned like white hands and disappeared.

I do not know what minute it was or what second of time, but Mrs. Fish said, "It is morning now." And somehow there was about that simple little statement the impressiveness of an augur. No high priestess just finishing an incantation could have announced the fact with more solemnity. Then she covered the lamp and pulled down the shades just as Miss Hecox had done.

"It is never off my mind, sleeping or waking," said Mrs. Fish, and I knew she meant the lamp.

And that's the way they live—those unusual women, with no noise but the sound of the waves going past their doors, with no voices but the cry of the seabirds as they wheel by, and not a shop window to look into. Polishing and cleaning all day, and with the lamp on their minds at night; for "it is always there."

GENIE CLARK POMEROY.

A NIGHT IN A LIGHTHOUSE.

Looking at a Midnight Storm From Point Bonita.

MARCH 19, 1893.

WILD WAVES AND AN INKY SKY.

Annie Laurie Talks With Grizzled Captain Brown, Who Has Tended The Sailors' Signal for Twenty-One Years—The Keeper of a Lighthouse Who Has a Wife and All the Comforts of Home.

We had been driving through the pelting rain for hours. The bay was hidden; the green hills rose around us and there was no sign of the sea. Suddenly the driver spoke: "We're coming in," he said, pointing with his whip.



Lightkeeper Brown.

The air was full of feathery floating things, as white as milk and as delicate as the finest lace work.

"Sea foam," said the driver; and so it was. It floated over the hills as gayly as dandelion silk flies on a June day. "Over the hills and far away" it bore its message from the wild sea to the quiet valleys. Sure enough we were "coming in."

"Himmel!" muttered the man.

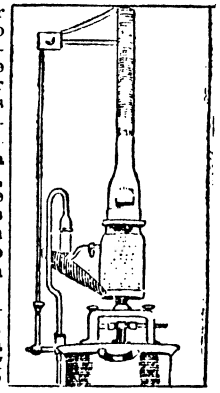
"You drive in the rain?" said the woman. "Ach, but it is cold. Come by the fire."

I don't think either of them ever thought of asking us what we had come for; they looked upon us somewhat in the light of a visitation of providence—weird beings not to be lightly questioned.

Mr. Brown was at the light, they said, when we asked for the lighthouse-keeper. He did not live in the wee house; he lived in a big house further up the cliff. I was rather cast down at this news. I had hoped to find the lighthouse-keeper living all alone in the tall lighthouse, eating by the rays of his light and sleeping in its shadows.

"Mrs. Brown is in the city," said the woman. "She went yesterday." Misery! There was a Mrs. Brown. The lonely light-keeper of my fancy was turning into a very prosaic man, with a wife and a house with a parlor in it. Worse than all, there are three families besides his own at the light. I was quite indignant. So was the artist.

"A lighthouse-keeper with all the comforts of home!" he cried. "Why, it's against all the ethics of art." He was for coming straight to town again, but I reminded him of the miles of wet weather that lay between us and home, and he became more reasonable. He grumbled a good deal, though, while the man of the wee white house was putting on his oilskin and sou'wester to take us to the fallen "keeper."



The Lighthouse Lamp.

"A house," he muttered, "and a wife. I suppose he'll wear a top hat, and lilies of the valley in his coat."

"Ready?" said the man of the house, holding up his lantern to see that the flame was steady. He was buried in coats and comforters. His face shone red and cheery from a wilderness of mufflers. He looked at my hat with a disparaging smile. "You like that?" he said, pointing to it.

"Not particularly," said I.

"You want to loose?"

"No," I confessed. "Not just now."

The man of the house blew through his teeth, "w-h-it," he said, and he made a gesture that was a photograph of a flying hat. I tied my hat on with a big silk handkerchief. The artist tied his on with a big silk handkerchief. We gave a farewell glance at the stove and the smiling baby and out we went.

"W-h-o-w," shrieked the wind. And then it began to grow interesting. We blew along a wet path a minute or two, and then the guide turned around. He put his hands to his mouth and made a trumpet. "Follow in my steps," he shouted. "Be careful."

"Be c-a-r-e-f-u-l," wailed the dismal wind. The rain came down in positive torrents. It was bitterly cold and I could hear the "slosh" of the water in my shoes at every step. I felt miserably dejected, so I trudged behind the guide, watching the rays of his lantern with painful concentration.

All at once there came a new sound. Right under our feet came the steady on the point.

"The old lighthouse was too high up," said Captain Brown. "The fog used to rise and hide it. Fog's queer; as queer as the wind and the water, and there's no telling its ways. So they put the new house out on the Point; it's steadier there, too. Why, I've seen nights in the old house when I've stood my watch outside in the storm rather than be inside when the walls was rockin' like the cradle in the deep. The new one is just 126 feet from the sea. It's solider than the other and you can see the light a great deal better, so the ship masters say."

The way to the lighthouse from the fog signal station was wilder and stormier than the path down.

"Hang on to the railing!" shouted Captain Brown, as the station door slammed after us.

We fought our way against the storm, as a stout swimmer fights the beating waves. The sky was full of skurrying clouds and rain stung like sleet.

Inside the lighthouse it was snug and warm. The stone rooms, white as snow and arched like the roof of a cave, led into a round white room, from which the steep iron steps ascended into the watch room.

There was a loud, monotonous whirring sound, like the noise made by huge wheels in machinery.

"What is that?" I said.

"What?" said Captain Brown.

"That buzzing noise?"

"That is the wind," said Captain Brown. "Is it always like that—so loud and steady?"

"No," he said; "sometimes it whispers like. Then I know that my barometer is right. Sometimes it moans as if it felt sad over something and was trying to tell you about it. Then's the time I look at the clouds as often as I can. The wind says a good many things to a man that's acquainted from the watchroom. I was amazed to find that it looked not much bigger than an ordinary large sized lamp. There are three wicks and the lamp burns just two gallons of oil in one night. It is surrounded with a huge crystal globe, so big that three or four people can stand erect within it.

The glass of the globe is cut in such a manner that it magnifies immensely. Back of the lamp, on the shore side of the globe, there is an enormous reflector. Captain Brown showed us how the glass magnified. He stood outside and looked in at the flame and his shrewd old face grew enormously broad and took on the frightful aspect of the faces I have seen in a fever. He showed us how to look at the gusty sky and the wild waves through the glass, and all the world was a waste of gray waters and black sky.

There's a lookout rail outside the lamp, but it was too wild a night to hazard an instant on that dizzy rail above the clamoring water. Every object in the light tower shone. There wasn't a speck or a grain of dust to be seen. The whole place is immaculately clean and shining with scrupulous neatness.

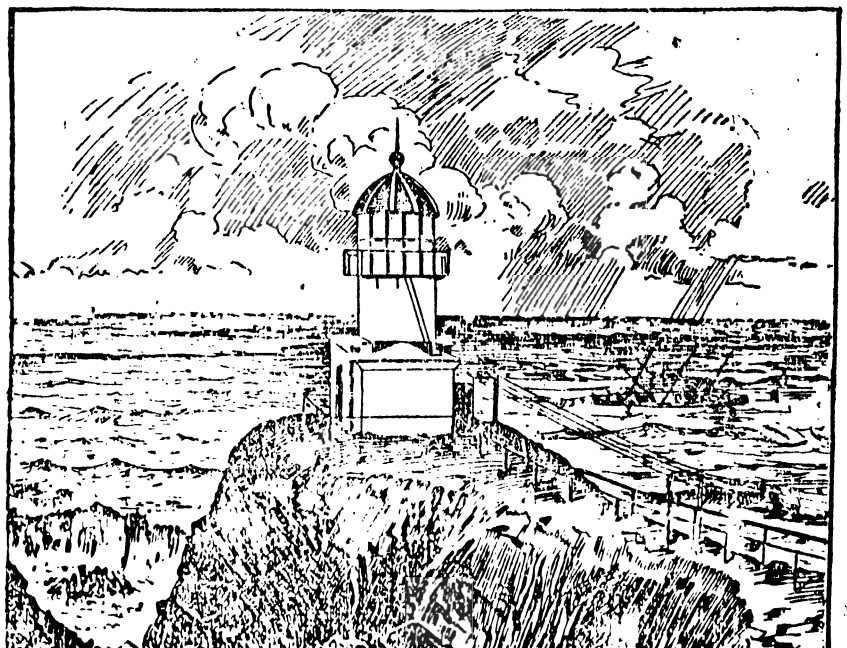
"I'm surprised that they don't use some kind of an electric light in the lighthouse," I said, when we had seen the wicks and the filling cans and all the things that go with an oil-lamp. "Electricity is too uncertain," said Captain Brown. "We burn mineral oil, made specially for the service."

Nothing but the finest linen and the softest chamois-skin is good enough to use in cleaning the lamp.

"Mind," cried Captain Brown, as we climbed down the steps into the watch-room, "those iron steps are slippery; we can't seem to keep them dry, try as we may."

We sat with him on his watch. He told us stories of strange birds that beat their lives out against the shining glass globe.

"There's one sort," he said "that I don't know. Nobody seems to know 'em for matter o' that, for I've





Lightkeeper Brown.

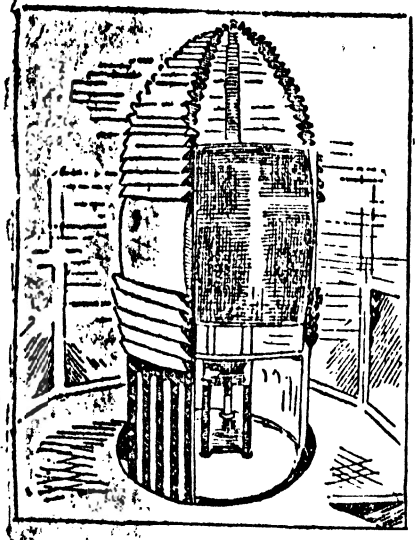
things, as white as milk and as delicate as the finest lace work.

"Sea foam," said the driver; and so it was. It floated over the hills as gayly as dandelion silk flies on a June day. "Over the hills and far away" it bore its message from the wild sea to the quiet valleys. Sure enough we were "coming in." A light twinkled from behind a hill, the tired horses pricked up their ears and in a few minutes we were shivering outside a wee white house that shone enticingly through the rain.

"All ashore," cried the driver, wringing his drenched gloves, and all ashore it was. Ashore in the pelting rain, with soaked feet and dripping mackintoshes. The artist and I wished the driver wouldn't be quite so cheerful. We weren't cheerful at all. We rapped pettishly at the door of the wee white house. "Will they never come!" we cried, after the fashion of the storm beaten heroines of melodrama. Presently they came. The door flew open with a bang. A terrified looking German stood before us gasping with bewilderment. He was a weather-beaten, sturdy fellow. He held a lantern in one hand.

