

HAWAII

NATIONAL PARK

Hawaii

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE



Hawaii

National Park

United States Department of the Interior

Harold L. Ickes, Secretary

NATIONAL PARK SERVICE

Arno B. Cammerer, Director



UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1937

DO YOU KNOW YOUR NATIONAL PARKS?

- ACADIA, MAINE.**—Combination of mountain and seacoast scenery. Established 1919; 24.08 square miles.
- BRYCE CANYON, UTAH.**—Canyons filled with exquisitely colored pinnacles. Established 1928; 55.06 square miles.
- CARLSBAD CAVERNS, N. MEX.**—Beautifully decorated limestone caverns believed largest in the world. Established 1930; 15.56 square miles.
- CRATER LAKE, OREG.**—Astonishingly beautiful lake in crater of extinct volcano. Established 1902; 250.52 square miles.
- GENERAL GRANT, CALIF.**—Celebrated General Grant Tree and grove of Big Trees. Established 1890; 3.96 square miles.
- GLACIER, MONT.**—Unsurpassed alpine scenery; 200 lakes; 60 glaciers. Established 1910; 1,533.88 square miles.
- GRAND CANYON, ARIZ.**—World's greatest example of erosion. Established 1919; 1,009.08 square miles.
- GRAND TETON, WYO.**—Most spectacular portion of Teton Mountains. Established 1929; 150 square miles.
- GREAT SMOKY MOUNTAINS, N. C.-TENN.**—Massive mountain uplift covered with magnificent forests. Established for protection, 1930; 617 square miles.
- HAWAII: ISLANDS OF HAWAII AND MAUI.**—Interesting volcanic areas, including Kilauea, famous for frequent spectacular outbursts. Established 1916; 245 square miles.
- HOT SPRINGS, ARK.**—Forty-seven hot springs reserved by Federal Government in 1832 to prevent exploitation of waters. Made national park in 1921; 1.58 square miles.
- LASSEN VOLCANIC, CALIF.**—Only recently active volcano in continental United States. Established 1916; 163.32 square miles.
- MAMMOTH CAVE, KY.**—Interesting caverns, including spectacular onyx cave formation. Established for protection, 1936; 38.34 square miles.
- MESA VERDE, COLO.**—Most notable cliff dwellings in United States. Established 1906; 80.21 square miles.
- MOUNT MCKINLEY, ALASKA.**—Highest mountain in North America. Established 1917; 3,030.46 square miles.
- MOUNT RAINIER, WASH.**—Largest accessible single-peak glacier system. Established 1899; 377.78 square miles.
- PLATT, OKLA.**—Sulphur and other springs. Established 1902; 1.33 square miles.
- ROCKY MOUNTAIN, COLO.**—Peaks from 11,000 to 14,255 feet in heart of Rockies. Established 1915; 405.33 square miles.
- SEQUOIA, CALIF.**—General Sherman, largest and perhaps oldest tree in the world; outstanding groves of Sequoia gigantea. Established 1890; 604 square miles.
- SHENANDOAH, VA.**—Outstanding scenic area in Virginia section of Blue Ridge. Established 1935; 275.81 square miles.
- WIND CAVE, S. DAK.**—Beautiful cavern of peculiar formations. No stalactites or stalagmites. Established 1903; 18.47 square miles.
- YELLOWSTONE, WYO.-MONT.-IDAHO.**—World's great geyser area, and an outstanding game sanctuary. Established 1872; 3,471.51 square miles.
- YOSEMITE, CALIF.**—Valley of world-famous beauty; spectacular waterfalls; magnificent high Sierra country. Established 1890; 1,176.16 square miles.
- ZION, UTAH.**—Beautiful Zion Canyon, 1,500 to 2,500 feet deep. Spectacular coloring. Established 1919; 148.26 square miles.

RULES AND REGULATIONS

• Briefed •

THE following summary of rules and regulations is intended as a guide for all park visitors. You are respectfully requested to facilitate the best in park administration by carefully observing the provisions as outlined:

Preservation of natural features.—The first law of a national park is preservation. Disturbance, injury, or destruction in any way of natural features, including trees, flowers, and other vegetation, rocks, and all wildlife is strictly prohibited. Flowers may be picked in other than reserved areas upon securing a written permit from the superintendent which is also necessary for picking fruit in any quantity in excess of one gallon. Visitors are cautioned that certain berries are poisonous.

Camps.—Camp or lunch only in designated areas. All rubbish that will burn should be disposed of in camp fires. Garbage cans are provided for noninflammable refuse. Wood and water are provided in all campgrounds.

Fires.—Fires are absolutely prohibited except in designated spots. Do not go out of sight of your camp, even for a few moments, without making sure that your fire is either out entirely or being watched.

Dogs, cats, or other domestic animals.—Such animals are prohibited on Government lands within the park except as allowed through permission of the superintendent, secured from park rangers at park headquarters.

Automobiles.—The safe speed limit on the park roads is 35 miles per hour. In the headquarters area a speed limit of 25 miles per hour is rigidly enforced.

Trail travel.—Hikers and riders shall not make shortcuts but shall confine themselves to the trails at all times. Saddle animals have the right-of-way over pedestrians. The latter will take the outer side of the trail whenever possible and shall stand quietly until animals have passed.

Hunting.—Hunting within the park boundaries is prohibited. No firearms are allowed except as provided for through permission of the superintendent, secured from park rangers at park headquarters.

Park rangers.—The rangers are here to help and advise you as well as to enforce the regulations. When in doubt ask a ranger. Help them to serve you better by observing these regulations.

Copies of the complete rules and regulations promulgated by the Secretary of the Interior for the government of the park may be obtained at the office of the superintendent and at other concentration points through the park.

Important Events

IN THE HISTORY OF HAWAII NATIONAL PARK

1778	Capt. James Cook, Royal British Navy, landed at Waimea on the Island of Kauai.
1779	February 14, death of Captain Cook.
1790	Great explosive eruption of Kilauea volcano.
1792-3-4	Hawaiian Islands visited by Capt. George Vancouver, Royal British Navy.
1794	Archibald Menzies, botanist, and party of the Vancouver expedition made the first successful ascent of Mauna Loa.
1801	Eruption of Hualalai volcano on the Island of Hawaii destroyed several Hawaiian villages.
1823	Eruption of Kilauea volcano in the Kau desert.
1823	Kilauea volcano visited and explored for first time by Rev. William Ellis and party.
1825	Kilauea visited and mapped by party under Lord George Byron.
1832	Eruptions of Kilauea Iki and Mauna Loa.
1838	Halemaumau used for first time by Count Strzelecki as name for the lake of molten lava in Kilauea.
1840	Great eruption of Kilauea volcano to the east.
1840-41	Expedition under Capt. John Wilkes, U. S. Navy, explored and mapped Kilauea and Mauna Loa volcanoes.
1855	Mauna Loa eruption toward Hilo, continued for 15 months.
1856	Erection of first "Volcano House" hotel at Kilauea, a grass house.
1859	Mauna Loa eruption to northwest for 10 months.
1872-77	Almost continuous activity in summit crater of Mauna Loa.
1877	Submarine eruption from Mauna Loa in Kealakekua Bay.
1880-81	Great lava flow from Mauna Loa to the east, 9 months.
1898	Hawaiian Islands annexed to the United States by joint resolution of Congress.
1912	Hawaiian Volcano Observatory established.
1916	Aug. 1, Hawaii National Park established by act of Congress.
1924	Explosive eruption of Kilauea volcano, enlarging the area of the fire pit to five times its former size. No molten lava was visible in the crater for 3 years thereafter.
1926	Eruption to the southwest from Mauna Loa destroyed the Hawaiian village of Hoopuloa.
1933	Airplanes used for first time to carry visitors to witness eruption of Mauna Loa. Eruption confined entirely within summit crater.
1934	Spectacular eruption of Kilauea volcano brought thousands of visitors daily to witness fiery display.
1934	President Roosevelt visited the park. First American President to visit park while in office.
1935	Feb. 23, dedication of the Haleakala Road.
1935-36	Nov. 21 to Jan. 2, eruption from northeast rift Mauna Loa sent streams of lava within 18 miles of Hilo city. Important scientific bombing experiment successfully carried out by Army Air Corps.

NOTE.—There have been many other eruptions from Kilauea and Mauna Loa volcanoes than those listed above, but the ones selected have been the most important.

Contents

	<i>Page</i>
Outdoor Life in Hawaiian Islands	1
Interesting Features	2
Kilauea-Mauna Loa Section	3
Kilauea	3
Volcano House	9
Kipuka Puauulu	10
Volcano Observatory	10
Naturalist Service	10
Uwekahuna Museum	11
Hui o Pele	11
Roads and Trails	12
Mauna Loa	15
Mauna Loa Trip	18
Haleakala Section	19
Common Trees and Shrubs	21
Native Hawaiian Birds	24
Administration	25
Public Automobile Camps	25
Army Camp	25
How to Reach the Park	25
Transportation	26
Airplane Service	27
Trip to Kilauea-Mauna Loa Section	27
Trip to Haleakala Section	28
Accommodations and Expenses	29
Photography	29
General Information	30
Kilauea-Mauna Loa Section	30
Haleakala Section	30
References	32
Government Publications	33



LOOKING ACROSS KILAUEA IKI FROM TRAIL EAST END

HAWAII

National Park

• OPEN ALL YEAR •

THE HAWAII NATIONAL PARK, in the Territory of Hawaii, was created by act of Congress August 1, 1916, and placed under the control of the National Park Service of the Department of the Interior. It is unique in that it consists of two separate tracts of land lying on different islands. The Kilauea-Mauna Loa section is located on the island of Hawaii and the Haleakala section is on the island of Maui. The total area of the park is 245 square miles. Of this, 219 square miles are in the Kilauea-Mauna Loa section and 26 in the Haleakala section.

