

LOVE DEAN

## The Kalaupapa Lighthouse

### INTRODUCTION

ON AUGUST 7, 1989, the United States will celebrate Lighthouse Bicentennial Day. This is a special day. It is special not only because on this day in 1789 the first Congress of the United States assumed responsibility for existing colonial lighthouses, but because a new philosophy toward navigational aids was expressed. Before the American Revolution, 12 lighthouses had been built in the colonies. Their construction and maintenance were funded by charging dues on domestic and foreign commerce. This was the accepted policy of Great Britain and all other European countries, and many people in the United States government agreed with this policy. But there were others who believed that the light should be free as air because lighthouses were established not only in the interests of commerce, but for the sake of science and humanity, and, therefore, navigational aids should be supported by the national treasury. This revolutionary idea was expressed by the First Congress of the United States when it passed the ninth congressional law placing navigational aids under the auspices of the Treasury Department.<sup>1</sup>

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On July 1, 1939, 150 years later, Franklin D. Roosevelt's "President's Reorganization Order No. II" provided for the consolidation of the United States Lighthouse Service with the United States Coast Guard.<sup>2</sup> Today, Hawai'i's 13 primary light-houses, 90 lighted aids, hundreds of day markers and buoys, and two LORAN stations are the responsibility of the Fourteenth Coast Guard District. The Fourteenth District, with its headquarters in Honolulu, comprises nearly 18,000,000 square miles of land and sea, making it geographically the largest command in the Coast Guard.<sup>3</sup> The lighted navigational aids located on the Hawaiian islands are automated. These lights are serviced and maintained by the Coast Guard personnel assigned to the Aids to Navigation Team (ANT).

In 1904, when the United States assumed responsibility for the Territory of Hawai'i's navigational aids, there were 18 lights, 19 unlighted day beacons, and 21 buoys, all established under either the Monarchy or the Republic of Hawai'i. The construction and maintenance of these aids were paid for by dues placed on foreign and interisland shipping.<sup>4</sup> But the coasts and harbors of Hawai'i were woefully deficient in lighthouses, according to Henry E. Cooper, secretary of the Territory of Hawai'i, when he testified earlier, in 1902, before the United States Senate committee on Pacific Islands. The Hawaiian Investigation report summed up Cooper's testimony by stating:

The great bulk of the Pacific coast commerce passes through the channel between the islands of Oahu and Molokai. Many hundred vessels now pass annually through this channel, and the number is rapidly increasing, and there are, with the single exception of the light-house at Diamond Head, no light-houses whatever on the exposed points of either of these islands. There is a small light on the further point of the island of Molokai, but it is not visible for more than about 5 miles at sea.<sup>5</sup>

In 1903, W. H. Eustis was appointed by Secretary of the Treasury Leslie M. Shaw to investigate possible lighthouse sites in Hawai'i. He reported:

There is little difficulty, from an engineering standpoint, in the erection of light-houses, as all the sites along the shore are sufficiently elevated so that no tall structures are required. Lieut. Hugh Rodman, of the U. S. Navy, has made a very careful investigation of this subject, both personally and by inquiry of the different sea captains, and furnished me a list of sites, which, in his judgement are necessary for the proper lighting and protection to navigation among the islands.

One of the lights recommended by Rodman was a red light to be visible 10 miles at sea, mounted on a trestle-type structure built at the "Leper Settlement on Molokai at a cost of \$1,000."<sup>6</sup>

#### THE KALAUPAPA LIGHTHOUSE

On January 3, 1865, the legislature of the Hawaiian Government passed an act authorizing the acquisition of suitable land for an "isolation settlement and confinement for those afflicted" with leprosy. Godfrey Rhodes, president of the Board of Health, inspected various sites including land on Molokai. On September 20, 1865, Rhodes reported that he bought a tract of land at Kalaupapa for about \$1,800 and some government land in exchange. The area, consisting of over 6,000 acres, was located on the small peninsula surrounded on the west, north, and east sides by ocean, and on the south side by cliffs that rose 2,000 feet. The first group of leprosy victims landed on the east side of the peninsula at Kalawao on January 6, 1866.<sup>7</sup>

The Hawaiian Government in 1865 had acquired "the area known as Makaanalua" for the leprosy settlement. About 40 residents who lived in and around the area chose to stay there, and the Government allowed the families to remain until 1895, when it was decided that it was unhealthy "to let them mingle with the lepers."<sup>8</sup> In 1905, the settlement was still located at the original 1866 Kalawao site when proposals were made for the establishment of a lighthouse.

The Light House Board, after reviewing testimony and reports on navigational needs in the Hawaiian Islands, asked Congress for an appropriation of \$60,000 for a lighthouse at Makapu'u Point

on Oah'u and \$40,000 for a lighthouse at the "Leper Settlement" on Moloka'i. Congress refused to appropriate the money. The following year the Board again stated that a fourth-order light was needed at the "Leper Settlement" and that a second-order light should be established at Makapu'u Point. Again, appropriations for Moloka'i were turned down, but on June 10, 1906, Congress appropriated \$60,000 for a light station at Makapu'u.<sup>9</sup>

The Light House Board, in seeking appropriations for the Moloka'i light, explained to Congress that the Makanalua Peninsula was an ideal location for a navigational aid because the land jutted out to sea for a considerable distance from the otherwise incurving and very steep north coast of Moloka'i. Still, many lawmakers remained opposed to the location of the light because it would be close to the leprosy settlement.<sup>10</sup>

While Congress vacillated, the Light House Board felt a lighted aid at this location was so important to navigation that it proceeded, without Congressional approval or specially allocated funds, to make plans for the construction of a temporary light on the peninsula. In 1906, notice of the Board's intention was published in the annual *Lights and Fog Signals of the United States*: "Number 273: Molokai: Makanalua Light. . . . To be established."<sup>11</sup>

Work began late in 1905, but stormy weather in mid-January, 1906, delayed completion of the light. First Lieutenant J. R. Slattery, United States Army, Assistant to the Engineer of the Twelfth Lighthouse District,<sup>12</sup> was in Honolulu awaiting the arrival of permits issued by the Board of Health that would allow his work crew to go ashore at Kalaupapa. On January 22, 1907, Lucius E. Pinkham, President of the Territorial Board of Health, sent the required permits and wrote Slattery:

Superintendent J. D. McVeigh of the Leper Settlement . . . will do all the hauling you desire and furnish clean labor. He advises you to delay sending material and men until the weather moderates and becomes settled. The storm has been quite severe and has done some damage.

Slattery immediately replied:

Consulted the Weather Bureau and sea captains along the waterfront. They all seem to think that the weather has now settled and that the opportunity is favorable for sending men and supplies for the Light House at the Settlement by the *Likelike* tomorrow.<sup>13</sup>

A week later the first light station on the peninsula was completed. The Light House Board reported:

On March 1, 1906, a fixed red lens-lantern light was established on Makaanalua, Island of Molokai, 64 feet above the water and 34 feet above the ground, on the top of a lead-colored mast, having at its base a small white house with lead-colored trimmings and a red roof.<sup>14</sup>

One year after the temporary light was erected the Light House Board again requested Congress to make funds available for a light station at Kalaupapa. This time Congress complied and appropriated \$60,000. Plans and specifications were drawn up for the station, and on October 27, 1908, ". . . certain lands within the Kalaupapa Leprosarium" were acquired for lighthouse purposes by Executive Order 962, signed by Theodore Roosevelt.<sup>15</sup>

The Board of Health, controlling access to Kalaupapa, could not seem to devise an efficient procedure for granting permits to lighthouse personnel and those surveying the site. When work on the permanent concrete light tower began, emergency passes were sometimes issued before work parties could land.<sup>16</sup> The ultimate frustration was expressed by Captain C. W. Otwell in a letter to the president of the Board of Health, "I have just learned that permits to leave as well as to visit the station are required."<sup>17</sup>

Arrangements were eventually made for regular passes to be issued to a number of people including Eugene B. Van Wagner.<sup>18</sup> Van Wagner began working on the construction of the light station in June of 1908. Six months later he was made foreman. On March 12, 1909, Van Wagner wrote a friend that he had "fixed up the light at Oahu" as well as others in the islands and was "now working on Molokai":

This tower is 112 feet. Have the cement all in . . . and will begin putting up the iron work next week. Have raised one piece of the

iron already. The light pedestal weighs 2200 pounds. Had to take it up on top. There are four other pieces each weighing 2,000 a piece. I snapped some pictures of the tower as men were lifting the large prism. . . . I wish I was through here, there is no place to go we are right in the leper settlement and of course are not allowed to go anywhere else, just like prison. . . . This life on the ocean wave isn't what it is cracked up to be.<sup>19</sup>

Before work on the station began, a source of fresh water had to be found. The catchment and water tank built for use with the temporary light, were not sufficient for the needs of the new light station.<sup>20</sup> "For construction purposes and for a permanent supply . . . the most feasible way to get water," Otwell wrote in a letter to Dr. C. E. Cofer, "seems to be through the mains already laid for the settlement." Water into the Kalawao settlement was piped from Waikolu Valley, southeast of the Kalaupapa Peninsula. Otwell estimated the daily consumption for the station would be about 300 gallons, which "could be drawn off during the day or night as most convenient." Permission to tap into the settlement's water line was granted by the Board of Health, and one group of men began laying the water pipes to the station.<sup>21</sup> Other men worked on building a road that would extend over two miles from the boat landing at Kalaupapa to the station site.