"Himmel!" he cried when he saw me. Then he went in to tell his wife.

His wife was just putting the baby to bed and she caught that baby just in time



THE BIG LENS IN THE LIGHTHOUSE.
[Sketched by an "Examiner" artist.]

to save it from landing on the floor. "Ach du lieber," gasped the wife, and then she said in very good English: "Where do you come from?"

"From the city."

"W-h-o-w," shrieked the wind. And then it began to grow interesting. We blew along a wet path a minute or two, and then the guide turned around. He put his hands to his mouth and made a trumpet. "Follow in my steps," he shouted. "Be careful."

"Be ca-re f u l," wailed the dismal wind. The rain came down in positive torrents. It was bitterly cold and I could hear the "slosh" of the water in my shoes at every step. I felt miserably dejected, so I trudged behind the guide, watching the rays of his lantern with painful concentration.

All at once there came a new sound. Right under our feet came the steady cra sh-sh-sh, cra-sh-sh-sh of the breakers. I clung to a friendly ledge of rocks that guarded the path on one side. "Cra-sh-sh, cra-sh-sh;" the steady rythm of the breaking waves began to creep into my blood. "Be ca re ful," moaned the pitiful wind, but I did not listen. I forgot all about my wet feet and drenched hair. I could not wait upon the slow steps of the guide. I wanted to run. "Heigh-ho, the wind and the rain." How the old song surged through my brain. "Heigh-ho, the wind and the rain." The friendly rocks were gone. We walked upon a narrow ledge between two lines of storming waves. Once we blew through a windy tunnel cut in the solid rock and the guide's lantern made fantastic shadows on the whitened walls. The lighthouse is nearly three quarters of a mile distant from the wee white house, and all the way the sea storms on the rocks 100 feet below.

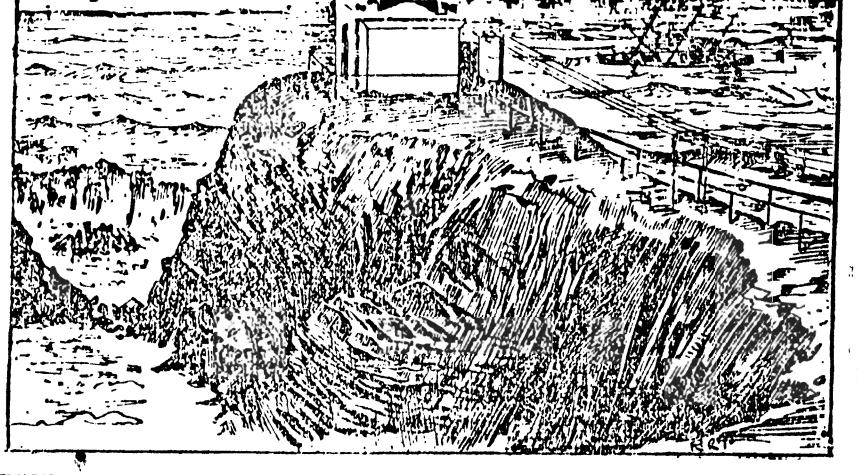
The lighthouse-keeper was at the fog-signal house. He gazed upon us with a face of awe and amazement. We handed him an important-looking letter, addressed to "Captain Brown, Keeper of Point Bonita Light," and he looked at the envelope for full a long minute.

"If you will open it," suggested the artist—something in the voice of the artist made me look at him. He was mollified, decidedly mollified. In five minutes after he first saw Captain Brown he forgave him his wife and "home comforts."

"I've been at this light twenty-one years, if I live till a Tuesday," said Captain Brown, speaking with a strong Yorkshire dialect. "I am out in all weathers at all hours, and I'm the happiest man alive today."

He's spare and grizzled and stamped with the seal of sixty years, but his hale old face looks out as bravely from his sou'wester as if he were only twenty-one and the world before him.

The broad "a's" and chopped consonants of his speech are unwritable, but they give his speech a quaint charm of its own. "Come to see the light?" he said when he had read the letter. "Come and I will show you." He was not astonished then. It was to him a perfectly natural thing that one should so want to see the light that the night and the storm only made the journey more certain. For twenty-one years Captain Brown has watched the light at Point Bonita. For twenty-one years he has climbed to the tower at sundown and lit the great lamp that shines so fair in the eyes of sea-faring men. When he first came to "the light" (it is always "the light" with him, never Point Bonita) the lighthouse was standing on a rocky point on a lofty head land. The old white tower is still standing, but the light burns in the newer lighthouse out



POINT BONITA LIGHTHOUSE THE MORNING AFTER THE STORM.
[From a sketch by an "Examiner" staff artist.]

with it. So does the sea, for that matter. Take the potato patch down there, the place where the water breaks so white over the rocks. When there's a kind of a high, steady singin' like from the potato patch I watch the barometer, no matter how the sun shines. Sometimes it seems as if the wat r and the wind got sort of friendly like with a man that's watched them so long and tries to tell him what's coming. The fog's the only thing that you never can get acquainted with. Some fogs creep in slow and steady. You can see the big white clouds a rolling up, and a rolling up, and a-rolling up till it seems as if the sky wasn't high enough to hold them. Other times it's clear as a boll, the sun's a-shining and everything is bright, bang, the fog's upon you. Seems to drop right out of a clear sky, and in half a minute you can't see a foot beyond the light."

There are two fog horns, great trumpets sixteen feet long. They are blown by steam, and there are two of them, so that there is little chance of disastrous consequences in case of accident to one.

We clambered the steep, slippery stairs to the watchroom. The watchroom is a round, cozy little room, as white as snow and as snug as a ship's cabin.

The man on watch sits there and reads and smokes the night hours away. Above him is the great shining lamp. Outside is the wind and the sea. Every once in a while he steps out on a little balcony and watches for the fog.

Captain Brown sent the man who was on watch to bed. "I'll stay out the rest of the watch," he said.

"There are four of us," he explained. "We divide the night into four watches. A lighthouse night is from sundown to sunup. The light is never left alone for an instant after she's lit. We take the most careful pains to have everything shipshape. We know just how much oil is required to keep 'er through the night, but we can't run any risk. Little things may happen. The lamp is a complicated bit of mechanism, and a bit of lint getting into the wrong place might make the light go out. That light means life and death to a many people, and life and death can't be trifled with." The light itself is reached by a little flight of steps

asked all sorts of bird men about 'em. I find 'em lying under the light in the morning. They're pretty little brown fellows, with white specks sprinkled thick all over 'em, for all the world as if they'd been caught in a snowstorm. Where they come from is a mystery. I never can find a trace of them in the hills hereabout, or in the water either. Queer, how they'll shake things up, just flying against the light. They're little bits of fellows, but they'll scare a new watchman nearly to death, they come with such a 'thump.' It sounds just as if some one hit the glass with a big hammer. I've been watching for an old albatross lately. He's 'round here all the time. I never saw one so far north before. I don't see how he came here. He flies 'round and 'round, but he knows enough to keep away from the light. Sometimes he acts just as if he was trying to peek in the window and see what we look like in here—the old lamp and me."

The artist and I looked at each other.

"I fear thee, Ancient Mariner," muttered the artist.

"What's that?" said the Captain.

"I was wondering," said the artist, "if you believe in ghosts."

Captain Brown laughed. "Not I," he said; "if I did, I'd be wae to stay here alone o' nights. There's the potato patch down there—hear it singing now. How many brave fellows do you think have gone home from there? Do you remember the Elizabeth? I saw her go to pieces on those rocks. It was a bright day; you could see for miles; but the good ship pounded herself to death on the potato patch. I watched her die—the Captain was lost, you know, and a lot of his men. Listen! Do you hear that low, gurgling noise like a dying man groaning? That's the fisherman's rock. That's where the fisherman hung for hours, with the waves breaking over him every second. I saw it all. It looks a stone's throw from here, but I couldn't get anywhere near him. You know how he was saved. I wonder if he would like to sit here and listen to the waves breaking over that rock?

"Did you notice that cliff on the way down, the one where the rock goes straight down to the water, as smooth and slippery as a

piece of ice? I had a queer time there. A schooner went to pieces on the patch and the captain clung on to one of those jagged rocks out there. He was too weak to pull himself up and he just hung there, fighting for a chance to breathe. I got a rope and tied it around my waist, and they held me fast and firm from the top of the cliff and down I went.

"I got out on to that rock some way—I don't know how—and I grabbed the man and pulled him up on to the rock.

"The first thing I found out was that the schooner was loaded with fifty kegs of giant powder, and there she was, pounding away on the rocks right below us. And what do you think that man said? He said he wouldn't go up the rope.

"'Very well,' says I. 'I'm sorry I troubled you. Good morning.'

"'Where are you going?' says he.

"'Up that rope,' says I.

"'And leave me alone?' says he.

"'Not quite alone,' says I. 'There's that fifty kegs of giant powder to bear you company,' says I. He came up the rope."

"And did the schooner blow up?"

"No," said Captain Brown; "that's the queer part of it. She didn't. She went down as peaceable as a lamb. Ay, ay," and the old keeper shook his head. "Many's the wreck I've seen. Many's the gallant ship that has gone to pieces almost before my eyes. I saw the English steamer sink with twenty souls aboard; saw it as plain as I see you now. Ghosts! No, I don't believe in ghosts. If I did I'd think the dead sailors were crying for help when the wind howls as it does to-night."

At the end of the keeper's watch we left a sturdy Dane in charge of the lamp and went out into the storm again. The way to the keeper's house was steep and the wind was rising higher every minute. The keeper walked cautiously up the trail, holding his lantern so as to throw a light on every step.

We fought our way along the narrow path between the calling waters. All my joy in the storm was over. All the wild exhilaration of the wild night was gone. The rhythm of the breaking waves was no longer full of music. "Hu-sh-sh," they said. "Hu-sh-sh," and I found myself listening with tense nerves for—what?

ANNIE LAURIE.

POLICE OF THE SEAS.

New Departures in the Light-house Service.

Steam Propeller Lightships for the Coast.

Novel System of Lights and Fog Whistles.

A New Kind of Light.—Electric

Atlantic vessels. Before long the electric buoy system is to be extended widely. Congress has been asked to provide money as soon as possible for the construction of a steam propeller lightship, with all the improvements above described, to take the place of the staunch old wooden tub that now guards the New South Shoal off Nantucket.