The park was created to conserve the most spectacular areas of volcanic interest in the United States. Its craters, active and dormant, are among the most interesting in the entire world, and even the active ones may be visited with reasonable safety.

Each section of the park is named after the volcano that is its outstanding feature. Kilauea Crater, with its fire pit, has been active almost continuously since its discovery. In recent years there have been active periods about once each year. Mauna Loa, which erupts about once each 4 years, has poured out more lava during the last century than any other known volcano on the globe. Haleakala, a dormant volcano, is a mountain mass 10,000 feet high with a tremendous crater rift in its summit 7 miles across and 3,000 feet deep containing many high cinder cones.

The park is also noted for its luxuriant tropical vegetation, which forms a striking contrast to the volcanic craters and barren lava flows. Gorgeous tree ferns, sandalwood, and koa, or Hawaiian mahogany, vie with the flowering ohia trees in making the park forests unusually interesting to the visitor.

OUTDOOR LIFE IN HAWAIIAN ISLANDS

The Hawaiian Islands, in addition to their scenic beauty, their unique geological and botanical appeal, offer great attraction to an increasingly

Hawaii National Park—Hawaii

large number of people who love outdoor life. The equable climate permits the enjoyment of any or all popular outdoor games and sports the year round. Riding or hiking over picturesque trails; swimming in waters which always seem to be at the desired temperature; polo; tennis; golf on sporty courses swept by cool breezes from the mountains; deer hunting; big game fishing; camping on sandy beaches; and surfing on great boards or outrigger canoes—all are there for the choosing.

INTERESTING FEATURES

As long as the average visitor has made a trip of 2,000 miles or more to reach the islands, it is urged that he extend his stay from the usual 1 week



Photo by Maehara.

SNOWCAPPED MAUNA KEA FROM HILO

to 2 weeks if possible. It will be time profitably spent. The national park comprises only a small part of the islands, and the entire Territory is of great interest. For instance, a tour of the island of Hawaii, where the Kilauea-Mauna Loa section of the park is located, reveals many attractions. There are lava flows of the last and the present century with the individual characteristics all plainly signed.

In the Kona district on the lee side of the island the rolling slopes of Mauna Loa and Hualalai are clothed with a dense native forest which gives place in the more settled portions to quaint villages and homes scattered among the acres of coffee bushes. The shore line is an irregular series of abrupt cliffs and level lava plains interrupted with beaches of

pure white sand. The region about Kealakekua Bay is one of great historic interest. Here are found the finest examples remaining of the ancient Hawaiian temples, rock carvings, and burial caves. Here the British discoverer of the islands, Capt. James Cook, landed in 1778 and here today, by taking an outrigger canoe across beautiful Kealakekua Bay, the visitor stands beside a monument erected in his memory on the spot where he met his death. The ground on which the monument stands is British soil. The numerous bays along this coast are famous for the exciting sport they offer to the deep-sea fisherman with heavy line and reel.

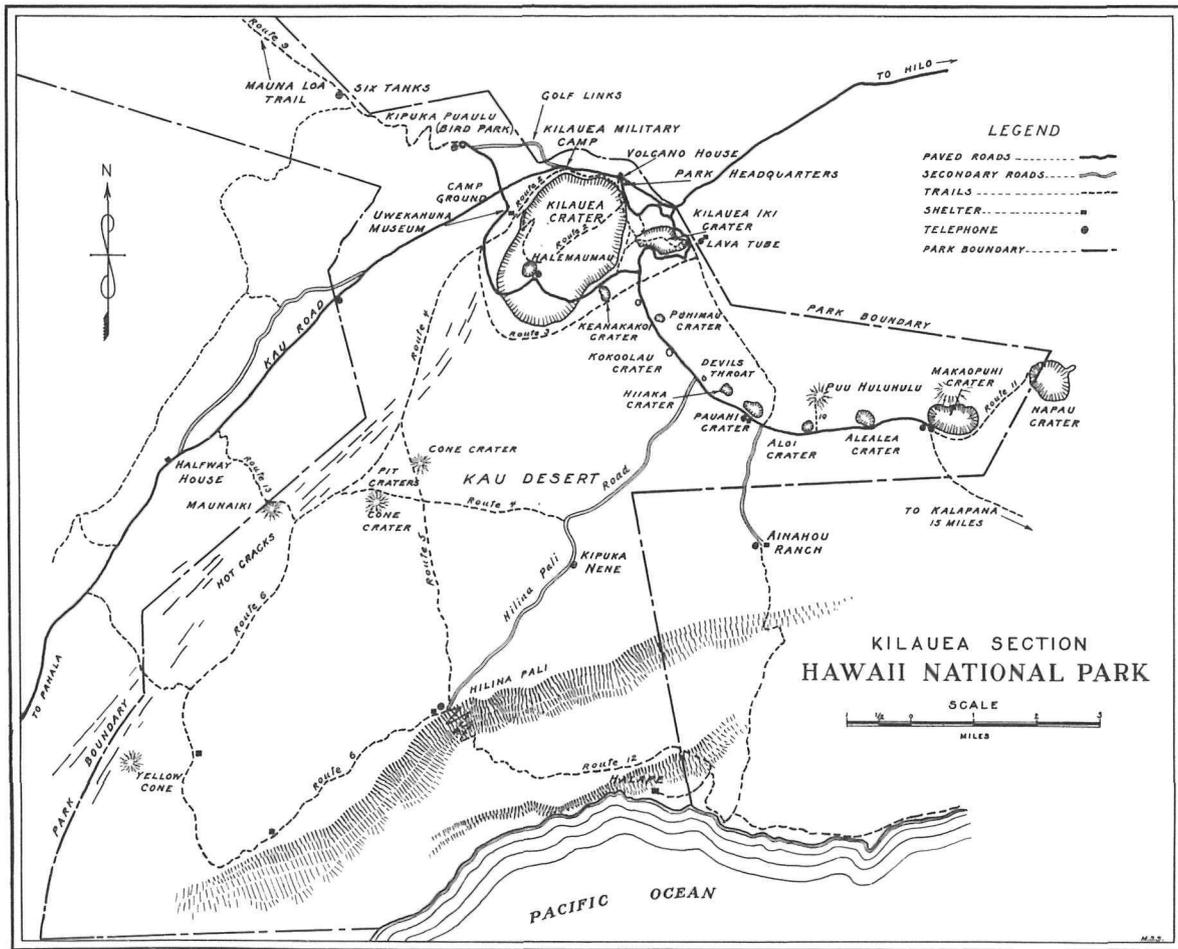
On the upland ranges of North Kona and Kohala immense herds of cattle, sheep, hogs, and horses, raised for island use, may be seen. Along the Hamakua coast for 50 miles the lower slopes are covered with sugarcane and the rugged coast line is marked by sugar mills and villages.

KILAUEA-MAUNA LOA SECTION

KILAUEA

The most spectacular portion of the park is that including the volcano of Kilauea, usually the most active. This volcano, probably older than towering Mauna Loa, its neighbor, creates the impression of being a crater in the side of the higher mountain, although in reality it is itself a mountain with an elevation of 4,090 feet. This illusion is the result of the broad depression at its top and of its gentle slopes, caused by lava flows from many lateral vents. Within the depression is a vast pit, Halemaumau, which for years has drawn travelers from the four quarters of the earth. This pit often contains a boiling, bubbling mass of molten lava whose surface fluctuates from bottom to rim. Activities averaging at least one outbreak a year have occurred since 1924. Its risings are accompanied by brilliant fountains and inflows of liquid lava, and its lowerings by tremendous avalanches which send up enormous dust clouds.