The lighthouse service in Hawai'i did not have its own ship at this time, and the vessels most used for transporting men and materials were the *Likeli*, the *James Makee*, and the *Iwalani*.<sup>22</sup> Arriving from Honolulu, ships anchored in the deep water of the bay off Kalaupapa. Cargo and men were off-loaded into small boats and rowed to the wharf, many times through high seas and rough surf, for both bay and landing were open to strong and stormy north winds.

Once materials were ashore, they were carried by men, donkeys, and horses along the road from the landing to the construction site. Tons of cement, sand, lumber, ironwork, glass, machinery, and tools, were required to build the light station. In addition, there was the food and the supplies needed by the workers who

were camping at the site. The Board of Health allowed workmen to build a cement shed and a wooden building near the wharf for storing materials until they could be transported to the light station.<sup>23</sup>

The most significant cargo arriving at Kalaupapa had been shipped from halfway around the world. The lantern and lens were ordered by the Light House Board in September 1907. The lantern was completed and shipped in March 1908; the lens, made by Chance Brothers and Company, Limited, in England, was delivered to New York in July and arrived in Honolulu in November 1908.<sup>24</sup> Both lens and lantern were originally purchased for the Makapu'u Light on O'ahu. The Moloka'i Light, when first proposed, was designated as a fourth-order light, but plans changed in 1907 when the Light House Board bought a hyper-radial lens for the Makapu'u lighthouse and decided to use the second-order lens on the Moloka'i light.<sup>25</sup>

Once this decision was made, the tower for Moloka'i was designed specifically to house the second-order lens. The octagonal tower measures 20 feet in diameter at the base and tapers to a diameter of 14 feet, 4 inches at the top.

The tower rests upon an octagonal reenforced concrete base 34 feet in diameter and 5 feet 6 inches thick, and is provided at the top with a molded concrete cornice, supporting the lantern.<sup>26</sup>

The men began building the forms for the tower in September 1908, and it took the workers six months to complete the concrete work. It was difficult, backbreaking, and sometimes dangerous work. As the tower was being readied for the ironwork, one workman fell from the top of the tower and was killed.<sup>27</sup>

The erection of the ironwork, which composed the upper floors and stairs, was started in April 1909. The watchroom floor supporting the lens pedestal was also cast iron. From the watchroom to the third floor below a hollow weight shaft was constructed for the clockwork.<sup>28</sup>

The clockwork and falling weight were designed to mechanically drive the revolving lens as it rotated around the lamp. A circular

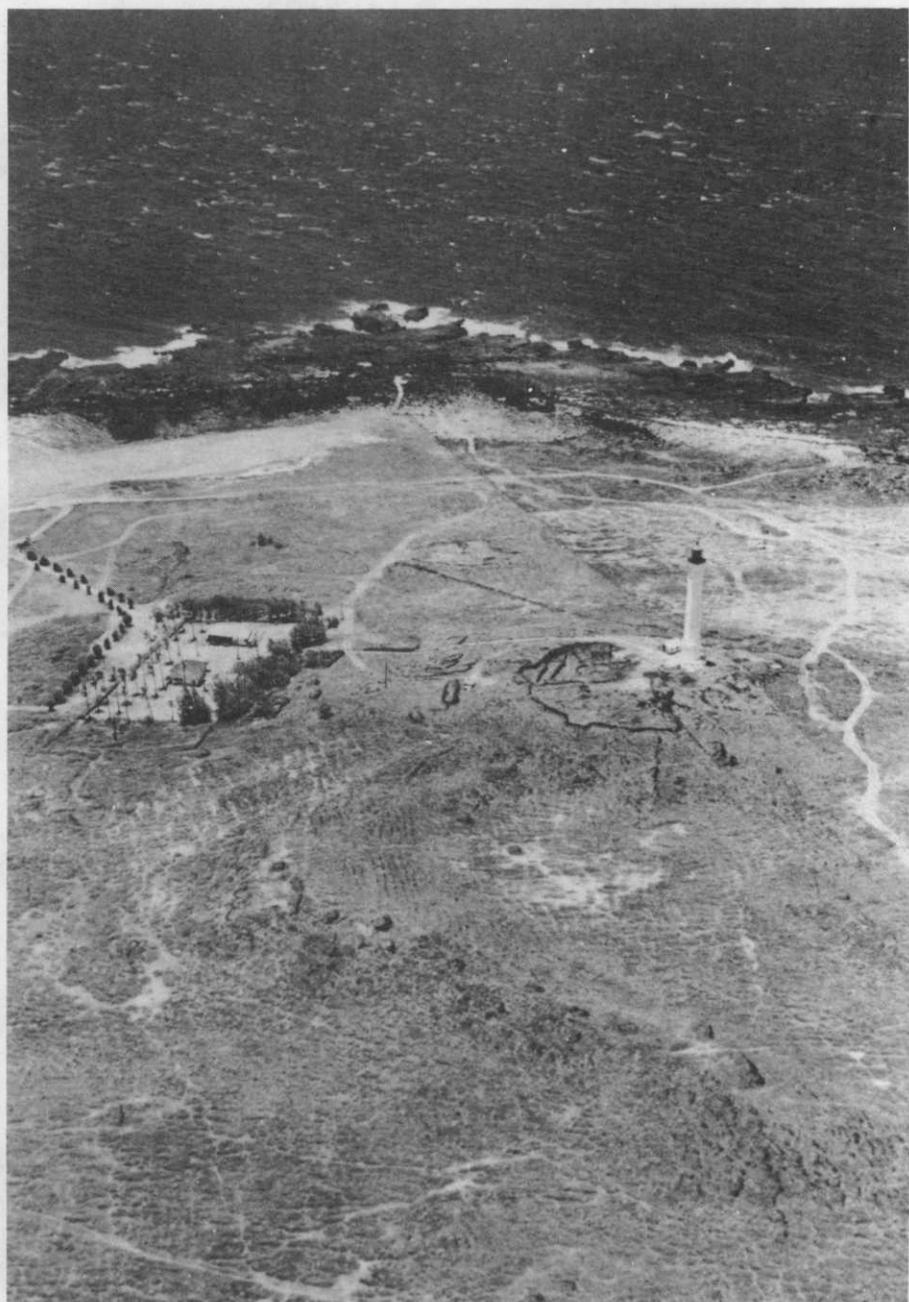
trough or vat containing liquid mercury supported the weight of the lens as it revolved. The vat could be lowered, with the lens temporarily braced, so that the keepers could examine the apparatus and also drain the mercury in order to clean it. Every six months the mercury would be filtered and then replaced in the vat.<sup>29</sup> Some revolving lights used ball bearings on roller carriages, but the weight of the Moloka'i lens made this design unreliable—it weighed over three tons. The mercury ensured flotation and smooth revolutions at the speed required for the two-panel lens to revolve around the light and create a flash every 20 seconds.<sup>30</sup>

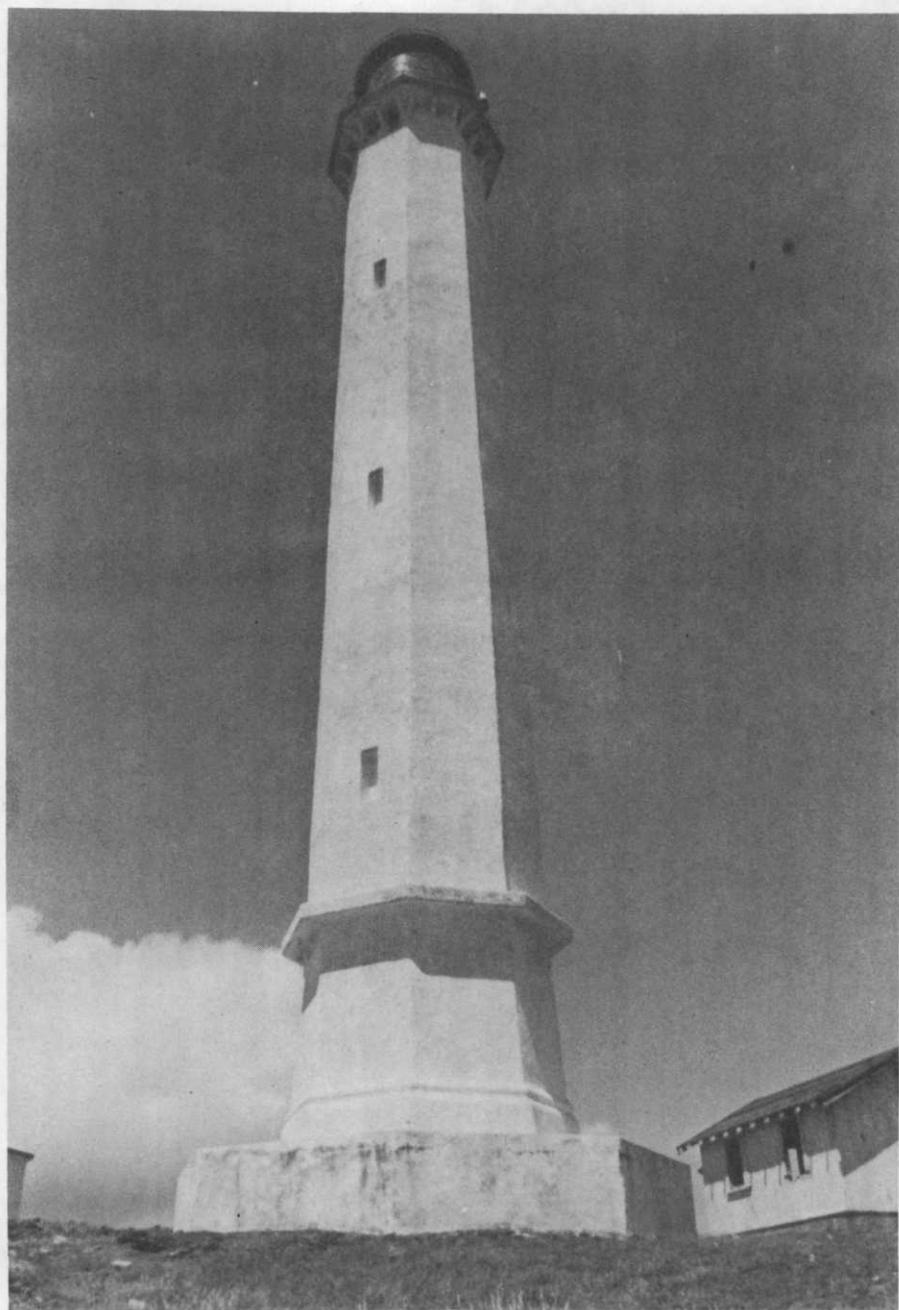
In June 1909, the lens and lantern were in place atop the tower. The total expenditure for the station, which included the light tower, keepers houses, work and storage sheds, and water and fuel tanks, was \$59,977.04, thus fulfilling Congress' requirement that the cost "not exceed \$60,000."<sup>31</sup>