The New South Shoal lightship is farther off shore than any other light in the world, being twenty-six miles from the nearest land. It is the last stationary human habitation seen by passengers on trans-Atlantic steamers bound outward from New York, and is sought by those vessels as the first mark to steer by on their return. Not far from the shoal which it guards are the dreaded "Banks," which have been a veritable graveyard for ships, having a record of 500 known disasters. The vessel that runs up on them is beyond human help. There, like the Phantom Ship of fabled story, "Lightship No. 1, New South Shoal," sails a voyage without an end, being anchored with an iron cable, and is buffeted by continual storms. Twenty-three times she has broken from her moorings, frequently on such occasions drifting out into the middle of the ocean, because she is built for riding out gales and goes to the leeward like a crab. Accidents of this kind are apt to happen to lightships. The one at Cross Rip, in Nantucket Sound, was once lost for more than a month, fetching up in the Gulf of Mexico, and being towed in finally to New Orleans with all hands safe aboard. By using her propeller, it is believed that the proposed steam lightship for the New South Shoal will be able to ease the strain on her chain, and so avoid breaking away.

The lighting of the sea coasts has done away with the business of wrecking vessels for spoil. A British inspector of lighthouses, not many years ago, spoke to a boatman of the Orkney Islands about the dilapidated sails of the small craft he had hired. The fellow replied, "If you hadn't come here with your lights, we might o' had better sails to our boats and more of other things." Before the lighthouses were built, when only the bell of the Abbot of Aberbrothock warned sailors of their dangerous proximity to the Inchcape Rock, disasters to shipping were so frequent that the farmers of the Orkney Islands are said to have used wine instead of milk in their barley porridge and to have fenced their farms with Honduras mahogany. They bitterly opposed the erection of lighthouses, saying that, "If wrecks were to happen, they might as well be sent to their poor islands as elsewhere." The murder of shipwrecked unfortunates for plunder seems to have been regarded as pardonable, if not positively commendable, in former times. Not the ocean itself was so merciless as the Irish who stabbed to death and beheaded the castaways of the

tree in wind. During the long winter months all communication with the land is shut off. In summer the occasional visitor is hoisted into the lighthouse from his boat by means of a chair, and from time to time a skiff is lowered by pulleys to convey one or another of the five keepers to the shore. The life tells on them frightfully. Several of them have been removed because they have gone insane, and more than one of them has attempted suicide.

There are half-a-dozen such isolated lighthouses on the lonely Florida reefs. The existence led by the keepers of these solitary posts has an extraordinary effect upon them. Before long they talk each other out, become morose, and usually quit speaking to each other except for business. A lighthouse similarly situated is on a rock in Lake Huron, marking the fatal Spectacle Reef. It stands in 11 feet of water, and is exposed in winter to the almost irresistible force exerted by great ice fields moved to and fro by the currents. Sometimes the ice is piled up against it as high as 80 feet. It is not lighted, however, during the season when navigation is closed. One of the most desolate spots for a lighthouse is on one of the Farallone Islands in the Pacific, twenty-three miles out from the Golden Gate. On the highest point, 360 feet above the sea, is a small brick tower containing one of the most important and powerful lights on the west coast. It is supplemented by a fog whistle which may fairly be considered one of the wonders of the world—a huge trumpet blown by the rush of air through a cave which forms a passage opening into the ocean. One of the many caves worn by the surf on the shore of the island chanced to have a hole in its top, through which the incoming breakers violently expelled the air carried before them. Such "spout holes" are not uncommon on rocky coasts. The mouthpiece of a great trumpet was fixed to the aperture, and the merciless wave which would dash a strong ship to pieces and drown her crew in an instant is made to blow the whistle that warns mariners away. Its sound can be heard for eight miles, though it ceases for an hour and a half at low water, when the mouth of the cave is uncovered. Thousands of sea-lions make their home upon the Farallones, which are also inhabited by innumerable rabbits, the offspring of a few pairs originally placed there by a speculator who thought to establish a rabbit-warren for supplying the San Francisco market. At intervals the rabbits over populate the islands and perish in great numbers for lack of food and from disease. Matinicus Rock, twenty miles off the coast of Maine, has a lighthouse that has been kept by one family for generations. Repeatedly all the other buildings, as well as live stock and everything movable, have been swept away by

Sein, a few miles off the northwest corner of France, were for centuries the dread of mariners, particularly on account of the fogs commonly prevailing in that region. In 1866 a rock was selected for a lighthouse which was at the lowest tide five feet out of water. The task of erecting the proposed structure on such a spot seemed hopeless, but it was a case where even the apparently impossible had to be tried. Work was begun by boring holes in the rock, one foot deep and three feet apart, to be subsequently filled with bars of iron extending upward into the masonry that was to be laid. Because it was only at rare intervals that a landing on the rock was practicable, a contract was made with the fishermen of the Sein to bore the holes whenever there was an opportunity. Whenever there was a chance to land, they hastened to the rock with small boats, carrying tools and life belts, and plied hammer and drill between the breakers. The men who were washed away were picked up by the boats. At the end of the first year's labor seven landings had been made, and fifteen holes were bored. In 1869 the necessary number of holes had been made, and the iron bolts were inserted, masonry being laid around them with quick cement. By 1875 the foundation was eight feet above high-water mark. The tower now stands, completed, ninety-two feet in height. Its construction illustrates the indomitable energy and ingenuity of man in overcoming the forces of nature.

Lightships are usually employed to mark shoals where the erection of lighthouses is not practicable. Fifty of them guard dangerous points near the shores of ocean and lakes under Uncle Sam's jurisdiction. In addition to these, there are eight spare lightships, for purposes of relief. When a lightship is reported off its station, a steamer is sent out to look for it and tow it back. If it has disappeared altogether, another lightship is dispatched at once to take its place. The territory covered by the Lighthouse Service is divided into sixteen districts, each of which is managed by one engineer officer of the army and one navy officer. While the former attends to all matters of construction and repair, the latter has charge of the running of lightships and lighthouses, receiving telegraphic reports of anything that is wrong and having at his disposal a small steam vessel. Lightships are more thickly distributed off Cape Cod than anywhere else. They are schooner-rigged, carrying one or two lights, which are octuple lanterns with reflectors surrounding the masts and suspended from them. It costs $8,000 a year to maintain a lightship.

There are 750 lighthouses on the Atlantic and Gulf coasts, 130 on the Pacific shore, and 280 on the great lakes. On rivers there are 1,000 "post-lights," which are mere lanterns with lenses, fixed to posts. They cost $10 apiece, and $160

Novel System of Lights and Fog Whistles.

A New Kind of Light. — Electric Buoys.—Wrecking Done Away With.—Isolated Lighthouses and Their Keepers.

Special Correspondence of The Hartford Times.

WASHINGTON, May 20, 1892.

One item in the sundry civil bill now pending — namely, that appropriating money for the lighthouse system of the country—has not been and cannot safely be pared. Far from crippling the service, which costs $2,500,000 a year without counting new lights, Congress seems disposed to increase its efficiency. Many novel improvements are soon to be adopted. Four steam propeller lightships, the first ever built, are nearly finished. Each of them will have an electric plant on board and eight electric flash-lights, controlled by an intermittent current; also a search-light for sweeping the sea at night, a steam windlass, and a steam fog whistle. It is soon to be arranged that the fog whistle or fog bell of every lightship shall sound her number always. Toot, toot; toot, toot, toot; will signify No. 23. "What is No. 23?" the captain of a vessel gone astray may ask. He looks up the number in his Light Book, with which every skipper is provided, and finds that it is the Cape Charles lightship. Then he knows where he is. Lighthouse No. 32 will have three red stripes and then two more, to identify it by in the day time, and at night its light will flash three times and then twice after a moment's interval. It will be the same with all the lighthouses and lightships, only small and easy numbers being used because they can be repeated every 100 miles without danger of causing mistakes.

The lighthouse board has just sent to the French Government for information respecting a newly-invented kind of light, said to be vastly more brilliant than any hitherto discovered, which is produced by automatic explosions of magnesium. Being the whitest artificial light known, it has a peculiar power to pierce fog, which should render it of inestimable value for lighthouses and lightships. Six 100-candle-power electric buoys, lighted by wires from Sandy Hook, have marked the main channel in New York Harbor since 1888, three red and three white, enabling ocean steamships to enter at night instead of lying out at sea until morning, as formerly. They are the only ones in the world. A seventh is to be added a month hence at the Southwest Spit, which is the turning point for all big trans-Atlantic steamers. Each buoy is 40 feet long, and has a steel mast 30 feet high, with a lantern at the top. Each lantern has a red or white glass, and a bell which is struck by the motion of the buoy. The buoys are anchored in 30 feet of water, and are connected with the shore by a cable containing seven wires. The lights are operated by a current of electricity from a dynamo on shore, and are controlled by a keeper in the lighthouse, who can see from his window whether they are burning properly. If one goes out he can relight it by turning on the current. The buoys are painted red and white, and are plainly visible at a distance of seven miles.

Wrecking is to be done away with as much as possible. Hitherto, when a vessel has struck on a reef or shoal, the lighthouse keepers have been allowed to save what they could from the wreck, and to sell it for their own benefit. This has led to the most shocking abuses. Keepers have been known to lure vessels to destruction by false lights, and to murder shipwrecked sailors for their booty. Many lighthouses have been built on islands which are practically worthless, and the keepers have been compelled to live there with their families, and to spend their lives in the most dismal solitude. Some of these islands are mere sandbanks, which are covered by the sea at high tide. Others are rocks, which are exposed to the full force of the waves in every storm. Many of the keepers have gone insane from the loneliness of their lives, and from the constant fear of being swept away by the sea. Some of them have committed suicide. Others have been murdered by their assistants. Many of the lighthouses are tall towers, while others look like gigantic spiders squatting on the water. Others still, like that at Point Reyes, Cal., are set upon tall cliffs, being only big enough to contain the lantern and apparatus; and others yet are built complete at the foundry and transported in sections to the place where they are to be put up. Whereas on the Atlantic coast it is difficult to make a lighthouse high enough, on the precipitous shore of the Pacific the trouble is to get such structures low enough, so that they may not be shrouded by the fogs of the upper atmospheric levels. The tallest lighthouse tower is 189 feet from its base to the center of the lantern, at Cape Hatteras. Highest above the sea-level is the one at Point Loma, at the entrance of San Diego Bay, Cal., 462 feet above the ocean. Not long ago the lighthouse board gave a contract for $500,000 for building a lighthouse on the dangerous Diamond Shoal, three miles off Cape Hatteras. In that locality the waters are so continually stormy that the task seemed almost impossible, but the contractor started in by sinking an iron cylinder, made in compartments and called a "caisson," the purpose being to drive the cylinder into the bottom by pumping the sand out from within it, then filling it with concrete, dumping cargo after cargo of broken stone around it, and so creating a sort of artificial island for a foundation. Unfortunately, the first caisson was carried away, and, after spending about $100,000 on the job, the attempt will probably be abandoned. Doubtless, Congress will provide for the building of the lighthouse by the engineer officers of the army attached to the lighthouse service.