Nearly a century and a half ago Kilauea became unusually active, and its violent blast of ash destroyed a Hawaiian army. From that time—1790—no rocks or ash were ejected until 1924. During the autumn of 1923 the lake of fire drained away, but gradually returned until the pit contained a 50-acre lake of seething lava. Lava geysers appeared on its surface, sending up incandescent sprays 150 feet into the air. In 1924 this lake disappeared and crumbling masses of rock fell into the smoking pit, choking the vents through which the volcanic gases had escaped. A few months later when steam blasts unexpectedly occurred, the vents were cleared by tremendous

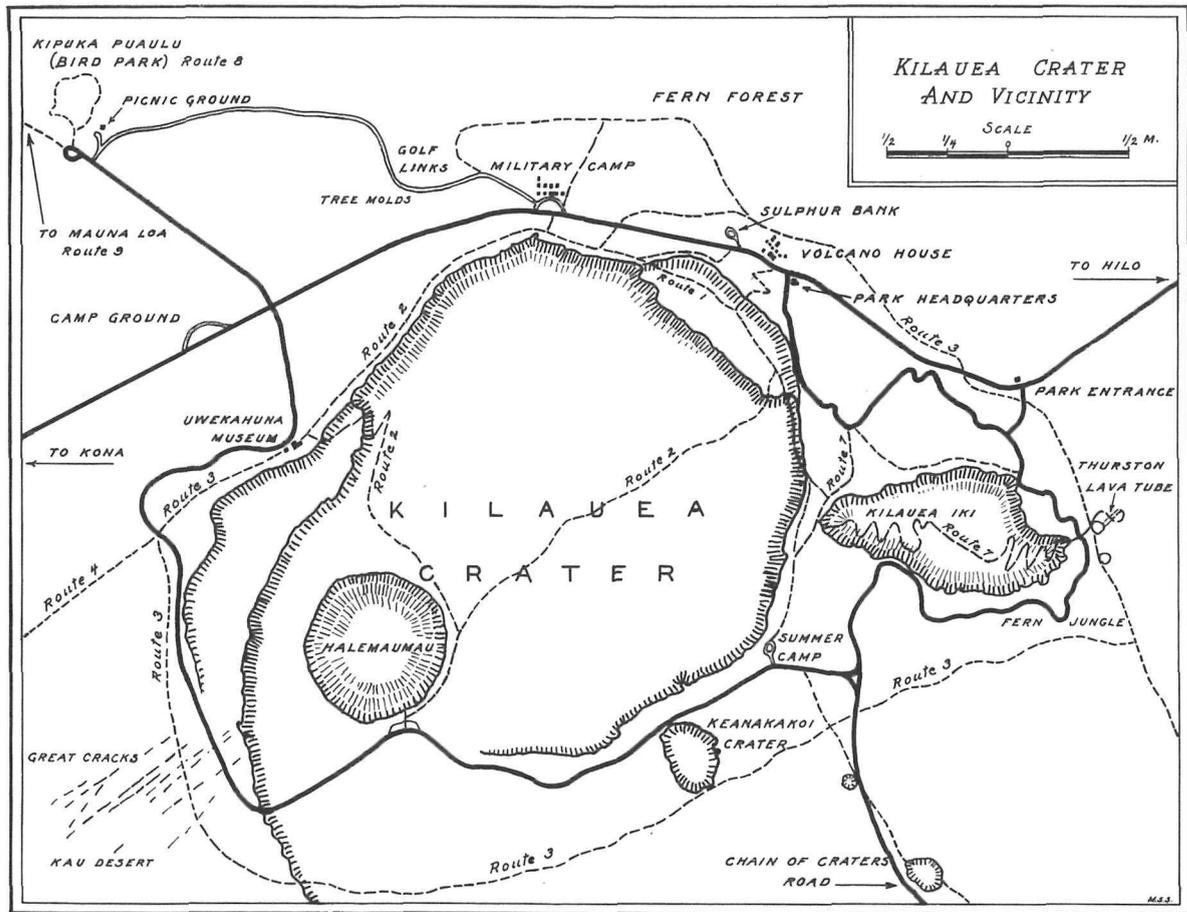


LEGEND

- PAVED ROADS ————
- SECONDARY ROADS ————
- TRAILS - - - - -
- SHELTER ■
- TELEPHONE ●
- PARK BOUNDARY - - - - -

KILAUEA SECTION
HAWAII NATIONAL PARK





KIPUKA PUAULU
(BIRD PARK) Route 5

PICNIC GROUND

FERN FOREST

KILAUEA CRATER
AND VICINITY

SCALE
1/2 1/4 1/2 M.

GOLF LINKS
MILITARY CAMP

TREE MOLDS

SULPHUR BANK

TO MAUNA LOA
Route 5

VOLCANO HOUSE

TO HILO

CAMP GROUND

PARK HEADQUARTERS

UWEKAHUNA
MUSEUM

TO KONA

PARK ENTRANCE

KILAUEA
CRATER

THURSTON
LAVA TUBE

HALEMAUAU

KILAUEA IKI

FERN JUNGLE

SUMMER
CAMP

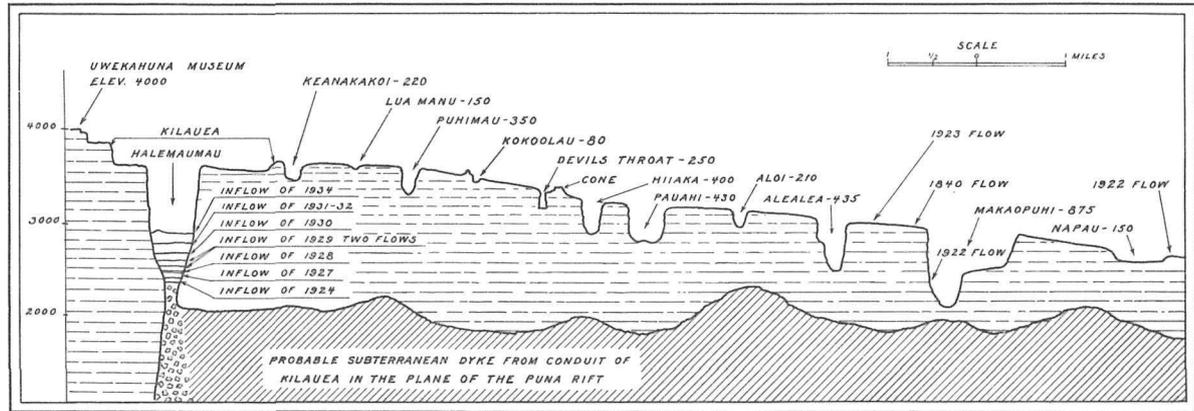
GREAT CRACKS

KEANAKAKOI
CRATER

KAU DESERT

CHAIN OF CRATERS
ROAD

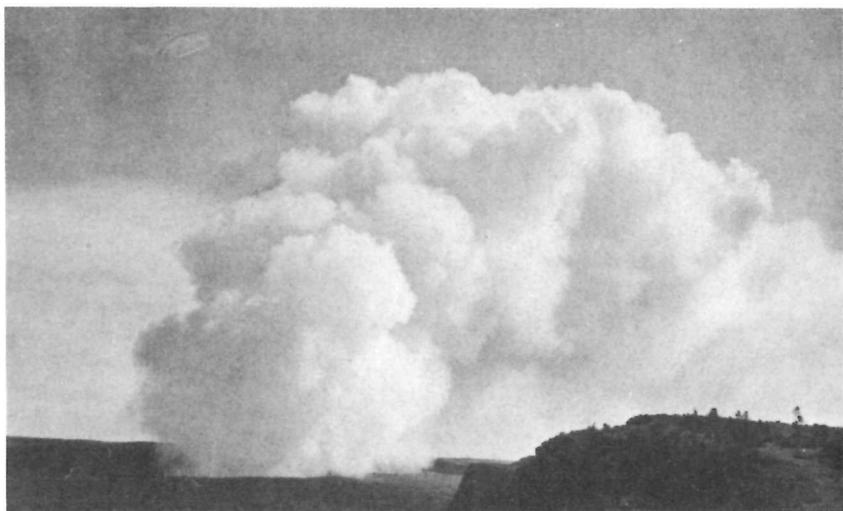
443



PROFILE AND BROKEN-LINE CROSS SECTION OF KILAUEA AND THE CHAIN-OF-CRATERS

At the lookout at Makaopuhi the elevation is 2,925 feet above sea level, which is 1,165 feet below Uwekahuna Museum, 1,012 feet below the Volcano House, 719 feet below the lookout at Halemaumau, and 31 feet below the top of the highest cone on the floor of Halemaumau. The deepest place in the crater (875 feet below this lookout) is at an elevation of 2,050 feet, which is 906 feet below the highest 1934 cone in Halemaumau.

explosions hurling boulders and ash for thousands of feet into the air. The violent disturbance continued for 3 weeks, and at the end of that time the fire pit had been enlarged to four times its former size, the opening being 190 acres in area and 1,200 feet deep. A few weeks later, when all was quiet, a roaring jet of lava appeared at the bottom of the pit, sending up a steady spray 200 feet high, building up a small cinder cone, and forming a 10-acre lava lake on the floor of the pit. After giving a brilliant display for a couple of weeks the fountain subsided and the volcano became dormant. In July 1927 a similar display occurred, lasting for 2 weeks, and in January 1928 the fire returned for 1 night only. Gas and vapor rise continually.



SMOKE CLOUD FROM KILAUEA ON FIRST DAY OF 1934 ERUPTION

During, 1929 spectacular lava inflows occurred in February and July, raising the floor with new material to depths of 55 and 45 feet, respectively. The pit depth in December 1929 was 1,050 feet and the floor area 48 acres. On November 19, 1930, molten lava again appeared in Halemaumau. Activity continued until December 7. This activity raised the floor of the pit 70 feet; the surface area of the floor then covered 62 acres.

Following a series of earthquakes, molten lava broke into the bottom of Halemaumau on December 23, 1931. The activity lasted as a spectacular display until January 5, 1932. During the activity the pit was filled to a depth of 100 feet with lava, resulting in a new floor of 88 acres, which was 860 feet below the rim of the pit.



CALDERA OF HALEMAUAMAU

Photo by U. S. G. S.

Hawaii National Park—Hawaii

In the early morning of September 6, 1934, at about 2:45 a. m., without much preliminary warning, molten lava again returned to the fire pit in Kilauea. This eruption in its early stages was one of the most spectacular on record. Highly charged with gas released from tremendous pressure the frothy lava burst through a crack 700 feet long, halfway up the western wall of the crater, cascading in rivers of fire 425 feet to the floor below.