Thirty minutes before sunset on September 1, 1909, the light-keeper climbed the stairs to the watchroom of the tower to prepare the lamp for lighting. The focal plane of the light was 213 feet above the water. The keeper checked the lamp to see if it was correctly focused within the lens. The illuminant was incandescent oil vapor, which produced a light brighter than an ordinary oil lamp. When the lamp was lit, the keeper removed the clock-work weight from its rest and wound it, setting the revolving mechanism into operation. As the lens revolved around the lamp, the bright light flashed for the first time across the Kalaupapa Peninsula and 21 miles out to sea (figs. 1 and 2).<sup>32</sup>

There was still work to complete at the station even though the light was in operation. Some outbuildings and one of the three keepers' homes was still under construction. The houses were one and a half stories high. Each had a living room, dining room, kitchen, two bedrooms, and a bathroom on the first floor, with high attic space above. Invitingly wide, covered verandas extended around three sides of each building. One of the houses was built

FIG. 1. Aerial view of the Moloka'i Light Station. (United States Coast Guard Fourteenth District photo collection.)





with the dark blue volcanic rock found on the site; the other two houses were concrete. The frame roofs were "covered with corrugated-iron sheathing." Each house had a view of ocean and *pali* (cliff). The keepers and their families would be living amidst the spectacular natural beauty of the Kalaupapa Peninsula.<sup>33</sup>

#### LIGHTHOUSE KEEPERS (see Appendix)

The keepers' homes formed a tiny community on the tip of the isolated peninsula. Isolation is not unique for light stations, especially for landfall lights such as the one at Kalaupapa, which must often be located on remote and almost inaccessible coasts; however, the men stationed at Kalaupapa did not suffer from loneliness. Three keepers and their families were usually in residence, and, even though contact was restricted between those living at the light station and those living in the settlement, there was friendliness and communication between the two groups. People from the settlement would ride their horses or walk up to see the light tower—it was a place to go, something to do, a sight to share. It was the tallest lighthouse in the islands and a source of pride for both groups.

Most of the keepers stationed at Kalaupapa were dedicated men who had few illusions about the job. They showed a strong attachment to their work and their life style. Many remained in the lighthouse service until they retired. James M. Keanu (fig. 3), the keeper of the temporary Makanalua Light in 1908, served as head lightkeeper for the Moloka'i Light from 1909 through 1926, from 1929 to 1932, and again from 1937 to 1939. William F. Williams, was first assistant keeper from 1909 to 1913. His father had been in charge of the Honolulu Harbor Light for 36 years. After Williams left the Moloka'i Light, he became the head keeper of lighthouses at Barbers Point and Diamond Head on O'ahu. Robert Reid, another veteran keeper, was transferred from the

FIG. 2. The Moloka'i Light Station. (United States Coast Guard Fourteenth District photo collection.)

desolate Ka Lae Light Station on the Big Island to replace Williams.<sup>34</sup>

Although each lighthouse in the Islands had its own advantages and disadvantages, the Moloka'i Light differed in one dramatic way—access to the station was extremely restricted because of the leprosy settlement. Keepers and their families needed permission and passes from the health department every time they left or arrived at the station. Special permission was also required before any of the personnel from the lighthouse tender *Kukui* could come ashore.<sup>35</sup> The *Kukui*, completed and delivered to Honolulu in March 1909, became a familiar sight at Kalaupapa.<sup>36</sup> The steel, schooner-rigged steamer measured 190 feet overall, with a 30-foot beam and a draft of 12 feet. The revolving steam derrick, forming the main mast, could hoist a load of 20 tons, but speed was one of the *Kukui*'s most impressive features. The tender could make 12½ knots and was one of the fastest vessels in Hawaiian waters.<sup>37</sup>

The *Kukui* transported men and materials for maintenance work on the Kalaupapa light tower and keepers' dwellings.<sup>38</sup> It brought food and supplies for the keepers and their families. It carried lighthouse superintendents, inspectors, and personnel back and forth from Honolulu.<sup>39</sup> It was the life link between civilization and the remote light station.

The remoteness was not all that unusual for most of the keepers and their families. Many came from secluded areas in the islands before moving to Kalaupapa. They were adaptable people and survivors. John Kanekoa worked on a ranch before he became keeper of the Nāwiliwili Harbor Light, Kaua'i, in 1910. In 1913, he was the first assistant keeper at Kalaupapa, and, in 1915, he returned to Kaua'i as first assistant keeper on the Kilauea Light. John Makahi was a farmer before joining the lighthouse service. In 1910, he was keeper of the Keāhole Lighthouse on the Big Island. Four years later Makahi was assigned as first assistant keeper at Kalaupapa. In 1919, he transferred to Kilauea where he was promoted to keeper in 1923. When he retired, Makahi returned to his life as a farmer on Kaua'i.<sup>40</sup>

Manuel Ferreira, on the other hand, was serving on the lighthouse in busy, bustling Honolulu Harbor before he came to

Moloka'i. The Honolulu Harbor Light, which used a simple oil lamp with a wick, was discontinued in 1926, when an automated electric light was established at the top of Aloha Tower.

Ferreira, born in Hana, Maui, in 1885, was appointed keeper at the Ka'uiki Head Light when he was 23 years old. In 1934, he told reporter Jan Jabulka:

We have come a long way in the lighthouse service in Hawaii since I first tended in 1908. It was in Hana, Maui. There we merely filled a kerosene lamp, which was attached to a carriage table top, and hoisted it to the masthead. It was simple, but I guess effective enough in those days. It gave a light that was visible for perhaps eight miles at sea. At Moloka'i we used an oil vapor lamp, burning a vaporized kerosene under an incandescent mantle. This gives a much more powerful light with little or no increase in oil consumption.<sup>41</sup>

The light from the Moloka'i tower could be seen 21 miles at sea. It had a luminous intensity of 620,000 candlepower. The characteristic of the light was changed in 1917 from flashing white every 20 seconds to flashing white every ten seconds.<sup>42</sup>

In 1927, Ferreira accompanied R. R. Tinkham, Superintendent of Lighthouses, on a general inspection of the light station. The site contained approximately 21 acres.<sup>43</sup> Besides the 132-foot tower and the keepers' houses there were several other buildings on the grounds. A wooden, two-room storage and shop building was located east of the keepers' dwellings. In front of the middle house was a garage for the station's half-ton Ford truck, and in back was a laundry and shower room. A concrete oil house was used for storing items like domestic oil in drums, alcohol in cans, and paint. The kerosene used for the light was stored in a 1,254-gallon cylindrical steel tank located on the southwest side of the tower. From there, it was pumped by hand to a receiving tank on the first floor of the tower and then to the I.O.V. (incandescent oil vapor) tank in the watchroom.<sup>44</sup>

Northwest of the tower stood the 12,000 gallon water-storage tank built of reinforced concrete. Paths led between the tower, the keepers' homes, and the other buildings. Stone walls enclosed

kitchen gardens. After inspecting the grounds, Tinkham wrote in his report:

The light station . . . is maintained efficiently by a lighthouse keeper and two assistants, all natives of Hawaii. The grounds are attractive with extensive well-kept lawns. Water . . . for the station is piped 5 miles from a mountain reservoir.<sup>45</sup>

There were no school facilities within easy reach of the station, and school-aged children usually lived elsewhere with relatives and came back to the light station on weekends and holidays. Medical attention for the keepers and their families was provided by the resident physician at the Kalaupapa settlement.