The light held by the Goddess of Liberty in New York Harbor is electric and of the first order. Though placed by Congress under the management of the Lighthouse Board, its object is purely sentimental and it is not particularly useful as an aid to navigation. The biggest light in the world is at Sydney, Australasia. It has a power equal to 186,000 candles, and is visible at a distance of fifty miles. The most exposed lighthouse in existence was built in 1853 on Bishop Rock, off the Scilly Isles. It has been estimated that the waves beat upon it with a force of 6,000 pounds to the square foot. On January 30, 1860, a storm breaker tore away the bell, weighing 800 pounds, from the top of the tower, more than 100 feet above the sea. The reefs near the Isle of Sable, off the coast of Nova Scotia, have been the scene of many wrecks. The lighthouse keepers there have been accused of luring vessels to destruction by false lights, and of murdering shipwrecked sailors for plunder. Many of the keepers have gone insane from the loneliness of their lives, and from the constant fear of being swept away by the sea. Some of them have committed suicide. Others have been murdered by their assistants. Many of the lighthouses have been built on islands which are practically worthless, and the keepers have been compelled to live there with their families, and to spend their lives in the most dismal solitude. Some of these islands are mere sandbanks, which are covered by the sea at high tide. Others are rocks, which are exposed to the full force of the waves in every storm.

It is said that the people of the Bahamas used systematically to lure ships upon the reefs of those islands, imitating a revolving flash-light by tying a lantern to a horse's tail and walking the beast around in a circle. Many ascertained facts of well-nigh incredible horror would seem to suggest that the sea communicates something of its own cruelty to those who live on or near it. Was there ever a tale inspired by the imagination of the romancer more dreadful than the true story of the Palatine, which left Holland for America in 1749, carrying as passengers many rich Dutch people who intended to settle near Philadelphia? For six weeks in pleasant weather the amply-provisioned vessel sailed up and down the Delaware coast, while the officers and crew cut off the food-supply of the passengers, the pangs of hunger compelling the unarmed and starving wretches to buy at exorbitant prices the miserable fragments which their tyrants chose to deal out to them. Twenty of them died of starvation before the storm came up that wrecked the ship on Block Island. In 1825, Congress made it a felony punishable with ten years' imprisonment and $4,000 fine to show false lights for the purpose of causing shipwreck.

One of the most wonderful lighthouses in the world is that at Minot's Ledge, near Boston. Its history has been one of romance. The greater part of its foundation is under water at low tide. In 1847 a skeleton lighthouse of iron was erected there on iron piles placed in holes drilled into the rock. A furious hurricane burst upon the coast in April, 1851, and anxious watchers from the Cohasset shore thought that the structure had been carried away. But, as the sun sank, out shone the light across the storm-tossed waters. At 10 p. m. the light was seen for the last time. At one hour after midnight the fog-bell was heard above the roaring of the breakers. At daybreak the ocean was a blank; the lighthouse was gone. Knowing that no help could reach them, the keepers had lighted their lamp as a warning to others, and their lives had gone out with it. Now a granite tower occupies the spot. So difficult was it to lay the foundation in the surf that only thirty hours' work could be done during the first year, but the tower stands to-day as enduring as the ledge itself—an isolated pile of stone amid the waves, by the force of which it is swayed like a reed. Its lantern is 80 feet above the sea. The reefs near the Isle of Sable, off the coast of Nova Scotia, have been the scene of many wrecks. The lighthouse keepers there have been accused of luring vessels to destruction by false lights, and of murdering shipwrecked sailors for plunder. Many of the keepers have gone insane from the loneliness of their lives, and from the constant fear of being swept away by the sea. Some of them have committed suicide. Others have been murdered by their assistants. Many of the lighthouses have been built on islands which are practically worthless, and the keepers have been compelled to live there with their families, and to spend their lives in the most dismal solitude. Some of these islands are mere sandbanks, which are covered by the sea at high tide. Others are rocks, which are exposed to the full force of the waves in every storm. Many of the keepers have gone insane from the loneliness of their lives, and from the constant fear of being swept away by the sea. Some of them have committed suicide. Others have been murdered by their assistants. Many of the lighthouses have been built on islands which are practically worthless, and the keepers have been compelled to live there with their families, and to spend their lives in the most dismal solitude. Some of these islands are mere sandbanks, which are covered by the sea at high tide. Others are rocks, which are exposed to the full force of the waves in every storm.

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1854, and in September of that year she rescued four young men from a capsized sailboat. In midwinter of 1866-7 she saved a soldier of the Fort Adams garrison who had been similarly upset, and he was restored to life at the lighthouse. In the fall of 1867 three men were swamped in their boat near Lime Rock while trying to pick up a valuable sheep that had fallen from a wharf. She saved them and the sheep also. Not long afterward she saw a man clinging to a spindle that marked a reef near the lighthouse, rowed out to him, and got him safely. In a gale in March, 1869, she rescued two more soldiers from a swamped boat. On February 4, 1880, two members of the Fort Adams garrison band broke through the ice between the lighthouse and the fort, and she pulled them out. Thus far she has saved thirteen persons from drowning.

Many a deed of heroism is performed by the lightkeepers in Uncle Sam's employ. Scores of people have been saved from wrecks by the hardy mariners of the New South Shoal lightship, who never hesitate to launch a boat in the midst of the most violent storm for the purpose of a rescue. On one occasion twenty-seven persons were snatched by them from a watery grave, when the City of Newcastle ran upon the Nantucket banks, and sank stern foremost. On another day they caught sight of a black object driven before the gale, and, putting forth in pursuit of it, rescued a man on a raft, whom they found seated upon the corpse of a fellow castaway, his head buried in his hands and hopeless of the aid which came at last. In February, 1881, the Sharp's Island lighthouse was carried away by ice in Chesapeake Bay. The keepers tended the lamp to the last and clung to the structure when it was swept from its foundation, finally saving not only themselves but a great part of the valuable apparatus.

Some of the devices employed by the lighthouse board are regarded by residents on shore as extremely objectionable. Worst of all are the "steam sirens," which are truly a diabolical invention from any other point of view than that of utility. They utter a series of unearthly whoops which ascend the scale, note by note, until the unwilling listener feels as if, in case they should go a few notes higher, he would become suddenly insane. Nearly as bad are the "whistling buoys," the establishment of one of which near any inhabited spot is sure to excite most frantic protests from dwellers in the neighborhood. Sixty-two of these buoys are employed in the service, the biggest of them costing $1,075 each and being audible at a distance of fifteen miles. The sounds they utter are inexpressibly mournful and saddening. They consist of an iron pear-shaped bulb, with a tube running through the middle and extending thirty-two feet downward into the water. At the upper end of the tube is adjusted a locomotive whistle, through

reign of the Emperor Trajan, and in 1634 was reconstructed. England and France have towers erected by their Roman conquerors which were used as lighthouses. Contrasting them with the light towers that have been built for the benefit of commerce we see that the art of building has lost nothing with the lapse of time. The great improvement of the later towers over their predecessors is that the stones of each course are now dovetailed together laterally and vertically. The upper and under dovetails fall into each other, and when the hydraulic cement is placed on the surface it so locks the dovetailing that the stones cannot be separated without breaking. So when the cement is set and hardened the whole of the base is literally one solid mass of granite.—*Boston Globe.*

1890.

JUNE 5, 1892.

SAILORS' GUIDE-POSTS.

Lighthouses, Fog Signals and Buoys.

Those on the California Coast.

Some Facts Regarding the Local System of Aids to Navigation.

Written for the CHRONICLE.

Just forty years ago the early settlers of California began to think that mariners coming and going up and down the coast needed more assistance than the natural landmarks afforded them. The idea having once taken root it grew, and the minds of the pioneers being jogged by the wreck of a few ships they were not long in asking the Government to do something in the matter. An appeal to Congress from the citizens of the State and from the shipmasters commanding vessels bound to and from the Golden Gate brought almost immediate results, for in 1852 an army engineer was sent to this coast to investigate the matter and if necessary to make recommendations.

The result of these investigations was a recommendation that five lights be placed in position, one at Point Loma, one on the west side of the entrance to San Diego bay, one at Point Concepcion, one at Point California coast. The Government turned to the coast of Oregon and Washington after making a good start on the California coast, and between 1856 and 1868 it put up eight lights, marking the entrances to Admiralty inlet and the Straits of Juan de Fuca, Shoalwater bay, Cape Disappointment and Cape Flattery.

The early history of the lighthouse system on this coast is extremely vague, based as it is entirely on tradition and private manuscripts, for the records of the office of the engineer in charge from 1852 to 1868 are lost. It seems that the office of the engineer was in the present Post-office building, and in 1868, when the great earthquake shook the city, the engineer and his assistants moved out at once, without even gathering up their papers, and the next heard of them they were in an office on Montgomery street, but the records were not there with them, and they are nowhere to be found now.

The system in this part of the country was at that time run entirely by the lighthouse board in Washington, D. C., and from time to time an army engineer was detailed to duty on this coast. Then the army officer was changed to a navy officer, and then the present system was adopted.

Under the present system the Pacific coast is divided into two districts—the Twelfth, which includes the coast of California and all its navigable inland waters, and the Thirteenth, which includes the coast of Oregon and Washington, with all the tidewater in both those States.

In charge of each district is a naval officer of high rank, called the lighthouse inspector, whose duty it is to maintain and inspect the whole system of lights and buoys, all going under the term of "aids to navigation," and to make such recommendations as he sees fit. In addition to the inspector there is a lighthouse engineer in each district, detailed from the United States army, whose duty it is to take charge of the construction of any aid which the lighthouse board at Washington orders built. He also has charge of all repairs.

The lighthouse board is at the head of the entire United States system of aids to navigation. It is composed of two lawyers, two civilians, a navy officer and an army officer of high rank, both engineers, and is presided over by the Secretary of the Treasury, who is ex-officio its president.

Aids to navigation are of three kinds—lighthouses and lighted beacons, fog signals and buoys and unlighted beacons. Each of these aids is of various kinds, every variation being full of meaning to the mariner. The flash of a light, the duration of the blast of a fog signal or the color of the stripes on a buoy mean as much to him as the letters in a word or the words in a sentence. It may mean safety to his ship and a profitable voyage or destruction and death to him and his crew. The flash of the light and the sound of the foghorn tell him by the characteristics peculiar to themselves just where he is, although on account of the darkness of the night or the thickness of the fog he cannot see a particle of land. The colors on the buoy tell him whether it marks an obstruction in the middle of

and embraces all the aids to navigation on the seacoast, bays and navigable rivers of California. In the district are thirty-six lighthouses and lighted beacons, forty-eight day or unlighted beacons, fourteen steam fog signals, seven fog signals operated by clockwork, twelve whistling buoys, five bell buoys and eighty-three other buoys, making a total of 205 aids to navigation on the California seaboard.