VISITORS MAY LOOK INTO THE FIRE PIT IN REASONABLE SAFETY

The force of the lava cracked open the old floor left by the 1931-32 eruption across its northern and northwest end, and along the foot of the western wall dense clouds of sulphur fumes poured out, as the fiery fountains shot the liquid lava high into the air. As in the previous eruption, blocks of light pumice thrown out from the vents were whirled upward by the heat currents and gales of wind and deposited in shattered fragments over the land for more than a mile to leeward. In a few days the crater had been filled with new lava to a depth of 70 feet, and instead of the countless frothy fountains of the initial outbreak the activity centered in a lake of fire with from 5 to 10 fountains continuously throwing jets of heavy liquid lava from 50 to 200 feet above the lake.

VOLCANO HOUSE

On the northeast rim and overlooking the entire crater of Kilauea stands historic Volcano House Hotel. This rambling structure, reflecting the steady growth in popularity of the volcano region as a vacation ground, was first erected about 1856. Since that date it has been in continuous operation, and its register of guests includes the names of kings, princesses, scientists, and authors among those of the thousands who have stayed there while viewing one of the most awe-inspiring spectacles on this earth.

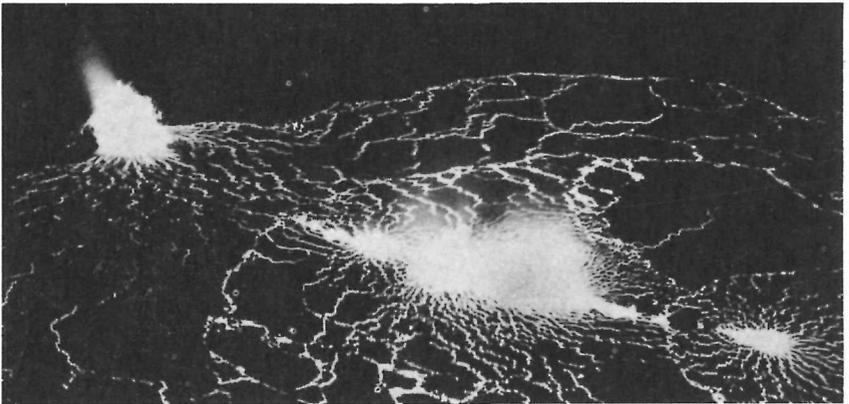
Hawaii National Park—Hawaii

KIPUKA PUAULU

Kipuka Puauulu, a beautiful natural park, also known as Bird Park, is an interesting feature of the Kilauea area. This kipuka, or oasis, has escaped encircling lava flows, and its rich black soil supports a marvelous variety of vegetation. As many as 40 species of trees grow here. This favored spot of 100 acres is the haunt of many beautiful and rare native birds. A nature trail has been established along which the rare trees are plainly marked.

VOLCANO OBSERVATORY

The Volcano Observatory, formerly under the Geological Survey of the Department of the Interior, was transferred to the National Park Service July 1, 1935. This observatory, founded in 1912, is under the direction of Dr. T. A. Jaggar, who has been in charge of its work from the beginning. The Hawaiian Volcano Research Association, which originated continuous volcano study in Hawaii, has cooperated with the Federal Government through substantial contributions for instruments, buildings, and equipment, as well as offering occasional research fellow-



A NIGHT PHOTOGRAPH OF KILAUEA DURING THE 1931 PERIOD OF ACTIVITY

ships. Much valuable scientific data concerning earthquakes, tidal waves, and volcanoes are obtained here. Continuous observations are made of Kilauea, and recording instruments are located on various parts of the island as well as about the volcano.

NATURALIST SERVICE

The educational service maintained by the Government is directed by the park naturalist, assisted by rangers well informed in the natural

Hawaii National Park—Hawaii

sciences. The principal features are field trips conducted throughout the year according to posted schedules, starting from the Volcano House or Kilauea Military Camp, and illustrated lectures given at Uwekahuna Museum.

Requests from special parties desiring the assistance of the park naturalist or rangers are given every consideration. All park guests are welcome to avail themselves of the services of these men who are there to assist visitors in learning about the natural phenomena of the region.

UWEKAHUNA MUSEUM

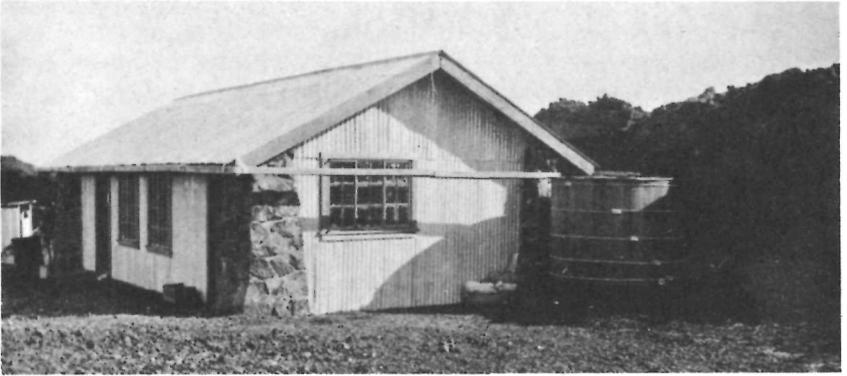
The National Park Service maintains a museum and lecture hall at Uwekahuna Bluff, located on the high point of the bluff and overlooking the entire Kilauea Crater and Kau Desert. Through the medium of lectures by the park naturalist and staff members, demonstration maps and charts, motion pictures, lantern slides, exhibits of volcanic rock and formations, and an actually operating seismograph, the visitor is enabled to secure a comprehensive knowledge of volcanic action and its history in this particular area. The motion pictures shown to groups visiting the museum have proved to be of exceptional value to park guests; many have remarked that they are a feature of the park tour that visitors should not miss. The picture, "The Structure of the Earth", edited and titled by the department of geology of Harvard University, shows views of several volcanoes in various parts of the world during periods of activity. A large part of the picture is devoted to views of Kilauea and its fire pit, Halemaumau, during eruptions. The views of Kilauea are so vivid that, even though one does not have an opportunity actually to see the volcano in action, the picture gives a very clear conception of Kilauea during a period of activity. The motion picture also shows diagrammatically how a great volcanic mountain is built up by the extrusion of volcanic ash, cinders, and lava flows from the interior of the earth, and how the famous lava tubes of Hawaii have been formed in the ancient flows from Kilauea and Mauna Loa. Another picture, entitled "A Mountain of Fire", prepared by the naturalist staff, shows the recent spectacular eruptions of Kilauea in 1934 and Mauna Loa in 1935.

The museum and much of its scientific equipment were donated by the Hawaiian Volcano Research Association, and the lecture hall is a donated structure erected from proceeds of Hui O Pele memberships.

HUI O PELE

The Hui O Pele is an organization sponsored by the Outdoor Circle of Honolulu and is composed of those who have visited the fire pit, Halemaumau, in the crater of Kilauea, the home of the fire goddess Pele, and paid

due homage. The life membership fee is \$1, which entitles the member to an interesting certificate of membership and a lapel button or brooch. There are more than 16,000 members of this organization scattered through-



MAUNA LOA SUMMIT REST HOUSE

out the world. The net revenues arising from the membership fees are expended for improvements in the park for the benefit of visitors. Among the structures that have been erected are the Uwekahuna lecture hall, the Summit Rest House on Mauna Loa, and shelters at Hilina Pali, Thurston Lava Tube, Halemaumau Trail, and other points.

ROADS AND TRAILS

Thirty-nine miles of highways lie within the Kilauea area. The main roads are paved. One of the roads leads to the very brink of Halemaumau, the fire pit, a fact that establishes Kilauea as the most accessible and popular volcano in the world. The Chain-of-Craters Road, 7 miles in length, passes by nine craters that lie on the great Puna rift. There are 121 miles of trails in the area.

There are several important trails in the Kilauea-Mauna Loa section. One of the most interesting leads from the hotel to the rim of the fire pit. Its first mile winds through rich tropical vegetation down the faulted crater walls to the floor of Kilauea, then for 2 miles it follows through fantastic lava formations and crosses the area bombarded by huge boulders and fragments of lava during the 1924 eruptions.

On account of the absence of fresh-water sources, small shelters with barrels to catch the rain run-off from the roofs have been placed on trails at strategic points. Hikers on overnight trips should inform themselves as to these points, and in addition should always carry canteens of water.

Hawaii National Park—Hawaii

Following is a list of the most popular trails in the Kilauea-Mauna Loa section. All of them are well marked, with points of interest along the way identified.



BRIDLE PATH LAVA TUBE AREA

CIRCLE TRIPS BY TRAIL

FROM THE VOLCANO HOUSE

Route	Description	Length of trail
1	Along steaming bluff, down Sandalwood Trail and return by way of Halemaumau Trail.	1.2 miles.
2	Along steaming bluff trail to Uwekahuna Museum, then down Uwekahuna Pali and across to fire pit. Return via Halemaumau Trail. This trip can be shortened by returning from the fire pit by car. The descent of Uwekahuna Pali is very steep and rough.	6.7 miles.
3	Crater Rim Bridle Path. Follows route 2 to Uwekahuna Museum, thence around the rim of the crater past Keanakakoi to the old Keauhou Road, and back to the Volcano House.	12.5 miles.
4	Kau Desert short route. Follows route 2 to Uwekahuna Museum, then west through the Kau Desert past Cone Peak and Cone Crater over an ancient Hawaiian trail, meeting the Pali Hilina Road near Kipuka Nene. Return to Volcano House, via Pali Hilina and old Keauhou Roads.	22.5 miles.
5	Kau Desert-Pali Hilina Route. To Cone Crater via route 4, then across to Pali Hilina. Return by way of Pali Hilina Road and route 4.	29.9 miles.