"Extreme precautions were taken at all times to prevent the spread of leprosy," emphasized Ferreira.<sup>46</sup> Subsistence supplies were purchased by the keepers in Honolulu and shipped, "double packed . . . the same as Territorial supplies for non-lepers at the settlement." As soon as supplies reached the boat landing those cases going to the light station were "removed and brought immediately to the station. . . . All our food and other supplies came to Molokai in double cases."<sup>47</sup>

In spite of the disadvantages, of the many lights Ferreira served on, the Moloka'i light held the most enjoyment for him:

Hunting was one of our favorite off-duty recreations. We used to go out frequently after wild pigs, goats, and deer. This meat came in mightly handy at times when food shipments were delayed because of bad weather at sea.

A description of what the peninsula was like while Ferreira was keeper is given by Harry Franck who visited Kalaupapa in the 1930s:

We drove first of all . . . to Kalawao, some three miles away on the farther side of the peninsula . . . it was at Kalawao that the lepers lived in Father Damien's day. . . . We found the iron-fenced, cement-topped grave of Father Damien, with its marble shaft, in a perfect state of preservation, well tended, in fact. So were the

less ornate graves of the score or two of other people, including "Brother Joseph (Dutton)" buried there.

Describing the drive back to Kalaupapa, Franck writes:

The triangular promontory . . . is covered with stones big and little, black sinister volcanic rocks, as if they had rained down upon it, as no doubt they did. The lighthouse in its fenced square quite separate from the leper settlement was until recently the last surviving kerosene lighthouse in the United States; is now, if I caught our driver's words clearly above the gasps of the bouncing car, the largest single electric lighthouse, or the largest one with its own plant, on our coast. The beach beyond it is fringed with little houses belonging to and in some cases built by the lepers.<sup>48</sup>

There is some truth in what Franck was told on that bouncy car ride. In 1934, "three fully automatic two-kilowatt engine generators and equipment were purchased for the light." In 1935, all the buildings at the station were wired for electricity.<sup>49</sup>

Shortly after electricity was introduced, Ed Marques became the second assistant keeper (fig. 3). James Keanu was once again head keeper; he returned when Ferreira was transferred to the Makapu'u Lighthouse. As far as Marques was concerned, "Keanu could do everything even though he lost his right hand." Keanu was using dynamite to blast out holes for fence posts when the stick of dynamite he was holding exploded. "All the jobs that needed to be done at the light station Keanu could do—he could use a shovel, a pick, an ax; he could even wring out sheets! He was a good man and a good worker."<sup>50</sup>

Moloka'i was Marques' first light station assignment. He was working as a contractor, doing some dynamite blasting of his own, when he saw a notice on the bulletin board at the Federal Building in Honolulu listing an opening for a lightkeeper. He filled out the forms at once and then waited:

There were a lot of men who wanted the job, and I was surprised when the clerk called me. I guess my earlier job as seaman helped me. My salary as second assistant keeper was \$125 a month and \$20

was deducted for housing. Once a year we were given a 26 day leave.

Marques had been to Kalaupapa once before in 1932—when he was shipwrecked! He was serving on the S. S. *Kaala* when it ran aground on the rocks off Kalaupapa:

We all made it safely to shore and the people at the settlement took good care of us. We stayed at Kokua House (helpers' quarters). The next morning we went out to look at the *Kaala* and we could see how the crude oil had spread out from the ship and killed all the fish.

A ship to transport the stranded men back to Honolulu was sent to Kaunakakai Harbor, on the south side of Moloka'i. A three mile trail, with twenty-six switchbacks, winds up the 1,664 foot steep cliff behind the settlement. The men hiked the trail to the top where they were met by cars that took them to the harbor. "That is one of the most beautiful trails I've ever taken," remembers Marques, and he regrets that he seldom found time to hike while he was working at the station. "When I was shipwrecked off the Kalaupapa Light," Marques says, "I never dreamed I would someday be back as a keeper."

The only way in or out of Kalaupapa was by sea until an airplane landing field was established on the northwest edge of the light station property in 1933.<sup>51</sup> An improved and enlarged runway is shown on a survey map dated November 19, 1939. The map clearly marks the route from the Kalaupapa wharf to the light station. The road runs east past the settlement office, store, and post office. The visitors' quarters and Bay View Home are shown to the south, and the Baldwin House is located south of the Waihanau Stream. To the southeast, off School Street, is the hospital and the Bishop Home. At Beretania Street the road turns

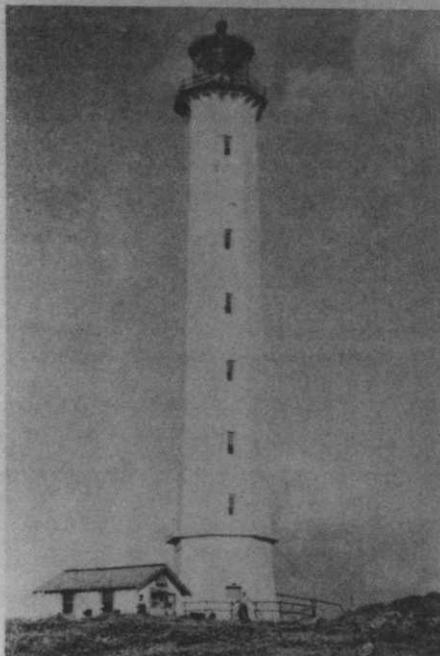
FIG. 3. Headkeeper James M. Keanu (*left*) and Assistant Keeper Edward "Eddie" Marques (*right*), Moloka'i Light Station, 1936. (Edward Marques photo collection.)



# LOCAL NOTICE TO MARINERS

ISSUED BY: COMMANDER, 14th COAST GUARD DISTRICT  
P. O. Box 4010  
1347 Kapiolani Blvd., Honolulu, Hawaii

Day 5-8831 Ext: 452  
Night 502-111



MELE KALIKIMAKA  
MERRY CHRISTMAS

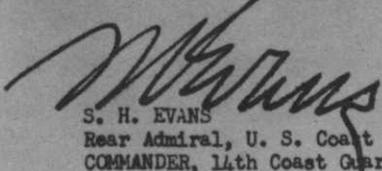
AND A

HAUOLI MAKAHIKI HOU  
HAPPY NEW YEAR

MOLOKAI LIGHT  
1909 - 1959

HAWAIIAN ISLANDS - MOLOKAI ISLAND - MOLOKAI LIGHT has been changed to show a flashing white light every 10 seconds, flash 0.1 second, 12,000,000 candlepower and visible 24 miles.

Reference: CCGDL LNM 57-59 (10-14-59) USC&GS CHART: 4116  
CG LIST OF LIGHTS PACIFIC COAST 1959 No. 2952

  
S. H. EVANS  
Rear Admiral, U. S. Coast Guard  
COMMANDER, 14th Coast Guard District

REPORT DEFECTS IN AIDS TO NAVIGATION TO NEAREST COAST GUARD UNIT

DATE: 10 December 1959

NOTICE NO. 67-59

north and is called Kamehameha Street. It passes the Amusement Hall, Catholic Mission and several houses. Further north there is the Catholic cemetery and then the Papaloa cemetery. The road follows the coastline for almost two miles, passing another cemetery before it reaches the perimeter of the landing field and the light station.<sup>52</sup>

The road was familiar to Fred Robins when he arrived at Kalaupapa in 1940 to serve as head keeper. As a youngster he and his family traveled the road many times when his father, Ed Robins Jr., served as keeper at Kalaupapa from 1914 to 1916. In 1917, Ed Robins Jr. was transferred to the Honolulu Harbor light where he and his family lived until his retirement in 1925. Fred Robins' grandfather, Edward Sr., had also been a veteran keeper in the islands. Light keeping was a family tradition.

Fred Robins was born in 1906 at Hilea on the Big Island in the shadow of the Ka Lae Lighthouse, the southernmost lighthouse in the United States. His childhood years at Kalaupapa "would have been real lonesome if it had not been for his brothers and sisters." Robins, like Ferreira, was indelibly impressed with the precautions taken in the shipment of supplies for the light station:

In those days all our food and goods came in double packing so that it could not get contaminated. You took the outer wrappings, burned them, washed your hands and then opened the package.<sup>53</sup>

Robins was 16 years old when he signed up with the Commerce Department in 1922—the youngest man in the service at the time. His first assignment was Barbers Point Lighthouse, O'ahu. Even though he was raised on light stations, Barbers Point was much too quiet for him as a young man. But he stuck it out for two years before he quit. After serving with the Merchant Marine, he rejoined the Commerce Department and was reassigned to Barbers Point in 1930.<sup>54</sup>

This time life was not so lonely, for Robins was married in 1928

FIG. 4. "Local Notice to Mariners," 1959. (United States Coast Guard Fourteenth District photo collection.)

to a beautiful Hawaiian woman, Annie Nauaao, from Hana, Maui (32 years later he called this his "happiest moment").<sup>55</sup> The Robins' daughter, Roselani, was born in 1929. Three years later their second daughter, Anna Mae, was born. Robins was transferred from Barbers Point in 1933 to the Kilauea Light, Kaua'i. In 1940, the family, with the addition of son Fred Jr., arrived on Kalaupapa.<sup>56</sup>

When the Lighthouse Service was consolidated with the Coast Guard system in 1939, keepers were given the choice of remaining on as civilians or joining the service.<sup>57</sup> In 1941, Robins joined the Coast Guard. During World War II, he served with Navy units for three years and then returned to light keeping duties on Moloka'i.