The Twelfth district, taken in comparison with the others, is a safe one for mariners, and taking this fact into account, it is fully as well lighted and protected, if that term may be used, as any other district in the country. The lighthouses stand, of course, in the first place among the aids to navigation. They are of various kinds and various powers.

They are always placed on some prominent point, either on a rock in the water or on some prominent headland on the coast. Their positions in regard to height above the water, however, are not as great as is generally supposed, for the station is built with a view to getting the light as low as possible, within certain limits. When the first towers were built the idea was to get as extended a range as the circumstances would permit, so the lights were placed high up on the bluffs, the idea being the higher the light the farther it can be seen.

These high stations have all been placed in lower positions, however, it having been found that they were above the line of the heavy fogs, and during thick weather the light, needed more at that time than any other, was invisible. For all purposes it has been found that about 120 feet above the water is the best altitude for a light. It is then below the thickest part of the heavy fogs and is some use during thick weather. It can be seen, too, for seventeen nautical miles, and that distance leaves plenty of room for a shipmaster to collect his thoughts if he "picks up" the light before he expects it.

A great many of the lights are above this, as in the case of the one at Point Reyes that has been lowered from 597 feet, its first position, to its present position of 296 feet above the water; also that of the Farallone, one of the most important on the coast, which is 360 feet high. It is always tried, though, to get the lights as near the 120 foot limit as convenient.

The variations in the lights are numerous; the necessity for them can easily be seen. Every light is minutely described for the mariner, the order, color, flashes (if any), the durations of the flashes and the distance it can be seen all being set down, so that when a captain sights, or as the nautical term has it, "picks up," for instance, a fixed white light, shining for one minute and followed by four red flashes of fifteen second's duration each, he knows that he is in sight of the Fort Point light and that he is fourteen and three-fourth miles away from it.

This is one of the variable lights along the coast. There are others, one, the Farallone, flashing white every minute; another, the Point Reyes, flashing white every five seconds; another the Point Loma, flashing alternately red and white, with an interval of twenty seconds between the flashes; another the San Luis Obispo, just north of Point Concepcion, flashing red and white alternately every

buoys are employed in the service, the biggest of them costing $1,075 each and being audible at a distance of fifteen miles. The sounds they utter are inexpressibly mournful and saddening. They consist of an iron pear-shaped bulb, with a tube running through the middle and extending thirty-two feet downward into the water. At the upper end of the tube is adjusted a locomotive whistle, through which the air automatically compressed by the motion of the waves is liberated in horrible toots. Buoys of this description are particularly useful in foggy waters.

The first lighthouse built on this continent was at St. Augustine, Florida. Its chief use was as a lookout, whence the Spanish people of the town could see vessels approaching from Spain or get notice of the coming of foes in time to run away. The tower attracted the attention of Francis Drake as he was sailing along the coast with his fleet of high-pooped ships, on his way home from pillaging the cities of the Spanish main. So he stopped long enough to loot the town and destroy what he could not take away. In 1880 the ancient structure of Coquina rock, which the United States had adopted for a lighthouse, fell down, but before that happened another one had been constructed. Fire towers at the entrances to ports were established in the earliest historic times. Bonfires were built on top of them at night. The most famous lighthouse of antiquity stood on the Island of Pharos, off the city of Alexandria, in Egypt. It was one of the seven wonders of the world and was put up during the reign of Ptolemy Philadelphus. After standing for 1,600 years it was destroyed by an earthquake. It is understood to have been over 500 feet high.

RENÉ BACHE.

TO GUIDE THE MARINER.

Six Thousand Lighthouses Glimmer in the World.

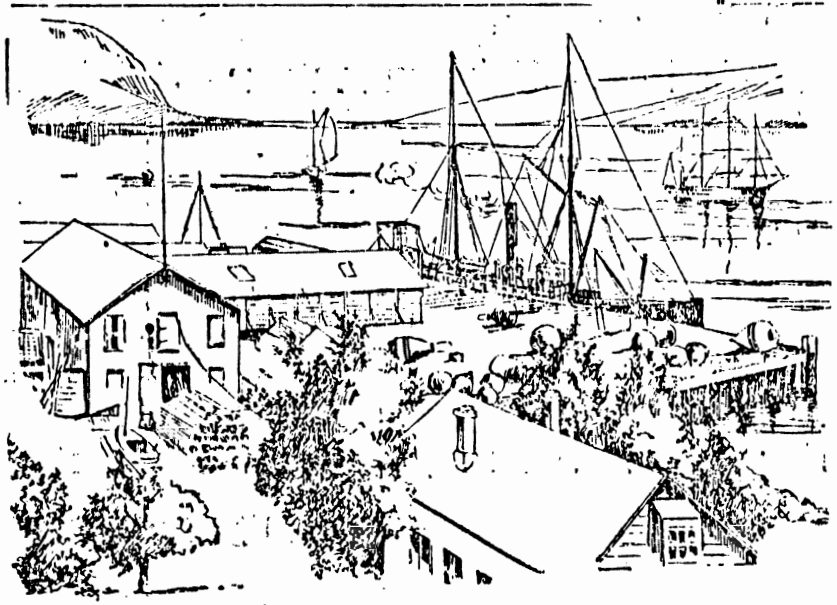
The lighthouses of the world are, in round numbers, 6000, with about 250 lightships. Of these Europe has 3309; North America, 1329; Asia, 476; Oceanica, 319; Africa, 219; South America, 169, and West Indies, 106. The coasts of the United States are illuminated by 802 lights, distributed as follows: Atlantic coast, 457; Gulf coast, 79; Pacific coast, 88, and the Northwestern lakes, 118.

Of these lights thirty-two are displayed from lightships, nearly all of which are on the Atlantic coast. The most famous lighthouse of which history gives any record was the lighthouse of Pharos, on the eastern end of the island of that name in the Bay of Alexandria. It was begun by Ptolemy Soter, and was finished by his successor, Philadelphus. It is said to have been 400 feet high and to have cost 800 talents, equivalent to $1,240,000.

The oldest lighthouse in the world is at Coruna, Spain. It was built in the

this coast to investigate the matter and if necessary to make recommendations.

The result of these investigations was a recommendation that five lights be placed in position, one at Point Loma, one on the west side of the entrance to San Diego bay, one at Point Concepcion, one at Point



BUOY DEPOT AT GOAT ISLAND.

Pinos, on the south side of the Monterey bay, one at Fort Point and one at Alcatraz island. The recommendation was adopted and work on the lighthouses was commenced at once.

Alcatraz island was the first to shine, the light having been lit in 1854. Point Pinos light followed soon after in the same year, and by the middle of 1855 the five lights, the only ones on the Pacific coast, flashed out over the water. One shone from each of the four most prominent headlands on the south coast of the State, and the other set as a guide from the outer ocean through the Golden Gate and into the harbor of San Francisco.

From these five lights sprang the lighthouse system of the California coast, or in fact that of the Pacific coast, for they were quickly followed by others.

During 1855, in the latter part of the year, two other lights were established, one on Bonita point, on the north side of the entrance to the Golden Gate, and one on the largest Farallone island, now known as the Southeast Farallone. In 1859 Santa Barbara light, on a point two miles southwest of Santa Barbara landing, was established, and then the attention of the Government was turned to the north coast. By the end of 1856 a white light shone from the north side of the entrance to Humboldt harbor, and another from the entrance to Crescent City harbor.

These ten lights seem to have been found sufficient for the time, for from 1856 to 1868 there were no more put up on the coast. The flash of the light and the sound of the foghorn tell him by the characteristics peculiar to themselves just where he is, although on account of the darkness of the night or the thickness of the fog he cannot see a particle of land. The colors on the buoy tell him whether it marks an obstruction in the middle of the channel or a channel between two obstructions, and whether to leave the silent guide on the port or the starboard side.

Everything connected with these aids has some significance. To the seaman this is as plain as the day, and he winds his way in and out among the buoys by the flash of the lighthouse or within sound of the fog signal as fearlessly and as safely as on land.

On the coast of California, however, navigation is easy when compared with other coasts, and consequently lighthouses and buoys are not so numerous as they are in other districts. We are rich in fog signals, however, for the coast of this State is noted for the fogs which hang over it at all times of the year.

These fogs are dangerous, often more dangerous than winds, and more than darkness. Heavy winds can sometimes, and in fact generally, be taken in their own direction and the vessels made to scud before them until they subside; during the darkness the lighthouses gleam and flash and mark the way as well as the seaman can desire. But during the fog the lights, and sometimes even the buoys, can not be seen and then there is nothing to depend on but the hoarse roar of the foghorn or the clang of the fogbell. It is these fogs which, more than anything else, make what danger there is to navigation on the coast of California.

The Twelfth Lighthouse district extends from the boundary line between California and Oregon, to the boundary line between California and Lower California, a distance of about 800 miles of coast line, three-fourth miles away from it.

This is one of the variable lights along the coast. There are others, one, the Farallone, flashing white every minute; another, the Point Reyes, flashing white every five seconds; another the Point Loma, flashing alternately red and white, with an interval of twenty seconds between the flashes; another the San Luis Obispo, just north of Point Concepcion, flashing red and white alternately every thirty seconds; the Point Sur, south of Monterey bay, flashing red and white every fifteen seconds; the Point Concepcion, flashing white every thirty seconds, and many others; in some the time, in some the color and in others the combination being varied.

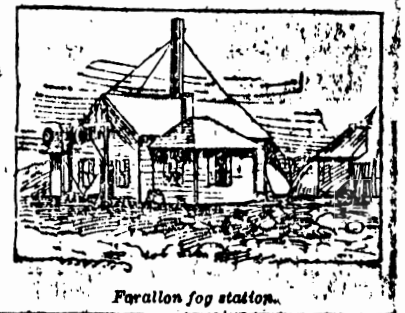
There are in addition to these the fixed lights, the color being, in the Twelfth district at least, either white or red. They are divided, whether fixed or variable, into five orders, those of the first order being the most powerful.

Of the important lights on the California coast the one on the southeast Farallone probably stands first, both from its position of danger and from the great number of ships which depend on it to warn them of the proximity of the coast. It is a white light of the first order, flashing every minute, and is visible from the deck of a vessel twenty-six miles away. I was established in 1875.

Point Reyes light, known as the finest on the coast, comes next. This is a white light, flashing every five seconds, visible twenty-four miles out at sea. It is considered of most importance to ships from across the Pacific, for it is a curious fact that vessels coming from the west almost always "pick up" the Point Reyes light before they sight any other. Point Arena is another important light, partly from its prominent position and partly because it marks the northern end of the most dangerous stretch of coast on the California shore. The south end of this coast reaches to Point Reyes and is guarded by that light.