Hawaii National Park—Hawaii

CIRCLE TRIPS BY TRAIL—Continued

FROM THE VOLCANO HOUSE—continued

Route	Description	Length of trail
6	Kau Desert long route. To Cone Crater, via route 4, thence past Mauna Iki lava flow of 1920, Yellow Cone, Kipuka Pepeiau and Pali Hilina. Return from Pali Hilina as on route 5.	35.5 miles.
7	Kilauea Iki Route. Follow the Halemaumau Trail down to Byron Ledge Junction, thence along Byron Ledge Trail to Kilauea Iki and on to the bottom. Return by way of trail to Thurston Lava Tube and the Crater Rim Trail. Marked "Nature Study Trail."	5.1 miles.

OTHER POINTS REACHED FROM THE VOLCANO HOUSE

Route	Description	Distance, one way
8	Kipuka Puaulu (Bird Park). Drive to the Kipuka Puaulu parking area, thence by trail through Bird Park. Marked "Nature Study Trail."	3.2 miles by car, 1.2 miles by trail.
9	Mauna Loa Route. Drive to Kipuka Puaulu, thence by trail to summit. Trip requires 2 nights out. Rest houses are located at the 10,000-foot level and at the rim of the summit crater (elevation 13,000 feet). Permit must be obtained at park headquarters to use rest houses.	3.2 miles by car, 26.0 miles by trail.
9a	Giant Koa. Drive to Kipuka Puaulu, then follow the Mauna Loa Trail 2 miles to the Giant Koa.	3.2 miles by car, 2 miles by trail.
11	Napau Crater Route. Drive to Makaopuhi Crater and thence by trail to Napau Crater.	11 miles by car, 2.5 miles by trail.
13	Mauna Iki and the 1790 Footprints. Drive to the Mauna Iki parking area on the Round-the-Island Road, then hike by trail to Mauna Iki. The footprints in the 1790 volcanic ash are passed on the way.	7 miles by car, 2.5 miles by trail.
10	Puu Huluhulu Route. Drive to the Puu Huluhulu parking area on the Chain-of-Craters Road from which Puu Huluhulu is reached by trail. A good view of the Chain-of-Craters area may be had from this hill on a clear day.	9 miles by car, 0.7 mile by trail.
12	Halape Route. Drive to Pali Hilina, thence by trail to Halape, situated on the seacoast, where there is a lean-to shelter. Good sea fishing and a coconut grove. Hiker should carry supply of drinking water as only brackish water is available.	15.5 miles by car, 7.7 miles by trail.

Hawaii National Park—Hawaii

MAUNA LOA

To the west of Kilauea rises the vast dome of Mauna Loa whose summit crater, Mokuaweoweo, is included in the national park as well as a broad connecting belt between the two volcanoes. Mauna Loa thrusts its great bulk 13,680 feet above the surrounding Pacific. By eruptions in its summit crater and flank outbreaks it is constantly adding to its mass.

In action Mauna Loa is even more spectacular than Kilauea; steam vents continually send feathery clouds into the air. Mokuaweoweo and Kilauea are of approximately equal size, but the former is slowly increasing its area by slumping and breaking down of its outer walls. Extending northeast and southwest from the summit are volcanic rifts with many deep rents formed by earthquake and eruption as well as many brilliantly colored spatter cones some 200 feet in height. These rifts have been the source of most of the recent eruptions, though the summit crater is also frequently active.

In 1868 a particularly violent outbreak showered the surrounding country for 15 miles with ash and pumice. Near the source of the eruption the ash was 15 inches deep.

After a period of dormancy from 1919, in the spring of 1926 a great

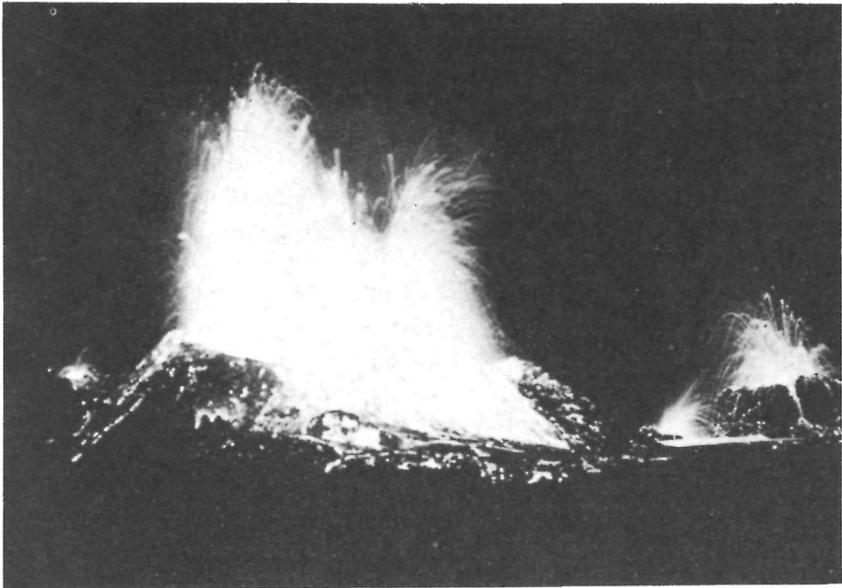


Photo by Wentworth
MAUNA LOA ERUPTION SOURCE FOUNTAINS 1935

flow from Mauna Loa occurred, preceded by jarring earthquakes. The flow commenced with a spectacular outbreak from a crack extending more than a mile southwest from the summit crater and lasted about 9 hours. For 3 days following the mountain was continually shaken by earthquakes until the main flow developed about 13 miles farther down the southwest flank. This main flow lasted nearly 2 weeks, was "aa" in type, about 1,500 feet wide, and 30 feet deep. Progressing slowly, like a great snake, it wound its way seaward, destroying in its path the little fishing village of Hoopuloa. As the lava struck the sea there was a hissing sound followed by a roar as jets of pebbles and clouds of sand were thrown up by violent steam explosions. It was a never-to-be-forgotten sight for those fortunate enough to witness it.

The summit crater of Mauna Loa was active for 16 days in December 1933. During the activity the new lava covered an area of more than a square mile to a depth of as much as 100 feet in places. Two great cinder cones were built up at the source fountains. The glowing smoke columns from the eruption vents were visible from the hills behind Honolulu.

Following a rather violent earthquake which occurred at 1:11 a. m., November 21, 1935, and was felt generally over the entire island of Hawaii, and on Maui and Oahu as well, Mauna Loa erupted at 7:35 p. m. in its northern summit crater and along the northeast rift from a crack rent in the mountain. This was the first eruption on the northeast side of Mauna Loa since 1899.

The flow of lava from the eruption source vents was notable in that it produced both the aa and pahoehoe types of lava. The activity continued until January 2, 1936, when forward motion of the flow ceased at a point near the headwaters of the Wailuku River, about 18 miles from the city of Hilo. With the exception of about 600 acres of grazing land, no property of value was destroyed, though for a time the flow was so threatening that the long-projected experiment of dynamiting the flow to divert the stream was carried out. On December 27 a squadron of United States Army planes dropped 6 tons of TNT near the point of emergence of the lava stream. Progress of the flow almost immediately slowed down.

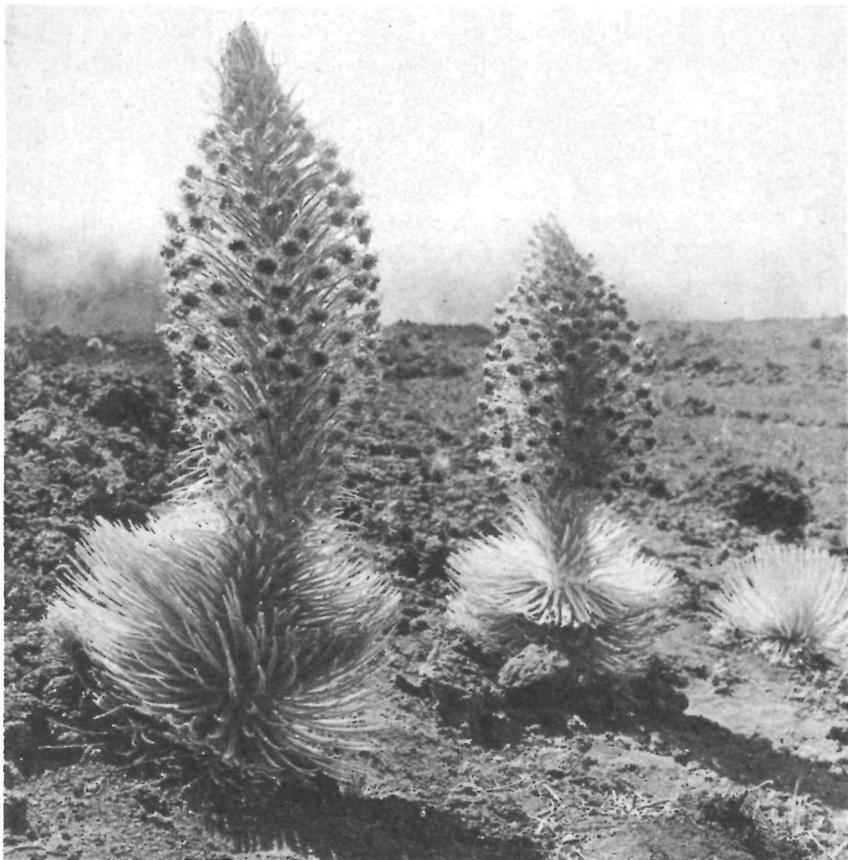
The length of the main flow from the summit source was approximately 25 miles, and in places the lava heaped up 30 to 50 feet in thickness.