During the War, there was a military atmosphere at the light station, and Marques, who remained at the light until 1946, remembers that during the war years he had a Winchester "and carried a forty-five. We felt we were well protected—as long as we saw the enemy first!"<sup>58</sup> The lights were off at night but still manned by the keepers and used as watch towers to spot enemy shipping or submarines. Without any chores other than scanning the ocean through binoculars, it was sometimes difficult for the keepers to stay awake during their long night vigils. The Robins' daughter, Anna Mae, remembers her mother's evening routine:

She would finish up the dinner dishes, and then prepare a snack, perhaps some special treat. After she put us to bed, she would walk to the light tower, carrying the food and something to drink, and stay with our father on his shift at the light. Sometimes she would take us with her, and I would watch them as they sat together, and we would look out at that great ocean and the night sky.<sup>59</sup>

On April 1, 1946, nature gave a jolt to the romantic scene. That was the day the tidal wave devastated so many of Hawai'i's coastal areas.<sup>60</sup> Some of the cottages along the beach were demolished. Henry Nalaielua, who lived at the settlement, remembers that several cottages were washed away:

. . . another was lifted off its foundation and floated into the ocean. The main office was spun off its foundation . . . and faced in a different direction. Headstones from the graveyard . . . were strewn about. . . . The most severe damage for Kalaupapa was to our pipeline . . . the only source of water.<sup>61</sup>

The light station was on high ground, and the great 35-foot wave did not engulf the lighthouse. But from this high and safe vantage point Robins could see the destruction below him: "One minute the houses were there, and the next they were washing away in the wave." Robins rushed to help the people in Kalaupapa.<sup>62</sup>

Regulations may have required restricted contact between the leprosarium and those at the light station, but off the record there was contact, not only in times of emergency, but for fun. The men in the settlement were enthusiastic baseball players and formed several teams. The men from the light station played ball with them. Gambling, not condoned at the settlement, found a less judgmental setting at the light station, and there was, perhaps, more than an occasional crap game at the site.<sup>63</sup>

Robins' favorite pastime was fishing: pole fishing, spear fishing and throw-net fishing. Another hobby was raising homing pigeons. The family also kept ducks and chickens. "We had quite a farm at Kalaupapa. We raised fruits and vegetables, goats and pigs," remembers Anna Mae.<sup>64</sup>

When the children became of school age, they were sent to live with an aunt in Ho'olehua where they attended Moloka'i Elementary School. Anna Mae missed "being at the lighthouse, but we would go back on holidays and for some weekends." When Robins had leave, he took his family to Honolulu or to visit relatives on one of the other islands. The girls were eventually sent to the Kamehameha Schools in Honolulu, and Fred Jr. stayed with another aunt on O'ahu and attended McKinley High School. "We still returned to Kalaupapa every chance we got."

I was a lighthouse kid, just like my father, and I loved it. Our lives were not lonely or monotonous. We created our own fun, our own

games. We built kites and scooters. We went swimming and fishing. We were naughty and got spanked.

Robins retired as keeper in 1964 and then served six more years on the Coast Guard Rescue Team. During his career he was awarded the Coast Guard Good Conduct Medal, the American Defense Medal, and the World War II Victory Medal.<sup>65</sup>

One of Robins' assistants at the Moloka'i Light Station, beside Marques, was boatswain's mate Harry Kupukaa who spent twenty years in the lighthouse service and the Coast Guard. But career lightkeepers, like Robbins, Marques, and Kupukaa, were becoming history. In the 1950s, as the civilian keepers (and those who had joined the Coast Guard) retired, they were replaced by younger Coast Guardsmen, or the lights they had served on were automated. The last civilian keeper in the Hawaiian Islands was Joseph Pestrella, who retired in 1962 after 29 years of service.<sup>66</sup>

In 1953, before Robins was transferred from the Moloka'i Light, Captain O. C. Rohnke, realizing that it would be difficult to find younger Coast Guardsmen willing to serve at the remote station, considered the possibility of hiring personnel from the Kalaupapa settlement. Rohnke first wanted to investigate any possible health hazard. On October 8, 1953, he received a letter from L. F. Badger, Medical Director of the Public Health Service:

I would not hesitate to employ an arrested case of Hansen's disease at the light. However, if such personnel were employed, I would request that they be examined periodically for any evidence of activity of the disease. An arrested case of leprosy may become active and be as much a possible source of infection as any other active case. I do not consider it advisable to employ active, bacteriologically positive cases.<sup>67</sup>

#### THE AUTOMATED MOLOKA'I LIGHT

In 1959 (fig. 4), Rear Admiral S. H. Evans, Commander of the Fourteenth Coast Guard District, wrote to the director of the Kalaupapa Settlement:

For many years, civilian Lighthouse personnel who were transferred to the Coast Guard . . . have been available to maintain and operate Molokai Light Station. . . . We soon will be faced with no more 'old timer' lighthouse personnel and are experiencing difficulty interesting the younger military generation in isolated duty assignments such as the Molokai Light Station.<sup>68</sup>

This letter was the beginning of a plan to automate the Moloka'i Light. "Equipment now available" made it possible to modify the light "so that it will operate automatically with very little supervision of a relatively unskilled nature." Admiral Evans wanted to know if the Department of Health would be willing to take over this responsibility, "whereby locally available non-patient or released patient caretaker service" would perform "lens and general cleaning; replace burned out lamps;" make routine tests of standby equipment, and perform other duties, with the Coast Guard responding in emergency situations.<sup>69</sup>

It took seven years before a plan for automation could be implemented. First of all, the Coast Guard's Legal Officer had some questions about the Territory's "liability to anyone if the light should fail to operate," or a liability "to their employee who may be injured on the job at the light." Second, the Department of Health had its own reservations and "decided that it would withdraw in favor of arrangements on an individual basis with a Kalaupapa resident."<sup>70</sup>

The Coast Guard again received reassurance concerning the health factor, this time from Clarence B. Mayes, Medical Director of the Public Health Service office in Honolulu:

. . . in the opinion of this office and the consensus of competent medical opinion, your Coast Guard personnel would not, in any way, be in danger. Hansen's Disease requires close and constant physical association in order to be contracted.<sup>71</sup>

While the "lamplighter service" was being investigated, plans were made for a standby light of lesser intensity, but with the same characteristic, to be mounted on the lantern gallery. This light would be battery powered and would switch on automatically in

case the electricity to the main light should fail. Additionally, it was recommended that a "failure alarm system . . . be extended to the lamplighter's dwelling."<sup>72</sup>

While preparations for eventual automation were underway, the Moloka'i Light continued to operate with Coast Guard personnel. The station had been changed to a "two family station," but Captain C. N. Daniels in a 1960 report commented:

Although family quarters are provided, it is not considered appropriate that men with their families be assigned and it is further recommended that this station be re-classified as an isolated unit and tour of duty be established at one year.<sup>73</sup>

Life sometimes takes an ironic twist; the victims of Hansen's disease who were isolated knew the young keepers of the light were the ones who felt alone and who longed for companionship. "They were so lonesome we would sneak up to the light station and talk story with them," Rose Lelepali remembers. "There were still great restrictions and we were not supposed to visit the light-keepers," but the Coast Guardsmen were thankful for the company. They took Lelepali to the top of the light. She had known earlier keepers and visited the station many times, but no one had ever taken her to the top of the light before. "To see that lens; to see the source of the light was something I will always remember." The brilliant light was part of her life as it swept over the pali, across the black lava rocks from which she sometimes fished at night, and rhythmically lit up her bedroom, "like a full moon's beam."<sup>74</sup> It was a light that had shown through the darkness of the settlement from the time Rose arrived as a patient, leaving behind her home on the Big Island, her husband, and their six children, the youngest of whom was only two years old at the time.

There is a known history of forced family estrangements for people who became patients at the settlement, but the lighthouse was always a family station. Once the "old timers" retired from the service there was a change. At one time, the Coast Guard officer in charge, M. F. Beeson, was alone at the station for over a month

before a second man arrived. Because the station had not yet been classified as "isolated," the Coast Guard did not supply any books or magazines. Furthermore, because of the station's out-of-the-way location, Andrews Flying Service was charging the Coast Guardsmen six cents a pound for delivery of food and other personal needs flown into the station. Captain Daniel recommended that the government pay this added expense "which it imposes on station personnel by assigning them to this duty station," as well as supply "a reasonable number of magazines monthly and paper books occasionally."<sup>75</sup>

The inspection reports made during the 1960s conjure up a picture of slow deterioration at the light station. With the exception of the light tower, which required only an occasional coat of paint, almost everything else needed repair. Roofs leaked, and one building was infested with termites. "A hit of the fist on the bulging bathroom wall will shake down termite dust in the tub." The masonite counter tops in the kitchens were "worn and unsightly." No one understood the plumbing, and the water quality needed to be tested. The men used the water only for cooking, "resorting to soda pop for drinking purposes." The station had no telephone, and "all paved roadways at this unit are potholed and badly deteriorated."<sup>76</sup>

It was evident at that point that the light would eventually become automated, and the Coast Guard was understandably reluctant to pump money into facilities that were soon to be abandoned. In the summer of 1966, Daniel J. Bryson, boatswain's mate first class, and James R. Creighton, engineman third class, were on duty at the Moloka'i Light Station. Bryson, who was from Jackson, Michigan, had served in the Coast Guard for 12 years and had been at Moloka'i for one year. Creighton, from San Antonio, Texas, joined the Coast Guard in 1964 and arrived at Moloka'i only four months before the light became fully automated. By August 1, 1966 the Moloka'i Light was operating on its own, and Bryson and Creighton, the last keepers of the light, departed.<sup>77</sup>