St. George's reef light, situated on an isolated rock in the ocean off the north coast, will, when it is lighted, be another of the important lights. It is situated in the storm center of the north coast, and marks a dangerous reef on which more than one vessel has come to grief.

In addition to those mentioned there

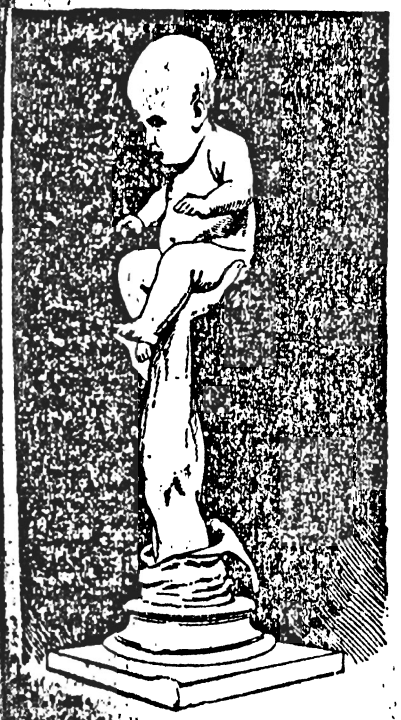


Farallon fog station.

are lights of the first order on Point Concepcion, Piedras Blancas, on the north side of the entrance to San Simeon bay, Point Sur, Pigeon Point and Cape Mendo-

DOUGLAS TILDEN'S LATEST SCULPTURE.

Douglas Tilden, the mute Californian sculptor, now a resident of Paris, has given to his native land several proofs of his genius. The bell tower in Golden Gate Park, and the tired boxer in the new Olympic Club building are



THE ACROBAT.

fine specimens of the sculptor's art, and at the World's Fair his group of Indians fighting bears has attracted much attention.

Quite recently he sent to this city a mark of his friendship for a gentleman who has done much to help and encourage him. This work, which also bears strong evidence of the sculptor's unquestioned skill, is now on view at the Hopkins Institute of Art. It is an odd and pretty conceit, an original idea in marble and bronze. The sculpture is called "The Little Acrobat," and consists of the muscular arm of a man, on the outspread hand of which sits a baby. The arm with the sleeve rolled back to the shoulder is a fine study in anatomy, showing muscle, bones, veins, in splendid style. The timid baby will, however, attract most attention. The half-fearful expression of the little acrobat, the one foot steadied against the brawny arm, the other drawn up, the half outstretched hands, all portray the evident insecurity, to the baby's mind, of the seat it occupies. The modeling of the figure is very pleasing, and the whole conception is fascinating.

The attendance at the exhibition has been very fair, so far averaging over 100 a day. Among paintings from artists not hitherto exhibited here are a couple of Indian pictures by J. Harmer. They are strongly handled and well worthy of their position on the line.

A private dispatch received yesterday from Albert Bierstadt, who is now in Chicago, says that the World's Fair sculpturally outstrips any former exposition. His California, Hebe and other figures for the California State building have been unveiled. He leaves in a few weeks for the City of Mexico, where he will model a bust, and will then go to Europe, returning to this city in the fall.

Save Tilden's "Indian Bear-Hunters," it is the most important of all the American exhibits. But I think I am not prejudiced in favor of the Californian in saying that his production is the greater and better work of the two. It contains a pair of human figures. One of the Indians stands grappling with the bear, which has reared itself on its hind legs and has seized the man's arm in its hideous jaws. You seem to hear the bone crunching beneath the quivering flesh; and were it not for his companion, who, crouching on the ground, is about to plunge his knife into the creature's belly, it would doubtless go hard with him. It is plain that the hunters have been surprised by the beast. They had just secured its cubs with a thong, and it is maternal love that renders their adversary so furious in its onslaught. There is a demoniacal—almost a human—expression on the bear's face. The whole group is forcibly and dramatically rendered, and its effect will be intensified when it appears cast in bronze; about freshly molded plaster there is a coldness and a reflected brilliance less favorable to artistic perfection.

Douglas Tilden includes versatility among his talents. In the "Base-Ball Player" and the "Tired Boxer" he shows us the manly athletic form in its perfection; in the "Indian Bear-Hunters" he is dramatic, soul-stirring; in the "Young Acrobat", there is grace and—what is still more uncommon in statuary—novelty. A round-limbed, chubby infant is balanced in the maternal palm; the arm forms the pedestal, the hand the seat of the audacious urchin. These are merely the adjuncts, the interest is centred in the bonny boy.

Sculptors, unlike painters, seldom if ever go in for hyper-refined surroundings. Wet clay is a medium that does not admit of clean-swept studios, much less of elegant bric-à-brac, Persian carpets, and waxed floors. You generally find them located in the extreme suburbs, where large premises are easy to be got. The Rue du Moulin de Beurre is a favorite haunt of sculptors. No. 14 in that out-of-way, tortuous street is a conglomeration of wooden tenements, built on either side of a broad alley inclosed by iron gates. The feminine Cerberus who plays the part of *concierge* is old and can not read. When I put the query to her anent her tenant, she seemed sadly bewildered: Tilden bothered her, she had never got further down his name than Douglas. But, finally, I was directed to No. 16 in the row, and, turning the door-handle, as I was bidden to do, found myself in a large studio. To shut the big door was to shut out the sounds of human habitation, though not the sun and light which streamed through the high windows. How strangely quiet everything seemed—the sound of my own voice would have startled me! After sending his group—over which he had labored all the winter—to the Salon, our California artist put by his tools with the intention of dreaming away the summer. So he was not in his studio. A winding stair leads up from it to an apartment above, and on the door is an invite to pass in without knocking. Alas! the knock would have fallen on deaf ears, as did my greeting—habit is so strong within us, that the words fell unthinking from my lips. But we were soon installed with paper and pen, and our chat began.

As my companion wrote—his hand flew over the paper—I examined his physiognomy. An intellectual face, speaking eyes, a fair mustache. The figure is well knit, about middle height, the hands long and nervous—the hands of an artist. My eyes strayed about the room. On the table was a bust of Dante, above hung—over some photographs—a cast of Michael Angelo's "Slave," from the window you caught a glimpse of waving trees. To my question: "Where did



Salvation Army Babies:—Faith Judd Montgomery.



Lighting the Way

Lighthouse keeper Laura Hecox blazed the trail for future women

by Kimberly Guardino

THIS BELOVED LITTLE jewel of a town we call Santa Cruz, poetically nestled betwixt the redwoods and the deep blue sea, has in its history — or in this case *herstory*—a long line of formidable and powerful women who blazed the trail for the modern day.

Some are all too well-known, such as pioneer Charley Parkhurst, the stagecoach driver whose identity as a woman was only uncovered after her death when the coroner removed her chaps. Gasp! Or Zasu Pitts, who was discovered by film giant Mary Pickford and went on to become a Hollywood movie star and comedienne. And let's not forget Georgiana Bruce Kirby. But then how could we? Need there be more said about Kirby than her name, which has become a synonym for the early Suffragist Movement in Santa Cruz?

Women who have weaved their lives as quietly as silk moths never have gotten a lot of press. Eclipsed by their luminescent peers, they get lost in the shuffle of



SANTA CRUZ CITY MUSEUM OF NATURAL HISTORY

Laura Hecox's lighthouse is shown at left. Hecox's collection of shells is on display at the Santa Cruz City Museum of Natural History.

Santa Cruz News said of her in her 1919 obituary, "Miss Hecox followed her father in devotion of church and temperance . . . the deceased was a woman of the most devout religious habits, with a quiet unassuming demeanor which won her many friends."

But who was this singular woman, fearlessly staying out the thunderous storms at the lighthouse — on most occasions without company— which caused enough erosion to force the

and take a peek at what's inside. It's easy to see, with just this one collection of Hecox's, why it took a lifetime to collect and properly store the curios she came across.

"This was her personal life," Sally Legakis, registrar of the Santa Cruz City Museum of Natural History says. "And as you can see she was very meticulous about recording everything."

Legakis, wearing white cotton gloves, presents several small brown leather books not usually on display. The handwriting appears to be painstakingly perfected and particularly beautiful, as if Hecox had sat patiently for hours writing in her books with a calligraphy pen. However, absolutely nothing personal is noted in her books. She has simply listed each item presented to her and made absolutely no personal comments. Even in her correspondence with others (Hecox wrote to professors and other notable figures in the field of conchology), Hecox writes not of herself but of her finds.

One of her



PAJARO VALLEY HISTORICAL ASSOCIATION

Charley Parkhurst, who came to Santa Cruz during Gold Rush days, was a stagecoach driver, a voter — and a woman.

Other Historical Women of Santa Cruz County

Charley Parkhurst (1812-1879)
Came to Santa Cruz County from New England in 1849 to drive a two-horse stage. Parkhurst was a woman but dressed as a man. She was noted as one of the best stagecoach drivers in Northern California, and is buried in Watsonville's Pioneer Cemetery.

Josephine Clifford McCrackin (1838-1920)
She escaped from a violently insane husband and came to California in 1867. She wound up in Santa Cruz where she married again and wrote articles for the *Sentinel*. She is best remembered for her tireless fight against powerful lumber interests and her part in the creation of Big Basin State Park.



COURTESY OF THE MUSEUM OF ART AND HISTORY

Lucy Maria Field Wanzer, M.D. (1841-1933)
She worked in Santa Cruz as a postmaster and telephone operator to earn money for her medical education. Eventually she became the first woman graduate from a California medical school.

Mary Hallock Foote, (1847-1938)

Of Zasu Pitts who was discovered by film giant Mary Pickford and went on to become a Hollywood movie star and comedienne. And let's not forget Georgiana Bruce Kirby. But then how could we? Need there be more said about Kirby than her name, which has become a synonym for the early Suffragist Movement in Santa Cruz?

Women who have weaved their lives as quietly as silk moths never have gotten a lot of press. Eclipsed by their luminescent peers, they get lost in the shuffle of yellowed papers and aged photos. There's no one shocking attribute that can be ascribed to them (such as, "She wore pants! She smoked a pipe!"), making them stand at attention before a skeptical publisher's eyes.



COURTESY OF THE MUSEUM OF NATURAL HISTORY MUSEUM

Laura Hecox, shown at left with her mother above, fearlessly tended the lighthouse and collected shells and fossils.

One such notable, introspective, seemingly placid creature was Laura J.F. Hecox, Santa Cruz's first and only woman lighthouse keeper, who lived her 65 years from 1854 to 1919 as simply as a nun.