Spectacular and violent as these outbreaks are, they are not dangerous, for there are always plenty of time and opportunity for onlookers to get to places of safety. In fact, a volcanic eruption in Hawaii is cause for rejoicing rather than fear, as everyone rushes to the scene of the spectacle. Mauna Loa has averaged activities once in 4 years since 1832.

Hawaii National Park—Hawaii

MAUNA LOA TRIP

From the Kilauea area to the summit crater of Mauna Loa and return is a distance of about 50 miles, and the trip can be made in 3 days, either riding or hiking. It is customary to leave the hotel at Kilauea on horse-back in the morning, riding about 16 miles over the lava to a rest house set in a cinder cone, called "Puu Ulaula" or "Red Hill", at the 10,000-foot elevation. The night is spent here and the next day the 18-mile walk or ride to the top and back is made. The second night is spent at the rest house, and the next day the return to Kilauea is made. If one desires, it is now possible to remain in the new Hui o Pele Shelter at the summit of the mountain.



SILVERSWORD IN FLOWER, HALEAKALA

On this journey the air is rare and cool, the view superb and unrestricted for miles around. Wild goats are encountered on the trip. Beautiful lava specimens, with the sparkle of gold and silver and varicolored brilliants, may be seen on the way.

All persons intending to make the ascent of Mauna Loa should first register at park headquarters and secure permission to use the rest houses.

HALEAKALA SECTION

The Haleakala section of the Hawaii National Park, on the Island of Maui, contains one of the world's largest dormant volcanoes. The mountain derives its name, which in Hawaiian means "House of the Sun", from an exploit of the great Polynesian demigod Maui. Native legends tell that Maui climbed to the top of Haleakala, ensnared the rays of the sun, and forced it to travel more slowly in its course so that his mother might have sufficient time to complete her day's work. Protected inviolate in the park are many remains of ancient Hawaiian occupation of the crater and areas known to have been sacred.

Haleakala, which now rises to a height of 10,032 feet from sea level, was once a much higher mountain. A collapse of the dome many years ago formed a great crater $7\frac{1}{2}$ miles long and 3 miles wide, with walls over 1,000 feet high. Within these gorgeously colored walls lies a superb volcanic spectacle. Covering the floor are giant red, black, and orange cinder cones which, though hundreds of feet high, are dwarfed by the immensity of their surroundings. The crater has a circumference of 21 miles and an area of 19 square miles.

After the collapse of the dome volcanic activity continued and many lava flows, some of recent appearance, have poured out from vents in the crater. Explosion has scattered ash, cinder, and debris over the landscape and probably was the cause of the two great gaps in the crater walls at the southeast and northwest corners of the crater. At the head of these gaps are lovely grassy meadows where from the overtowering walls flow springs of pure water. These meadows are dotted with clumps of native trees and are altogether ideal spots for camping. Tanks to gather and store the water from the mountain springs have been erected at different points in the crater.

On the walls and within the crater grows the rare silversword plant. It is a large spherical herb with narrow leaves which gleam like polished silver. The life cycle of this plant is not fully known but only once does it flower, producing on a stalk two to four feet high a gorgeous mass of purple blossoms. After the seeds have matured the entire plant generally dies.



U. S. Geological Survey photo.

CINDER CONES AND CLOUDS IN THE CRATER OF HALEAKALA



Copyright, Tai Sing Loo.

SUNSET ON HALEAKALA

While the western slope of Haleakala and a large part of the interior of the crater are arid and vegetation is scarce, the eastern slopes, where the rainfall is heavy, support a rich plant life. Much of this dense forest region is still virgin and unexplored. Among its many species of plants are large-leafed ape-ape, the greensword, which resembles the silversword and a peculiar geranium found only on Haleakala.

A paved highway runs from the port of Kahului to the summit of Haleakala. This road, constructed jointly by the Territory of Hawaii and the National Park Service, cost over a million dollars. It was formally dedicated on February 23, 1935, and it is now possible to reach the summit in less than 2 hours, where the National Park Service has constructed a glass-enclosed observation station and other facilities. There are 27 miles of improved trails in the crater, some of which can hardly be surpassed in the spectacular quality of views offered along the way.

The beauty of the sunset and sunrise on Haleakala is unforgettable. If fortunate, the visitor at sunset may be privileged to witness the Brocken Specter, a great shadow image, which is really that of the person viewing it. The shadow is usually surrounded by a single halo or rainbow, although as many as seven have been seen.

COMMON TREES AND SHRUBS

Animal life in Hawaii National Park is scarce, but the scarcity of fauna is more than offset by floral abundance, and the student of botany will find

much to interest him from the coconut groves of the coast to the stunted ohia trees near the timberline of Mauna Loa. Particular attention is directed to the tropical vegetation in the Fern Jungle through which the road to the volcano passes; many of the giant ferns are 40 feet high, with single fronds 25 feet long arching gracefully over the highway. By walking only a few yards back into this jungle one easily gets the impression of being back in a prehistoric era when the entire earth was covered with plants of similar appearance. In the damp forest regions and throughout the section along trails and open spaces ohelo berries grow in abundance.

Following is a description of the many native trees and shrubs:

AALII.—A shrub growing abundantly in the vicinity of Kilauea. The plants are rarely over 6 feet high. In season they produce red-winged capsules which were once used as a source of red dye.

ALANI.—The various species of alani were given the generic name pelea in honor of the Hawaiian goddess of fire, Pele. The tree is a member of the orange or citrus family and can be distinguished by the citrus odor of the leaves. Because of this pleasing odor, the leaves were used to perfume kapa.

AKIA.—The fruit of the akia is very similar in general appearance to the ohelo berry but has a single seed in place of numerous seeds as found in the ohelo. It should not be eaten because of a poisonous property which was utilized by the Hawaiians as a fish poison.

AMAUMAU FERN.—The most common fern in the park. It grows on a trunk 1 to 5 feet high with fronds 2 to 3 feet long.

HAPUU, TREE FERN.—Distinguished by its soft, yellow, glossy hair, or pulu, used for stuffing pillows and mattresses.

HAPU III, TREE FERN.—The larger tree fern with stiff, long, reddish hair on the leaf stems.

ILIAHI, SANDALWOOD.—Attains a height of 25 feet; thin leaves overcast with a whitish bloom; the blossoms occur in densely flowered panicles; wood very hard and heavy, with fragrant heart wood.

KOA, HAWAIIAN MAHOGANY.—The stateliest tree in Hawaii; readily recognized by its sickle-shaped leaves and large, symmetrical crown when growing in the open. The true compound leaf is found on the young trees and sprouts. Used by the Hawaiians in making dugout canoes and surf boards; now used in making ukuleles and furniture on account of the beautiful grain. A magnificent specimen with trunk 10 feet in diameter was preserved when a lava flow stopped within 20 feet of it.

KOLEA.—The Hawaiians used the sap from the kolea tree as the base for a red dye, while the wood was used for beams and posts in building houses.

MAILE.—Hawaiians used maile in lei making. The maile lei was considered a symbol of high respect and also a signal for an armistice in times of war.

MAMAKE, PAPER MULBERRY.—A small tree with rough leaves, usually with prominent red veins and stalks. The Hawaiians made their tapa or paper cloth from the inner bark of this tree.

MAMANI.—A sturdy tree with compound leaves belonging to the pea family; bright-yellow pealike blossoms; rough, corky pod, deeply constricted between the seeds;



FERN FOREST ROAD

rough bark on the older trees; wood very durable, making excellent fence posts but so hard that a special staple must be used.

MANELE, SOAPBERRY.—The manele is one of the few indigenous trees that sheds its leaves annually. The seeds have been used in bead-lei making.

NAIO, FALSE SANDALWOOD.—When the Hawaiians exhausted the available supply of sandalwood in the Chinese trade, they attempted to substitute naio which has a similar odor and appearance; however, this substitution was soon discovered.

NAUPAKA.—The naupaka is an interesting case in plant evolution. Near the sea is found the species that originally migrated to Hawaii. In the lowland area is found another white-flowered species, while the common species on the mountain slopes has a purple flower, and the species near the mountain tops has a yellow flower.

OHELO, NATIVE HUCKLEBERRY.—Small shrub with inconspicuous flowers and red and yellow berries which are excellent for pies; very plentiful around Kilauea Crater. The Hawaiians believed these berries were especially popular with the fire goddess Pele.

OHIA, OHIA LEHUA.—The most plentiful tree in the islands, varying greatly in size and character of its leaves. Has a scaly bark and produces a very hard, close-grained wood suitable for beams and railroad ties. Easily identified by its brilliant scarlet pompon blossoms.