During the 1960s, it was estimated that approximately 1,800 seagoing vessels a year passed the vicinity of the Moloka'i Light as well as interisland fishing and pleasure boats. The seagoing vessels

referred to ranged from small, 300-ton, ocean-going tugs with tow, to 29,000 and above gross ton tankers, and a few large passenger vessels. The Moloka'i Light, with an intensity of two million candlepower visible up to 28 miles at sea, remained a crucial aid for these vessels, leading them through the narrow and tricky Kaiwi Channel between the islands of Moloka'i and O'ahu.<sup>78</sup>

The light was essential to navigation, and the Coast Guard retained 32,400 square feet around the tower, but the rest of the land and buildings, "in excess to the needs of the Coast Guard," were released to the General Services Administration. In 1971, "the State of Hawaii expressed in writing their desire to have the area reconveyed to the State." Ten years later, on February 13, 1981, the General Service Administration transferred the light station property, not to the State of Hawai'i, but to the Department of the Interior, National Park Service.<sup>79</sup>

The Kalaupapa Leprosy Settlement National Landmark District was listed on the National Register for Historic Places in January 1976, and the Moloka'i Light Station was included as part of this district, but the light tower with its unique lens was not listed as a separate entry on the Register until 1982.<sup>80</sup> Almost as soon as the light was included for historical preservation, the lens and rotating mechanism became difficult for the Coast Guard "to maintain because of age."

The mercury creates a significant health hazard to Coast Guard personnel who maintain the light, and accidents (spills) have occurred in the past, which require specially trained U. S. Navy teams to clean up.<sup>81</sup>

Accidents with the mercury had occurred before the Coast Guard personnel were on the scene. The lightkeepers, careful as they were (and before anyone knew that mercury created a health hazard) experienced spills while in the process of draining, straining, and cleaning the mercury. Tricky to pour and contain, the fluid is also known as "quicksilver" and for good reason. One of the worst accidents occurred on December 25, 1923, when heavy earthquake shocks occurred at Moloka'i Light Station, "throwing

and scattering the mercury from the vat.”<sup>82</sup> Another spill due to earthquake shocks occurred on January 22, 1938, when Ed Marques was on duty:

The mercury sloshed out all over and soon there was not enough mercury in the vat to support the weight of the lens and it stopped revolving. A supply of mercury was stored in cylinders on the floor below, and we carried two, hundred pound containers up the stairs and emptied them into the vat until the lens could revolve again. The next day, when we could see, we gathered the spilled mercury up by sweeping it, a little at a time, into dust pans, then we poured it through cheese cloth into containers. When it settled out clean and still it looked like polished silver and we could see the reflection of our faces in it.<sup>83</sup>

In 1984, there was “no local Coast Guard expertise on the handling and disposal of mercury.” When spills occurred, personnel from the Navy Environmental and Preventive Medicine unit were called in. An inspection made on January 15, 1985 found that mercury was leaking from the vat.<sup>84</sup> It became necessary to dispose of the mercury, but once the mercury was removed the lens could no longer rotate. The Coast Guard decided to replace the entire illuminating apparatus with an optic that did not require a revolving Fresnel lens.

To prepare the tower for the new rotating beacon,<sup>85</sup> six men from the ANT (Aids to Navigation) team, including petty officers Aaron J. Landrum and Ralph Craig, were sent from their base at Sand Island, Honolulu to Kalaupapa to disassemble the rotating mechanism. A specialized contractor had 14 days in which to drain the mercury from the lowered vat and to decontaminate all surfaces.<sup>86</sup>

The project of removing the lens became a reenactment in reverse of what workmen accomplished in 1909. The lens is six feet in diameter and has a framework of bronze. Each piece of handcut, ground glass is fitted at a precise angle into a section of the optic, and each section is fitted exactly into the whole framework. The position of individual pieces is noted by an engraved number. “The numbering system is so simple and clear,” Landrum

commented, "that anyone, even someone who had never seen a Fresnel lens before, can understand how the lens is assembled."

There are Roman numbers as well as Arabic numbers, and on the bottom is stamped 'A go to A, 1 go to 1,' etc. The lens is so beautifully designed, once it is assembled the weight of the sections automatically makes the whole lens fit together tightly.<sup>87</sup>

Video tapes were going to be made of the disassembling process to facilitate reassembling, but the number and letter directions on the lens itself were all that were needed.

"There are 26 sections all together," explained Craig, "and each weighed about 264 pounds." As each section was removed from the lens it was lowered 138 feet down to the ground along the outside of the tower.

We used this old truck—no brakes, only a hand brake, no doors, rusted out—and we tied a line to it. After we removed a section of the lens we'd wrap it up in two old mattresses and then attached it to the other end of the line. As the truck backed up towards the tower the lens was slowly lowered to the ground. You can imagine how tough it was getting every piece down. The road was rough and rocky, and the wind was blowing about 35 to 40 miles an hour. We had to use a cheater pole—a solid aluminum pole with a chiv at the top. We used the cheater pole to keep each section we lowered from smashing into the tower.<sup>88</sup>

It took the men two and a half days to remove the lens from the tower. The sections were taken by truck and stored near the Kalaupapa boat landing until the Coast Guard Cutter *Mallow* arrived. The *Mallow* anchored offshore, and each piece was loaded into a small boat and then offloaded onto the *Mallow*. The lens was transported to Lāhainā, Maui, where the Lāhainā Restoration Foundation assumed custodial care of the lens.

But this was not the end of the job for Landrum and Craig. The Lāhainā Restoration Foundation acquired a small building in the Wharf Shopping Complex in Lāhainā that provided an excellent display area for the lens and is open to the public. Landrum and

Craig were sent to Maui to reassemble the sections, which took five days. "Both of these men did a fine job putting the lens back together again," wrote Jim Luckey, general manager of the Lāhainā Restoration Foundation. "They overcame some difficult mechanical problems with ingenuity and dispatch."<sup>89</sup>

The completion of the Moloika'i lens exhibition in Lāhainā does not, however, end the story of the light, the lens, and the leprosy victims living at Kalaupapa. Landrum and Craig as Coast Guardsmen felt a satisfaction with the job accomplished by the ANT team, but as individuals they share a sadness for the people of Kalaupapa.

From the day the dismantling of the lens began, people from the Settlement began coming up the hill to the Light Station to watch. "They are the greatest people in the world," says Craig:

All of the people there are either victims of leprosy or have something to do with leprosy treatment. They love visitors. They don't get enough visitors. They treat everybody like royalty; they didn't want us to leave. They didn't want the lens to leave either.<sup>90</sup>

The people came up the hill to watch, not out of idle curiosity, but because something that was important in their lives was being slowly taken apart and taken away. "One of the things the people enjoyed doing was going up to the airport at night and watching the light," Landrum explained, "It was a romantic feeling the light created. There is so little the people have. There is so little they can do." The lens—a rare giant of a crystal-like jewel—was a source of pride to the people. It was something uniquely beautiful, perfect, and functional. "They didn't want to see that Fresnel lens go," said Landrum. "A guy by the name of Richard Marks, who was a patient and is the Kalaupapa sheriff, really went to bat for those people." Marks in July 1986 told the *Maui News*:

They talk about the Statue of Liberty, well, this light was the first thing that hundreds of thousands of immigrants to Hawaii saw when they came here. Everyone of our people . . . can remember this light looking over us. . . . Nobody gives a damn about the people here. . . . Maui is going to set up a building and put money

into it. How willing are they going to be to give it (the lens) back? . . . We're not blaming the Coast Guard. They're doing their job . . . but the lens should be shown here. What does Lāhainā have to do with the light?<sup>91</sup>

Luckey has said it will go back. "Several organizations were contacted concerning taking custody of the lens. We said we would take it only under the condition it be returned to Kalaupapa when some proper facility there becomes functional." Even with this reassurance Marks is skeptical:

Times change. People change. Maybe the next guy won't want to give it up. . . . That light has been very special to the people here. . . . It has been here longer than any living person has. You could always look out and see it sweeping across the cliff. . . . It is the Kalaupapa Light.<sup>92</sup>

## NOTES

- <sup>1</sup> George R. Putnam, *Lighthouses and Lightships of the United States* (Boston: Houghton Mifflin, 1917) 31.
- <sup>2</sup> United States Department of Commerce, Annual Report 1939 (Washington, D. C.: Government Printing Office, 1939) 115; hereafter referred to as U. S. Dept. of Commerce and GPO.
- <sup>3</sup> Jeff Crawley, PAS Third Class, United States Fourteenth Coast Guard District, Loran, unpublished paper, 1988; Jeff Crawley, interview 16 Aug. 1988. There are eight Coast Guard Loran stations in the Fourteenth District, and two are located in the Hawaiian Islands: one at Upolu Point, Hawai'i, and the other on Kure Island.
- <sup>4</sup> U.S. Dept. of Commerce and Labor, Annual Report 1903: 285; hereafter referred to as U. S. Dept. of Commerce.
- <sup>5</sup> United States Senate, Hawaiian Investigation, part two, Fifty-seventh Congress, First Session, 28 June 1902: 49.
- <sup>6</sup> United States Treasury Department, Post Office Sites in Honolulu and Hilo, Territory of Hawai'i, Fifty-seventh Congress, Second Session, House Document 319, 24 Jan. 1903: 8-9.
- <sup>7</sup> Inventory of Departments, Boards and Commissions, Department of Health 3; Hawai'i Board of Health, *The Molokai Settlement* (Honolulu: Hawaiian Gazette, 1907) 7, AH. "Hansen's Disease" is the official term used in Hawai'i, but "leprosy" is used universally elsewhere. The author uses "leper" when it is quoted.