Forever known as "Miss Hecox," this lady of the lights, who officially began her career at age 29, never once in 34 years failed her duty as lighthouse keeper. She never married or had children, nor did she cease to live with her mother until her mother died at the age of 92. Ho hum. Or so her life at Santa Cruz Light, as the lighthouse was called back then, might seem.

Laura Hecox was a stern and apparently unshakable Methodist (her father A.A. Hecox, Santa Cruz Light's first keeper, was considered a "First Methodist Pioneer"). The lighthouse to be moved further inland several times? She was the kind of woman who, in an 1881 employment census, registered her occupation as a "conchologist" (shell and fossil expert). Says Hecox expert and local author Frank Perry, "Everybody else in town was registered as farm workers and homemakers."

Conchologist? Laura Hecox had no such degree conferred upon her by a formal educational institution. Rather she conferred it upon herself, and not without right. Her collection of shells and fossils, on display at the Santa Cruz City Museum of Natural History, is impressive in its size and range. Flawless shells the size of a pinhead are stored in old-fashioned glass vials. Other shells, of every color and size imaginable, are also represented. Each type of specimen has a meticulously typed set of letters glued to it for reference.

The shells are stored in what appears to be a pharmacist's bureau, with endless rows of narrow drawers. The curious can slide open each one perfected and particularly beautiful, as if Hecox had sat patiently for hours writing in her book with a calligraphy pen. However, absolutely nothing personal is noted in her books. She has simply listed each item presented to her and made absolutely no personal comments. Even in her correspondence with others (Hecox wrote to professors and other notable figures in the field of conchology), Hecox writes not of herself but of her finds.

One of her journals, titled *Shell and Fossil Cabinet*, is thought to complement the shell and fossil cabinet that is on display at the museum. The others are known as her "curiosity" books, for they contain listings of some rather peculiar objects, not all of which are found in the City Museum's collection.

One such book neatly cites the following:

"31. A Ring, made out of a human bone, carved on the battle-field. Presented by Col. Thomas Homer of Vermont, Ill."

And, "11. This is a charm, made in Alaska, by an Alaska Indian woman. They say 'If a person wears it around their neck, they would never have the headache.' Presented by Mrs. Lt. Kinkead, of Unionville, Nev."

Hecox's reputation as a collector had spread far and wide. People from Europe, China, Japan and "nearly every state in the Union" contributed to her vast collection, which, by the middle of her life, had taken over an entire room at the lighthouse. Many locals who had traveled abroad

(Continued on page 14)

# of Santa Cruz County

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COURTESY OF THE MUSEUM OF ART AND HISTORY

Josephine Clifford McCracken campaigned to save the redwoods.

Lucy Maria Field Wanzer, M.D. (1841-1933)
She worked in Santa Cruz as a postmaster and telephone operator to earn money for her medical education. Eventually she became the first woman graduate from a California medical school.

Mary Hallock Foote, (1847-1938)
She moved to Santa Cruz in 1847 and recorded her impressions of the area in writing and illustration. Her work, A *Seaport of the Pacific*, was published in Scribner's *New Monthly Magazine* in 1878.



COURTESY OF THE MUSEUM OF ART AND HISTORY

Mary Hallock Foote was one of the best-known chroniclers of early California.

Georgiana Bruce Kirby, (1818-1887)
She served as an officer of the state level of the Suffragist Movement and led Santa Cruz women in their fight for the right to vote. When this wife, mother and articulate writer and feminist began wearing pants while farming and carpentering, a buzz of gossip tore through the town.

Martina Castro, (1807-1890)
She secured two major Mexican land grants in 1833 and 1844 (Rancho Soquel and Soquel Augmentación), totaling 32,700 acres, which is what is now the stretch from Capitola Beach to Loma Prieta. Abandoned by her husband for the Gold Rush and left with eight children, she remarried and divided the land between her seven daughters and one son.

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(Continued from page 13)

returned with unusual souvenirs, such as cement from Pompeii, Italy, and handed them over to Hecox.

Visitors to the lighthouse were given a tour of the light tower, which Hecox kept a vigilant eye on, checking it at least twice each and every night, as well as a look at Hecox's bulging collection. An excerpt from the book *Women Who Kept the Lights*, by Mary Louise Clifford and J. Candace Clifford, shares the following, a rare firsthand account of Hecox during this time:

"A writer visiting [the lighthouse] in 1904 described Miss Hecox as 'a most pleasant little woman, standing guard at the front door, armed with a big feather duster.' A dusty looking visitor got a brisk whisking before being admitted inside, for Laura Hecox took *Instructions to Light-Keepers* very seriously." The



instructions required that the lighthouse lenses and grounds be kept nothing short of immaculate, which Hecox adamantly adhered to.

What is not known of Hecox is whether she had a lover. Or was she lonely? Did she want children? Was she fearful on stormy nights when shipwrecks were not uncommon? Did she ever save drowning sailors? Was she frustrated by her ties to the lighthouse and the fact that she could very rarely leave it?

These questions seem to have no answers, as Hecox left no personal record when she left her post at age 63

Active Women Honored by County Commission

Each year the Santa Cruz County Women's Commission honors individuals and groups for their work on behalf of women. This year their choices are:

Michaela Weeks, Zephyr Pfotenhauer and Amy Sals. These three teenagers from Santa Cruz High School initiated the Rainbow Alliance, a group which seeks an alliance between gay, lesbian, bisexual and straight students. The young women are also part of the Youth Teaching Youth about AIDS Health Project and are involved in theater in Santa Cruz.

Diane Bridgeman, one of the first members of NOW, is a licensed Clinical Psychologist practicing in Capitola and is an advocate for women's rights. A feminist in the '50s, she was involved with the Civil Rights and anti-war movements, was one of the first teachers of re-entry women, a pioneer in the research examining gender differences and a volunteer facilitator for groups on women's issues.

Ana Maria Guevara was instrumental in creating the first Teen Women's Day in Watsonville. A recent graduate of UCSC, she began working at Salud Para la Gente while volunteering at Women's Crisis Support. As a staff member of the Pajaro Valley Prevention and Student Assistance in Watsonville, she continues to demonstrate her passion for working in the community.

Jean Pogue is a pioneer in helping women gain entry in the field of math, science and engineering. A teacher at Watsonville High School for 40 years, she was the first woman chair of the Math Department and advocated for women to be able to participate in school sports. A pilot, skier and golfer, she is an inspiration to young women to pursue careers

Pajaro Valley Shelter for Women and Children, she became the manager. She is currently Shelter Manager for Defensa de Mujeres and provides counseling to women who need support in breaking the cycle of violence.

Argelia Flores' hard work at Barrios Unidos contributed to the opening of Caesar Chavez School for Social Change which develops leadership and self-esteem through culturally appropriate courses and activities. She is a role model for young Latina women.

Carol Drenes opened New Horizons, a free, private school for homeless children. This school provides for the physical and academic needs of homeless children, by offering food, clothing, personal hygiene, shoes and medical care. These are the children of women who live in poverty and who struggle daily for survival.

Maria Castro was key in developing the Spanish language classes in Early Childhood Education at Cabrillo College. She developed a Day Care Association for Hispanic women and provides them with the opportunity to learn to become professional, independent child care providers.

Valerie Corral has worked tirelessly for residents of the county to have the right to choose to use marijuana for medicinal purposes and was fundamental to the passage of Proposition 215. Her organization WAMM distributes marijuana at no cost to critically ill patients. She models the empowerment of women who fought for what they believe is in the best public interest.

Women's International League for Peace and Freedom has served as a model for women joining together from pre-Suffrage days to the present. The group works to secure the prerequisites for universal peace and justice. They believe that

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These questions seem to have no answers, as Hecox left no personal record when she left her post at age 63 to move into a tiny cottage at the Advent Christian Campground. (Arthur C. Anderson took over in 1917, the same year the oil powered lamp gave way to electricity.)

One can only guess at the emotions, secrets and desires of this intriguing woman who left little personal artifacts behind. In an age when it is all too obvious what everybody thinks and feels, desires and needs, it is refreshing to find a person who set all this aside and got on with her life.

She was a woman, who in her own quiet way, took control of her circumstance, dedicating her life to her interest of shells and oddities. It was a far different life than those of her contemporaries. Perhaps unawares, she presented a new, independent way to think about womanhood, a way that silently but powerfully bespoke of a life neither female or male, but just a life of dedication and interest that saved, entertained and benefited an endless stream of admirers. It was a generous life that left us all with a rich and historical supply of shells, fossils and endless curiosities.

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Mercedes Garcia Reyes offers tireless assistance to women rebuilding lives beyond homelessness and cycles of violence. Once a resident of the struggle daily for survival.

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Women's International League for Peace and Freedom has served as a model for women joining together from pre-Suffrage days to the present. The group works to secure the prerequisites for universal peace and justice. They believe that women must be an effective influence by setting societal goals causing a transformation wherein "women's rights are human rights and human rights are women's rights."

Women's History Tour at Evergreen

Taking a stroll through Evergreen Cemetery (next to Harvey West Park) can be like taking a stroll through time. This month, a docent will share stories of the women buried in the cemetery in honor of Women's History Month. Some of the women buried there include Sarah Gourley, who lived in Santa Cruz during the Gold Rush; Mary Amney Case, known as the first school teacher in Santa Cruz; and Marie Holmes, a 19th century "lady of the night." Meet March 15 at 10 a.m. at the cemetery off Coral Street. Wear comfortable shoes and bring a sweater or jacket. Suggested donation is $1.

Special thanks to the Santa Cruz City Museum of Natural History, whose genesis is attributed to collections donated by Laura Hecox, and to the Museum of Art and History and to the UCSC Special Collections Library for their efforts in helping to research this article. Laura Hecox's mementos are on display at the City Museum, 1305 E. Cliff Drive.



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SANTA CRUZ

1869

Santa Cruz.—This structure will be a duplicate of that at Ediz Hook, W. T. It consists of a wooden dwelling on a brick foundation and cellar walls, and surmounted by a wooden tower for the lantern and lens. With the exception of the lantern and lens the building is complete. It was built by contract, for the sum of $4,350 in coin, the lantern and illuminating apparatus not being included in the contract, but furnished by the Board.

1870

361. *Santa Cruz, California, entrance to Santa Cruz Harbor.*—This light-station was established during the last year.

1879

474. *Santa Cruz, sea-coast of California.*—The station is in good condition. In consequence of the undermining of the land by the sea, the dwelling and tower have been moved several hundred feet further inland, and they now occupy a secure position.

1880

484. *Santa Cruz, entrance of Santa Cruz Harbor, sea-coast of California.*—The tower, from where it rises through the roof of the dwelling to the lantern-deck, was covered with zinc, and then painted white, to prevent the rain-water from being driven through it during heavy storms.