PAINIU.—The cellophane like covering of the leaves of the painiu was used by the Hawaiians as decorative material in lei making and in hula skirts.

PAPALA KEPAU.—The seeds of the papala kepa are enclosed in a capsule heavily coated with a very sticky substance. This glue-like material was used as bird lime to catch the small birds whose feathers were used in making feather cloaks.

PUKEAWE, HAWAIIAN HEATHER.—A common shrub or small tree bearing small, stiff leaves, and showy clusters of small white, pink, or dark red berries.

ULUHI, FALSE STAGHORN FERN.—A comparatively small-leaf fern of vine and bush character found all through the park as a tangled mass among the ohia trees and undergrowth.

Hawaii National Park—Hawaii

WAWAEIOLE, RATS FOOT.—An interesting, low-growing club moss which has taken its common name from the manner in which its leaves resemble the grouped toes of a rat. Color is yellowish green and plant is found usually in the thickest of the undergrowth along the trail side in some sections of the park.

NATIVE HAWAIIAN BIRDS

The park is a sanctuary for wildlife of every sort. The following list gives the names of several of the different native species:

Akekeke, turnstone, *Arenaria interpres*. White on head, rump, throat, and belly; same habits as the Kolea. Length, 9 inches.

Akepa, *Loxops coccinea*. Small; fox-red or orange; female, green; partial to Koa forests. Length, 4.5 inches.

Akiapolaau, *Heterorhynchus wilsoni*. Olive green and yellow; taps on wood like woodpecker. Length, 5.7 inches.

Alala, *Corvus hawaiiensis*. Crow; black, noisy. Length, 19 inches.

Amakihi, *Chlorodrepanis virens*. Olive green, short, slightly curved beak: male, almost yellow; sips nectar and searches for insects in foliage. Length, 4.5 inches.

Apapani or Akakani, *Himantopus sanguinea*. Dark red, black feet and bill. Length, 5.2 inches.

Elepaio, *Chasiempis sandvicensis*. Brown, wrenlike flycatcher; friendly; spread tail and drooping wings; named from its song. Length, 5.6 inches.

Iiwi, *Vestiariacoccinea*. Scarlet curved bill; young, black spotted in color, gradually changing. Length, 5.8 inches.

Io, *Buteo solitarius*. Hawk; plumage varies, some birds very dark, others light, almost white. Length, 16 inches.

Koae, *Phaethon lepturus*. White tropic bird; two long feathers in tail; inhabits Kilauea Crater. Length, 30 inches.

Kolea, golden plover, *Charadrius dominicus fulvus*. Migrates to Alaska about May 1, returns in August.

Mana, *Oreomyza mana*. Olive green creeper; searches for insects on trunks and limbs of trees; never touches honey. Length, 4.5 inches.

Nene, *Nesochen sandvicensis*. Goose; black throat.

Omu, *Phaenoria obscura*. Thrush; olive brown, shading to white underneath; berry feeder; jerky song; habits of shaking its wings while perching and of circling about top of tree. Length, 7 inches.

Ou, *Psittacirostra psittacea*. Olive green with yellow head; stocky, grosbeak. Length, 6.2 inches.

Pueo, *Asio accipitrinus sandvicensis*. Short-eared owl; flies around in daytime. Length, 14 inches.

NOTE.—Authority for names used is "Key to the Birds of the Hawaiian Group", W. A. Bryan, Bishop Museum Press, Honolulu.

In Darwin's work on evolution he made a special study of the animal life on several isolated island groups. He found that the land birds, although

closely related to the birds of the nearest continental land mass, had undergone changes due to their isolation, developing entirely new species. On the other hand, the sea birds that intermingled freely with sea birds from other parts of the world showed little change.

The bird life of the Hawaiian Islands bears out these findings. For example, quoting from the 14th edition of *Encyclopædia Britannica*, "A striking example of bird evolution is found in the songbird family (Drepanidae) with 60 species all peculiar to Hawaii", whereas many of the species of sea birds are the same as found elsewhere.

ADMINISTRATION

The park is administered by the Department of the Interior through the National Park Service, with a superintendent, Edward G. Wingate, in immediate charge. The administrative center is in the Kilauea area.

All complaints, suggestions, and requests for information should be addressed to the superintendent, whose post-office address is Hawaii National Park, Territory of Hawaii.

The superintendent's representative on the island of Maui, in charge of the Haleakala section, is District Ranger J. A. Peck, whose office is located near the entrance to the park on the Haleakala Road.

PUBLIC AUTOMOBILE CAMPS

Two public automobile camps, where motorists may obtain free wood and water, have been established. Shelter buildings, picnic grounds, fireplaces, and other conveniences are provided.

ARMY CAMP

In the Kilauea section is a recreation camp established for the use of the officers and enlisted men of the United States Army and other Federal services. Each year over 3,000 service men spend their vacations at the Kilauea Military Camp.

HOW TO REACH THE PARK

The gateway to Hawaii, including the national park, is Honolulu, on the island of Oahu, known as the "Crossroads of the Pacific." Here the principal trans-Pacific steamship lines converge and trans-Pacific air services meet. It is the capital of the Territory of Hawaii, and is its largest city, with a population of over 140,000. It is a cosmopolitan place, with a western atmosphere and every modern improvement. Owing to a climate that varies but a few degrees the year round, there is always an abundance of beautiful tropical flowers.

TRANSPORTATION

Vessels of three steamship lines make Hilo, on the island of Hawaii, a regular port of call. The Inter-Island Steam Navigation Co. operates modern steamers between Honolulu and Hilo twice each week. The minimum time required for the round-trip excursion from Honolulu to the Kilauea section of the park is 1 day and 2 nights. The trip generally taken, however, is that requiring 2 days and 3 nights, of which 2 days and 1 night are spent on a tour around the island of Hawaii with one morning spent at Kilauea. Nearly all world-cruise liners stop at Hilo. Longer stops are of course an advantage for complete enjoyment.

Freight vessels of the Nippon Yusen Kaisha South America West Coast Line stop at Hilo, 1 day after leaving Honolulu, en route from the Orient to South America via San Francisco; service approximately every 5 weeks.

The park may also be approached through ports on the west coast of Hawaii, which are served by steamers of the Inter-Island Steam Navigation Co.

Passenger airplanes are now operated by the Inter-Island Airways between all the islands, in both directions, daily, except Sunday.

Transportation for the trip to Hawaii National Park from Hilo is always available at moderate rates. Automobiles are to be had at Hilo at all times, and motor cars meet each steamer. Automobiles may be hired at the Volcano House at reasonable rates for special trips in and around the crater and the park.

A fine motor highway connects Hilo and the Kilauea portion of Hawaii National Park, a distance of 30 miles.

Saddle horses may also be obtained at the Volcano House.

Several of the larger western railroads operate escorted tours to Hawaii in connection with trips to some of the western national parks and Pacific coast points of interest.

The tour way is an easy and comfortable method of visiting the parks, as all arrangements are made in advance. The total cost of the trip is included in the all-expense rate charged, and the escort in charge of each party attends to the handling of tickets, baggage, and other travel details. This is an especially satisfactory mode of travel for the inexperienced traveler or for one traveling alone. The escort, in addition to taking care of the bothersome details of travel, also assists the members of his party to enjoy the trip in every way possible.

Full information concerning these escorted tours may be obtained by writing to passenger traffic managers of the railroads serving the various national parks.

Hawaii National Park—Hawaii

AIRPLANE SERVICE

Inter-Island Airways, Ltd., with amphibian service from Honolulu to the islands of Maui and Hawaii, operates daily, except Sunday. A trip to either the Haleakala or Kilauea sections of the park may be made in 1 day by leaving Honolulu after breakfast and returning in the late afternoon. The flying time is 1 hour to Maui and 2 hours and 10 minutes to Hilo. The plane trip alone offers a series of ever-changing views of the several islands, each of unforgettable beauty.

TRIP TO KILAUEA-MAUNA LOA SECTION

The 222-mile trip from Honolulu, on the island of Oahu, to Kilauea Volcano, on the island of Hawaii, can be made by sea or air to the city of Hilo. As the visitor approaches Hilo, whether by boat or by plane, the view along the Hamakua coast is one of great beauty and interest. From the sea, one sees in the foreground the rugged and abrupt shore line with whitecapped waves and surf beating against the cliffs, while the greens of the sugarcane fields and forests of the higher region make an interesting contrast, the background sloping up to the summit of Mauna Kea, the highest mountain in the Pacific.

This is the windward side of the island, where the rainfall is heavy and the topography has been eroded into many deep gorges. During rainy periods, a great quantity of water flows from this area, and in many places beautiful waterfalls are to be seen, some of them falling directly into the ocean.

Hilo, the "Crescent City", with a population of about 20,000, is the county seat of the island of Hawaii and the second largest city in the Territory. The town is exquisitely situated, with the placid waters of Hilo Bay at its front door and majestic Mauna Kea rising to an elevation of 13,784 feet in the background. The top of this mountain during the winter months is usually capped with snow and tinged with rosy hues from the first rays of the morning sun.