- <sup>8</sup> Lucille Fortunate de Leach, "Land and People on Moloka'i: An Overview," Master's thesis, U of Hawai'i 1975: 81-2.
- <sup>9</sup> U. S. Dept. of Commerce, Annual Report 1903: 255, and Annual Report 1907: 609.
- <sup>10</sup> United States Coast Guard, Fourteenth District, Moloka'i Light Station file, Federal Building, Honolulu; hereafter referred to as Moloka'i Light Station file. See also Jim A. Gibbs, *Lighthouses of the Pacific* (West Chester, PA: Schiffer, 1986) 218; and Hans Christian Adamson, *Keeper of the Lights* (New York: Greenberg, 1955) 285.
- <sup>11</sup> U. S. Dept. of Commerce and Labor, *Lights and Fog Signals of the United States* (Washington, D. C.: GPO, 1906) 56-7.
- <sup>12</sup> U. S. Dept. of Commerce, Annual Report 1905. The Light-House Board, with the approval of the Secretary of Commerce and Labor at its 4 Jan. 1904 session, ordered that the boundaries of the Twelfth United States Light-House District be extended to include within it "the Hawaiian Islands and their dependencies": 253.
- <sup>13</sup> L. E. Pinkham, letter to J. R. Slattery, 22 Jan. 1906, and J. R. Slattery, letter to L. E. Pinkham, 22 Jan. 1906, Board of Health, U. S. Lighthouse Establishment, 1906-1913, AH. Permits were issued to Frank Palmer, John F. Hunt, and Robert Gillespie on 22 Jan. 1906.
- <sup>14</sup> U. S. Dept. of Commerce, Annual Report 1906: 224.
- <sup>15</sup> U. S. Dept. of Commerce, Annual Report 1907: 608; State of Hawai'i, Survey Division, Lighthouse file, 27 Oct. 1908, Dept. of Accounting and General Services.
- <sup>16</sup> Capt. C. W. Otwell, letter to Mark P. Robinson, 6 July 1908.
- <sup>17</sup> Capt. C. W. Otwell, letter to Mark P. Robinson, 15 July 1908.
- <sup>18</sup> Capt. C. W. Otwell, letters to Mark P. Robinson, 15 July, 17 Aug., and 28 Dec. 1908.
- <sup>19</sup> Eugene Van Wagner, Kalaupapa, letter to Darr Perry, Caro, Michigan, 2 Mar. 1909, Eugene Van Wagner private collection, AH.
- <sup>20</sup> U. S. Dept. of Commerce, Annual Report 1907: 608.
- <sup>21</sup> Capt. C. W. Otwell, letter to Dr. L. E. Cofer, 28 Apr. 1908, and Dr. L. E. Cofer, letter to Capt. C. W. Otwell, 9 June 1908.
- <sup>22</sup> Capt. C. W. Otwell, letter to Mark P. Robinson, 6 July, 1908.
- <sup>23</sup> Mark P. Robinson, letter to Capt. C. W. Otwell, 6 July, 1907.
- <sup>24</sup> U. S. Dept. of Commerce, Annual Report 1910: 508.
- <sup>25</sup> U. S. Dept. of Commerce, Annual Report 1909: 636. Augustine Fresnel, who designed the dioptric lenses in 1822, divided them into orders depending on their size. The first-order lens was 6 feet wide and 10 to 12 feet tall. A smaller second-order lens was installed on the Moloka'i lighthouse. Hyper-radial was larger than the first-order and the largest made. This is the type installed on the Makapu'u lighthouse. The identifying mark on the apparatus on the Moloka'i tower is: U.S. L.H.E. 2.11.

- <sup>26</sup> U. S. Dept. of Commerce, Annual Report 1909:636.
- <sup>27</sup> Photographic collection, Moloka'i, AH; Eugene Van Wagner, letter to Darr Perry, 2 Mar. 1909, made a note regarding the accident on one of the photographs.
- <sup>28</sup> U. S. Dept. of Commerce, Annual Report 1909: 636.
- <sup>29</sup> U. S. Dept. of Commerce, Lighthouse Service, Description of Light Station, 9 Nov. 1927: 5.
- <sup>30</sup> U. S. Dept. of Commerce, Annual Report 1909: 636; Paul Morioka, maintenance mechanic foreman, Fourteenth Coast Guard District, interview at Sand Island, Honolulu, 30 Aug. and 1 Sept. 1988.
- <sup>31</sup> U. S. Dept. of Commerce, Annual Report 1910: 508.
- <sup>32</sup> U. S. Dept. of Commerce, Annual Report 1910: 517. The incandescent oil vapor system was a "strong rival of electricity and acetylene gas." Moloka'i Light Station was one of 44 stations where i.o.v. was installed within the U. S. lighthouses system in 1909-1910.
- <sup>33</sup> U. S. Dept. of Commerce, Annual Report 1909: 636.
- <sup>34</sup> Capt. C. W. Otwell, letter to Mark P. Robinson, 31 Aug. and 4 Sept. 1909.
- <sup>35</sup> Mary Kawena Pukui and Samuel H. Elbert, *Hawaiian Dictionary* (Honolulu: U of Hawai'i P, 1986) 178. Kukui is the Hawaiian word for candlenut tree whose nuts were a traditional source of illumination in the Islands and came to mean "light" or "lamp." Permit requests were made for the following members of the *Kukui's* crew: second officer Aubrey D. Shaw; machinists Charles Kort and Walter Jarret; seamen Robert Makaema, William Needham, Henry Au, David Kupukaa, and Joseph Kaimana: Board of Health, U. S. Lighthouse Establishment, 1906-1913, AH.
- <sup>36</sup> U. S. Dept. of Commerce, Annual Report 1910: 520.
- <sup>37</sup> U. S. Dept. of Commerce, Annual Report 1910: 508; and Annual Report 1907: 611.
- <sup>38</sup> Capt. C. W. Otwell, letters to Mark P. Robinson, 28 Apr. 1911 and 29 May, 16 June, and 23 June 1913. Letters list the following men who were transported by the *Kukui*: foreman Leslie E. Bailey; painters Thomas Kalawai, David Henry, William Kau, William Haleole; carpenters A. F. Cook, Gene Gomard; pipefitters Robert Weber and Charles Marse; mason J. C. Picanco; plumber's helper K. Iwanaza; tinsmith T. Omori; laborers George Kahapula and Joe Morse.
- <sup>39</sup> Board of Health, U. S. Lighthouse Establishment, 1906-1913, lists permits requested 12 May 1913 for Sam Leleo, "Recently been appointed second assistance keeper," and his wife; permit request 20 May 1913 for F. A. Edgcomb, Assistant Superintendent of the Nineteenth Lighthouse District. The reorganization law of 1 Aug. 1910 changed Hawai'i from the Twelfth to the Nineteenth District.
- <sup>40</sup> *Polk-Husted Directory* (Honolulu: Polk-Husted, 1924). The author used the *Directory* for the years 1903 to 1936, Lighthouse Service Reports, HAA, AH letter files, and newspapers to help identify keepers.

- <sup>41</sup> *HSB* 12 May 1934.
- <sup>42</sup> United States Dept. of Commerce, Lighthouse Service, Description of Light Station . . . : 5; U.S. Dept. of Commerce and Labor, Lighthouse Service, Light List Pacific Coast (GPO, 1917): 145-55. Every lighthouse has its characteristic light signal so it can be easily identified at night. These are listed in the annual Light Lists along with a physical description of the lighthouse for daytime identification.
- <sup>43</sup> U. S. Dept. of Commerce, Light List, Pacific Coast and Pacific Island 1988: 274. The geographical position of the light is 21 degrees, 12 minutes, 45 seconds north latitude, and 156 degrees, 58 minutes, 25 seconds west longitude.
- <sup>44</sup> U. S. Dept. of Commerce, Lighthouse Service, Description of Light Station . . . : 9.
- <sup>45</sup> U. S. Dept. of Commerce, *Lighthouse Service Bulletin* No. 5, 1 May 1930.
- <sup>46</sup> Ted Randolph, "36 Years of Memories," *New Pacific Magazine*, vol. 2 (May 1944): 8.
- <sup>47</sup> U. S. Dept. of Commerce, Lighthouse Service, Description of Light Station . . . : 12; Ted Randolph, "36 Years of Memories."
- <sup>48</sup> Harry Franck, *Roaming in Hawaii* (New York: Frederick A. Stokes, 1937) 189-91.
- <sup>49</sup> U. S. Dept. of Commerce, Annual Report 1934: 117, and Annual Report 1935: 127.
- <sup>50</sup> Ed Marques, interview at Kihei, Maui, 12 Nov. 1988.
- <sup>51</sup> Ranger Neil Borgmeyer, National Park Service, and Henry Nalaielua, resident, Kalaupapa, 17 Nov. 1988. Construction of the airfield began in 1931 and was completed in 1934, but planes began using the landing field in 1933. According to residents, there had been an earlier makeshift landing on the peninsula.
- <sup>52</sup> Survey by Thomas J. K. Evans, 19 Nov. 1939, State of Hawai'i, Survey Division, Dept. of Accounting and General Services; Presidential Executive Order 8000, 1936.
- <sup>53</sup> *HA* 8 Dec. 1964.
- <sup>54</sup> *HA* 5 Aug. 1956.
- <sup>55</sup> *HA* 8 Dec. 1964.
- <sup>56</sup> Anna Mae Kaanele, interview 16 and 23 Aug. 1988.
- <sup>57</sup> U. S. Dept. of Commerce, Annual Report 1939: 115.
- <sup>58</sup> Ed Marques, interview.
- <sup>59</sup> Anna Mae Kaanele, interview.
- <sup>60</sup> *HA* 2 Aug. 1948.
- <sup>61</sup> Henry Nalaielua, "Tidal Wave," *Kalaupapa Historical Collection Project & Newsletter*, vol. 4, (May 1985): 2.
- <sup>62</sup> *HA* 2 Aug. 1948.
- <sup>63</sup> Dr. Alfred Morris, interview Oct. 1988, regarding John Cambra, a resident of Kalaukapa settlement since the 1930s.