1885

577. *Santa Cruz, on Point Santa Cruz, at entrance to Santa Cruz Harbor, California.*—The reservation was inclosed by a new picket fence 1,200 feet long, which was painted, and various repairs were made to the buildings and machinery of the station.

1901

19. *Santa Cruz, entrance to Santa Cruz Harbor, California.*—A fence 246 feet long was built from the east side of the front gate to the corner of the barn. Erosion of the ocean frontage is continually taking place. One of the stone monuments marking a corner of the reservation had to be moved back several feet on account of the washing away of the ground in which it originally stood. Minor repairs were made.

1902

21. *Santa Cruz, entrance to Santa Cruz Harbor, California.*—The dwelling, an old-fashioned stuccoed structure, surmounted by the light-tower, received considerable repairs, so that it was made comfortable for the keeper. Some 1,160 feet of fencing was built, inclosing the light-house lot.

1907

20. *Santa Cruz, northern entrance to Monterey Bay, California.*—A concrete oilhouse was built. Various repairs were made.

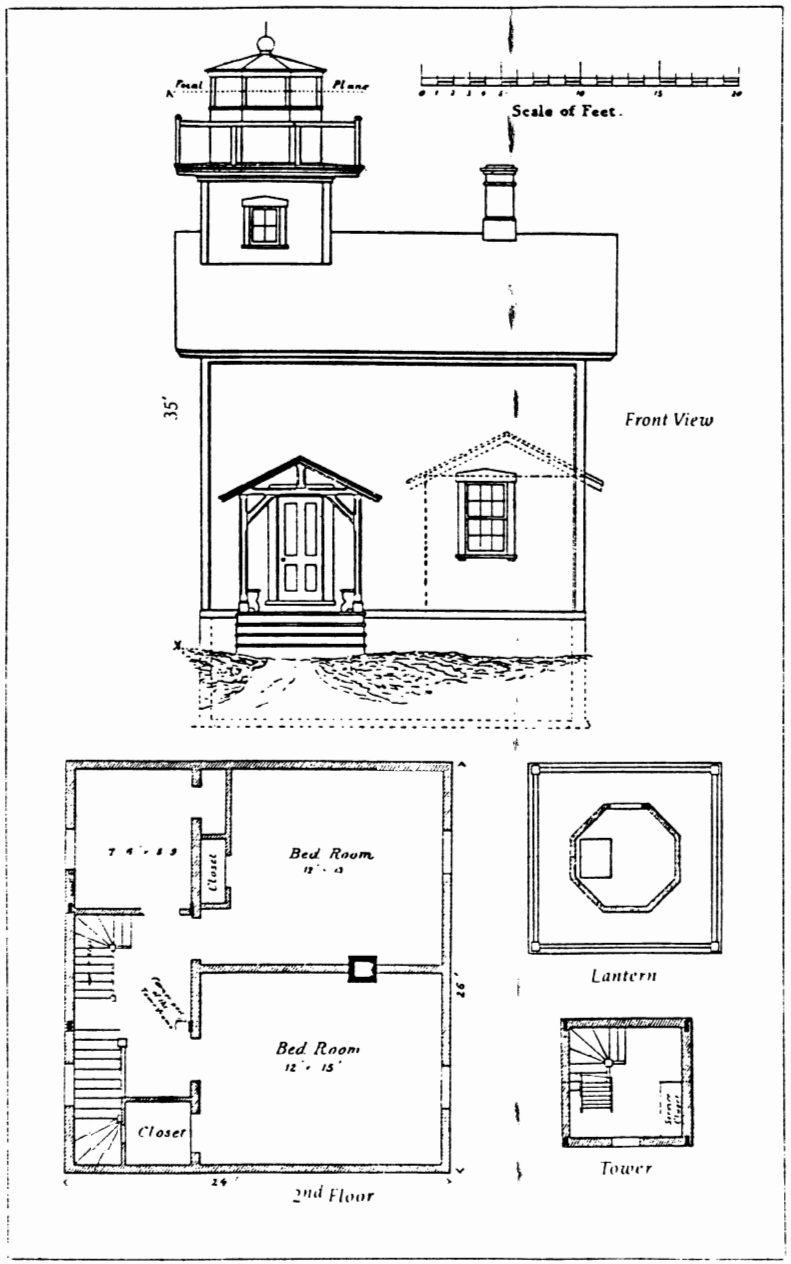
1909

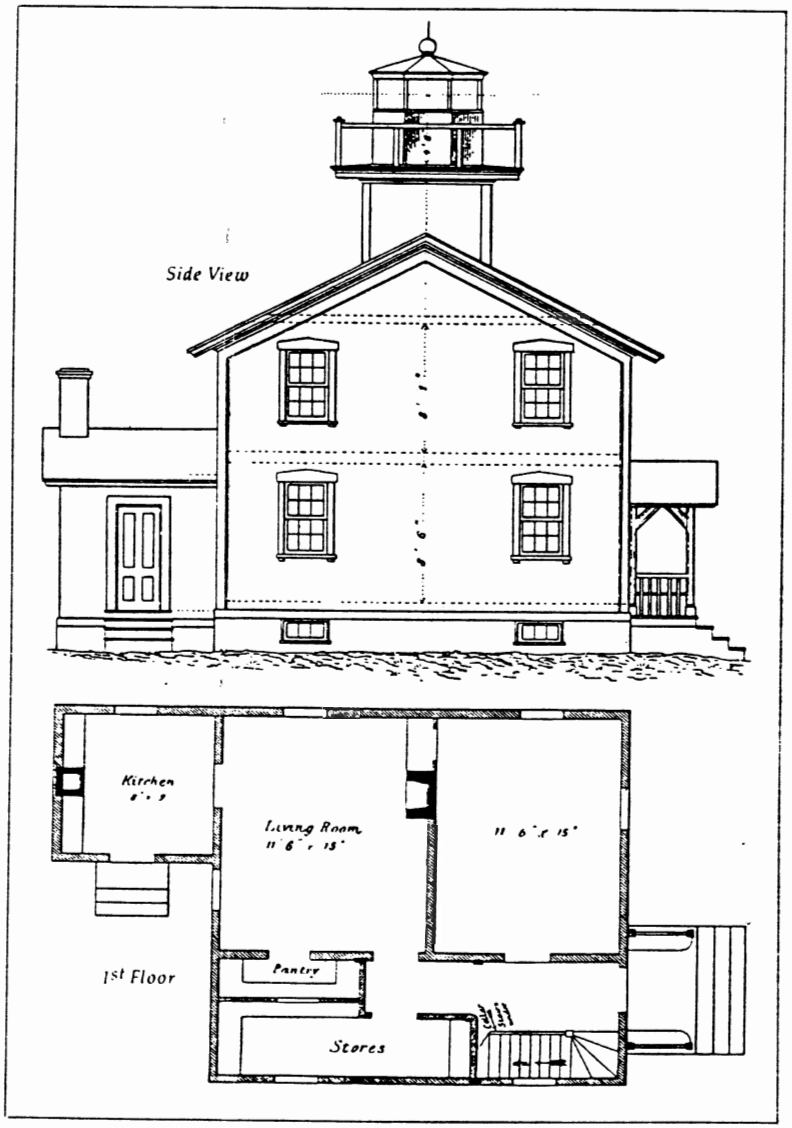
Santa Cruz light-station, California.—This station should be equipped with a modern lens and a fog-signal. It is estimated that this work can be done and two dwellings provided for the additional keepers required at a cost of $29,000, and the Board recommends that an appropriation be made therefor.

SANTA CRUZ

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From Perry, 1982. Lighthouse Point: Reflections on Monterey Bay History





The Santa Cruz lighthouse was designed in 1864 by Hartman Bache, former lighthouse inspector and cousin of Coast Survey Superintendent A.D. Bache (*Manual of Lighthouse Engineering*, Government Printing Office: 1869)

63D CONGRESS, 2d Session. } SENATE. { REPORT No. 182.

IMPROVEMENTS AT THE SANTA CRUZ LIGHT STATION.

JANUARY 26, 1914.—Ordered to be printed.

Mr. PERKINS, from the Committee on Commerce, submitted the following

REPORT.

[To accompany S. 791.]

The Committee on Commerce, to whom was referred the bill (S. 791) to provide for improvements at the Santa Cruz Light Station, Cal., having considered the same, report it with an amendment, and as amended recommend its passage.

The bill thus amended has the approval of the Department of Commerce, as will appear by the annexed report, the amendment referred to therein having been incorporated in the bill as reported.

The amendment is as follows:

In line 5 strike out "$35,000" and insert "$32,000."

DEPARTMENT OF COMMERCE,
Washington, January 12, 1914.

MY DEAR SENATOR: Receipt is acknowledged of letter, dated December 30, 1913, from the Committee on Commerce, inclosing, with request for suggestions thereon by this department, a copy of Senate bill 791, Sixty-third Congress, first session, "To provide for improvements at the Santa Cruz Light Station, California."

This station was established in 1869, and the buildings are mostly of frame construction. The act approved June 17, 1910, authorizing additional aids to navigation in the Lighthouse Service, etc. (36 Stat., L., 537) authorized a flashing light, fog signal and keepers' quarters at Santa Cruz Light Station, Cal., at a cost not to exceed $29,000, but no appropriation therefor has yet been made. An improvement has been made in changing the light from fixed to occulting and an increase of intensity. The fog signal, as well as other improvements, is necessary, as well as a new light tower to render the aids efficient. In the Book of Estimates for 1914, group 3, item No. 38, page 548, estimates for the Lighthouse Service, there is an item for these improvements, at an estimated cost of $32,000, this item being included among works considered essential for the needs of navigation and the equipment of the Lighthouse

Service, and which it was recommended be undertaken as resources permit. The proposed work under the estimate is as follows:

Detailed estimate.

Light tower	$4,500
Fog-signal building and apparatus	9,000
New quarters for 2 keepers	11,500
Improvements to existing buildings, grounds, fences, etc	5,000
Contingencies	2,000
Total	32,000

The increase in the estimate from $29,000 to $32,000 is considered necessary to accomplish the work required. This increase to $32,000 has not yet been authorized by Congress.

An appropriation for this project was not requested for the fiscal year 1915 on account of the more urgent needs at other localities. The work, however, is deemed worthy, and if Congress, considering the needs in other localities, should appropriate necessary funds for this item, in addition to those contained in the Book of Estimates, 1915, pages 464–471, inclusive (estimates for the Lighthouse Service), this department could expend the money advantageously in the interests of navigation.

In view of the foregoing statement, it is suggested that line 5 of the bill be changed by making the figures "35" read "32," and as thus modified it is recommended that the bill be passed.

Very truly, yours,

WILLIAM C. REDFIELD, *Secretary.*

The CHAIRMAN COMMITTEE ON COMMERCE,
United States Senate, Washington, D. C.

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