- <sup>64</sup> Anna Mae Kaanele, interview.
- <sup>65</sup> *HA* 2 Aug. 1948.
- <sup>66</sup> *HSB* 20 July 1962.
- <sup>67</sup> L. F. Badger, letter to Capt. O. C. Rohnke, 8 Oct. 1953, Molokai Light Station file 28575.
- <sup>68</sup> Rear Adm. S. H. Evans, letter to Ira D. Hirschy, 20 Jan. 1959.
- <sup>69</sup> Rear Adm. S. H. Evans, letter to Ira D. Hirschy, M.D., 20 Jan. 1959.
- <sup>70</sup> Neal E. Williams, Legal Officer to Chief, Aids to Navigation, letter to Rear Adm. S. H. Evans, 17 Feb. 1959; Ira D. Hirschy, M. D., letter to Rear Adm. S. H. Evans, 20 Feb. 1959.
- <sup>71</sup> Clarence B. Mayes, letter to Capt. A. C. Unger, 15 Apr. 1959.
- <sup>72</sup> Moloka'i Light Station file 28575, 3 Mar. 1959; CCGD 14, form CG-3213, DP 14-59-12.
- <sup>73</sup> Capt. C. N. Daniel, office memorandum to Chief of Staff, 12 Aug. 1960, Moloka'i Light Station file 28575.
- <sup>74</sup> Rose Lelepalii, interview at Kalaupapa, 17 Nov. 1988.
- <sup>75</sup> Capt. C. N. Daniel, report to Chief of Staff, 18 Jan. 1960, and Capt. C. N. Daniel, office memorandum to Chief of Staff, 12 Aug. 1960, Moloka'i Light Station file 28575.
- <sup>76</sup> CCGD 14 form 3213, D.P. 14-65-17—Moloka'i Light, 2 Aug. 1965, Moloka'i Light Station file 28575. In 1964, an estimate of \$8,000 was made for the installation of a telephone. "This is approximately the increase in the cost of automation that would result from the installation of a monitoring system." Capt. C. N. Daniel, report to Chief of Staff, 18, Jan. 1960, and Capt. C. N. Daniel, office memorandum to Chief of Staff, 12 Aug. 1960, Moloka'i Light Station file 28575.
- <sup>77</sup> Light-List—Pacific Coast and Pacific Islands 1966.
- <sup>78</sup> CCGD 14 form 3213, D.P. 14-65-17—Moloka'i Light, Moloka'i Light Station file 28575.
- <sup>79</sup> I.S.C.G. Logistics and Property Division, letter to G. Bryam Harry, 13 Mar. 1981, Moloka'i Light Station file 28575.
- <sup>80</sup> Notification from Aids to Navigation to Cmdr. L. Graham, Controller, 6 May 1976, Moloka'i Light Station file 28575; also U. S. National Park Service, *Kalaupapa National Historic Park: Land Protection Plan* (Washington, D. C.: U. S. Dept. of the Interior, National Park Service, 1986) 22.
- <sup>81</sup> Capt. B. D. Lovern, letter to Louis Wall, Western Division of Project Review Advisory Council on Historic Preservation, 11 Jan. 1983, Moloka'i Light Station file 28575.
- <sup>82</sup> U. S. Dept. of Commerce, *Lighthouse Service Bulletin* No. 3, 1 Mar. 1924.
- <sup>83</sup> Ed. Marques, interview.
- <sup>84</sup> Officer in Charge, Navy Environmental and Preventive Medicine Unit No. 5, letter to Cmdr., Fourteenth Coast Guard District, 7 Mar. 1985, Moloka'i Light Station file 28575.

- <sup>85</sup> Data sheet 6-D (15), U. S. Coast Guard, Fourteenth District, ANT Headquarters, Sand Island, Honolulu. The rotating beacon is called a "DCB-224." This optic is used on standard landfall lights that must have a nominal range greater than 18 miles.
- <sup>86</sup> Work order no. 9105-86, 27 Mar. 1986, Moloka'i Light Station file 28575. Costs to replace classical lens with DCB-224 Beacon: labor and overhead—\$11,400; materials—\$1,300; travel/per diem—\$5,200.
- <sup>87</sup> ANT team interview, Sand Island, 30 Aug. 1988.
- <sup>88</sup> Petty Officer Ralph Craig, interview, 30 Aug. 1988.
- <sup>89</sup> Jim Luckey, letter to E. Neil Erickson, Chief, Logistics and Properties, 24 Mar. 1987, Moloka'i Light Station file 28575.
- <sup>90</sup> Ralph Craig, interview.
- <sup>91</sup> *Maui News*, 17 July 1986.
- <sup>92</sup> *Maui News*, 17 July 1986.

## APPENDIX

## Keepers at Kalaupapa Light (Moloka'i Light Station)

1908 James M. Keanu was keeper of Makanalua, the first light at Kalaupapa.

<i>Keeper</i>	<i>1st Assistant</i>	<i>2nd Assistant</i>
1909 James M. Keanu	Wm. F. Williams	Charles L. Martin
1910 James M. Keanu	Wm. F. Williams	Ed L. Miller
1911 James M. Keanu	Wm. F. Williams	Ed L. Miller
1912 James M. Keanu	Wm. F. Williams	Ed L. Miller
1913 James M. Keanu	John H. Kanekoa	Robert Reid and Sam Leleo
1914 James M. Keanu	John Makahi	Ed Robins Jr
1915 James M. Keanu	John Makahi	Ed Robins Jr
1916 James M. Keanu	John Makahi	Ed Robins Jr
1917 James M. Keanu	John Makahi	Ed Robins Jr
1918 James M. Keanu	John Makahi	Ed H. Bartels
1919 James M. Keanu	Wm. Enoka	Ed H. Bartels
1920 James M. Keanu	Wm. Enoka	Charles K. Akana
1921 James M. Keanu	Wm. Enoka	Frank Williams
1922 James M. Keanu	Wm. Enoka	Franks Williams
1923 James M. Keanu	Wm. Enoka	James K. Haleamau
1924 James M. Keanu	Wm. Enoka	James K. Haleamau
1925 James M. Keanu	James K. Haleamau	
1926 James M. Keanu	James K. Haleamau	
1927 Manuel Ferreira	James K. Haleamau	W. K. Nihoa
1928 Manuel Ferreira	Fred E. Nihoa	C. Heim
1929 Manuel Ferreira	Fred E. Nihoa	James Keanu
1930 James M. Keanu	Fred E. Nihoa	William K. Nihoa
1931 James M. Keanu	Fred E. Nihoa	William K. Nihoa
1932 James M. Keanu	John Enos, Jr.	William K. Nihoa
1933 Fred E. Nihoa	John Enos, Jr.	William K. Nihoa

APPENDIX—*Cont'd*

<i>Keeper</i>	<i>1st Assistant</i>	<i>2nd Assistant</i>
1934 Fred E. Nihoa	John Enos, Jr.	William K. Nihoa
1935 Fred E. Nihoa	John Enos, Jr.	Frank Pate
1936 Fred E. Nihoa	James Gibson	Ed Marques
1937 James M. Keanu	Claude E. Platt	Ed Marques
1938 James M. Keanu	Claude E. Platt	Ed Marques
1939 James M. Keanu	Claude E. Platt	Ed Marques
1940 Fred Robins	Claude E. Platt	Ed Marques
1941 Fred Robins	Claude E. Platt	Ed Marques
1942 Fred Robins		Ed Marques
1943 Fred Robins		Ed Marques
1944 Fred Robins		Ed Marques
1945 Fred Robins		Ed Marques
1946 Fred Robins		Ed Marques
1947 Fred Robins		
1948 Fred Robins		
1949 Fred Robins		
1950 Fred Robins	Harry Kupukaa (1950s?)	
1951 Fred Robins		
1952 Fred Robins		
1953 Fred Robins		
1960 M. F. Beeson, EN2		
1966 Daniel J. Bryson, Boatswain's Mate 1st Class, James R. Creighton, Fireman 3rd Class		