Entrance to the city is along an hibiscus-lined street. Nearby points of interest are the Rainbow Falls and Boiling Pots of the Wailuku River. Along the Hamakua coast a railway tunnels the headlands and bridges the gulches of this rugged coast, providing a trip of unusual scenic interest. Onomea Arch and Akaka Falls are other points of interest in this area. Flowers are to be seen everywhere during the entire year.

If time permits, the visitor should make the circuit trip of the island by automobile, through the cane fields and plantation towns of the Hamakua

district, the famous Parker Ranch, and the historic Kona region, and from there to Hawaii National Park. Side trips may be taken to the City of Refuge at Honaunau and to Napoopoo, where a canoe trip can be made across Kealakekua Bay to see the monument to Captain Cook, discoverer of the islands. In the cliffs above the bay are many caves, where the remains of Hawaiian royalty are supposed to be buried.

On the west and south sides of the island the visitor passes over numerous old and new lava flows from Mauna Loa. The site of the little fishing village of Hoopuloa, destroyed by the lava flow of 1926, can be seen by taking a side trip.

For those whose time does not permit a complete round-the-island trip, requiring 2 or 3 days, a 1- or 2-day visit to the park can be arranged.

The most popular way to visit the park is in automobiles, which receive visitors at the steamer landing and an hour later deposit them at the edge of the crater of Kilauea. The ride is over smooth, paved roads, bordered by tropical flowers, and forests of ohia and lofty fern trees on either side. Thirty miles from Hilo the first sight of Kilauea's crater is obtained. Along the way are fields of sugarcane, and here and there banana, papaia, and breadfruit trees. Several plantation towns are passed en route, and the ohia forests with their scarlet pompon blossoms and tree ferns growing among them always interest visitors.

From Olaa, about 9 miles from Hilo on the volcano road, a road branches off to the famous Kalapana district, where there is a beach of black sand fringed with coconut trees. Here may be seen a cave of refuge, lava trees, and warm springs. A number of Hawaiian families live in this region.

TRIP TO HALEAKALA SECTION

The trip to Haleakala, on the island of Maui, may be made separately or in conjunction with the trip to Kilauea and Mauna Loa either in going to or returning from Hilo. There are good hotel accommodations and transportation facilities on Maui. The trip to the 10,000-foot summit may be made by automobile over the new highway in about 4 hours, where previously by motor and horseback it took 12 hours.

There are 28 miles of trails in this section. The most popular route into the crater is by way of the Sliding Sands Trail from the resthouse at the rim down to the crater floor, past cinder cones nearly a thousand feet high and the Bottomless Pit, returning by the Halemauu Trail. The round trip can be made in 1 day from the resthouse. An experienced guide is necessary.

Other spectacular points of interest on this island are Iao and Waihee Valleys, deep gorges with sheer walls, intricately sculptured into the heart

Hawaii National Park—Hawaii

of tropical mountains near Wailuku. Arrangements for saddle-horse service may be made with E. J. Walsh, manager of the Grand Hotel, Wailuku, Maui, who is the authorized operator in the Haleakala section of the park.

ACCOMMODATIONS AND EXPENSES

The only hotel in the national park is the Volcano House. Located in the Kilauea-Mauna Loa section on the outer rim of Kilauea Crater, it is 4,000 feet above the sea in a cool, invigorating climate. The hotel is operated by George Lycurgus, who was manager from 1904 until 1921 and who again assumed this position in 1932.

The wood fire in the fireplace of this world-known hostelry, whose history dates back to a grass house constructed about 1856, has been burning constantly for many years, sending out a warm Aloha to all.

The present structure with steam heat and hot and cold running water in the rooms is a far cry from the original grass house. All the hotel cottages are similarly equipped, and each has its individual fireplace. There are 15 rooms with shower baths available and a club room affords a comfortable place to lounge and read. A spacious veranda where regular dances are held affords a fine view of Mauna Loa and the great lava floor of Kilauea. Guests may enjoy the novel experience of steam and sulphur baths.

Rates for rooms with meals, per person, are \$6 a day upward and the weekly rate for one person in a room, facing the crater, is \$33.50; other rooms \$30. One-half rates are charged for children under 6 and three-fourths for those between 6 and 12 years of age. Special summer holiday rates as low as \$21 a week, or \$75 a month, make it possible for families to enjoy an extended vacation. Sulphur baths are 50 cents each.

This booklet is issued once a year, and the rates mentioned herein may have changed slightly since issuance, but the latest rates approved by the Secretary of the Interior are on file with the superintendent and the park operator.

PHOTOGRAPHY

A studio where photographic supplies of every kind may be obtained is adjacent to the Volcano House. It is operated by K. Maehara, who also maintains a laboratory for developing, printing, enlarging, coloring, and framing of pictures or lantern slides. Photographs of the park and island scenes may be obtained at prices varying from 3 cents for a snapshot to hand-painted pictures at \$20.

Hawaii National Park—Hawaii

GENERAL INFORMATION

For information regarding trips to and through the Hawaiian Islands it is suggested that prospective visitors get in touch with the Hawaii Tourist Bureau, with offices in Honolulu, Hawaii, and 215 Market Street, San Francisco, Calif. The Hawaii Tourist Bureau is an official nonprofit community-advertising and information organization.

Tours of Hawaii National Park from Honolulu may be included in the weekly excursions from the mainland conducted by the Matson Navigation Co., 215 Market Street, San Francisco; 730 South Broadway, Los Angeles; 535 Fifth Avenue, New York; 814 Second Avenue, Seattle; 230 North Michigan Avenue, Chicago; 327 SW. Pine Street, Portland, Oreg.; 119 West Ocean Boulevard, Long Beach; and 213 East Broadway, San Diego. In addition are the steamers of the Dollar Line which maintain regular service between the mainland and Honolulu. The connecting service between Honolulu and Hilo is provided twice a week by the Inter-Island Steam Navigation Co. Sample schedules and rates follow:

KILAUEA-MAUNA LOA SECTION

Leave Honolulu Tuesday at 4 p. m., spending Wednesday in Hawaii National Park; returning, arrive Honolulu Thursday at 6:30 a. m.	\$41.50
Leave Honolulu Friday at 4 p. m., spending Saturday and Sunday on a tour of the island of Hawaii, returning, arrive Honolulu Monday at 6:30 a. m.	51.00

HALEAKALA SECTION

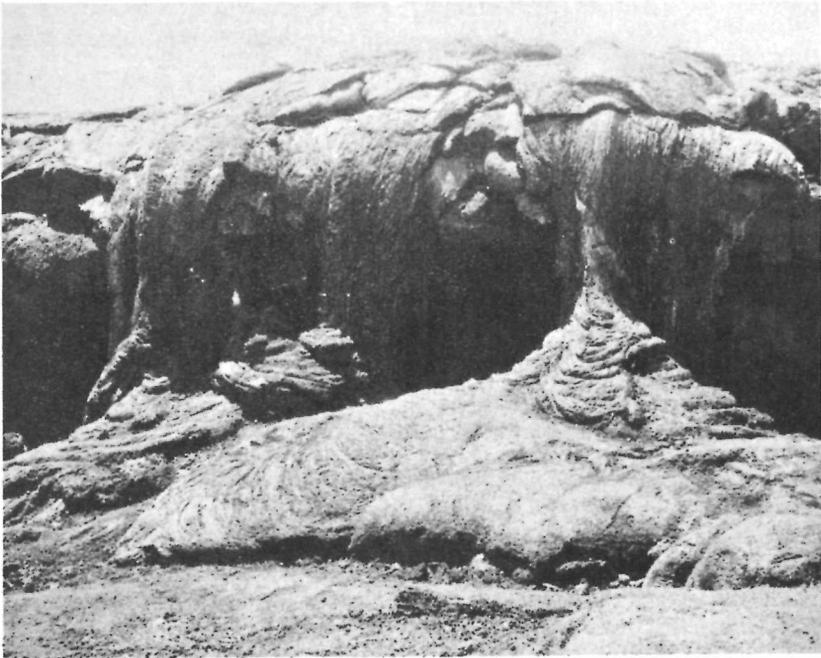
The Haleakala section may be reached by steamers from Honolulu, docking at Kahului, and by steamers from Honolulu and Hilo which stop at Lahaina. Steamers for Kahului leave Honolulu Sunday and Wednesday, and for Lahaina Tuesday and Friday each week. Steamers for Lahaina leave Hilo on Wednesday and Sunday.

One of the most popular short excursions is to leave Honolulu 9 p. m. Wednesday, arrive Kahului Thursday 5:45 a. m., motor to various points of scenic interest, thence to the summit of Haleakala to view the sunset, returning to Honolulu from Kahului, and sailing at 9 p. m. Thursday. The steamer fare from Honolulu to Kahului is \$11 and to Lahaina \$10.

If one arrives at Hilo without previous arrangements, he may rent an automobile, with or without driver, for the trip through the Kilauea section and around the island of Hawaii. The island is encircled by an automobile road crossing recent lava flows, and it may be negotiated easily in 3 days. Retail stores, garages, post offices, and comfortable wayside inns with good meals and lodging for visitors are to be found at convenient intervals on the route.

Travelers from the United States and Canada can easily reach Hawaii in a 4½- to 6-day ocean voyage on steamers of the Matson Navigation Co., leaving San Francisco and Los Angeles for Hawaiian ports weekly; on steamers of the N. Y. K. Line, leaving for Hawaii en route to the Orient every 2 weeks (only lay-over passengers can use this foreign line between two American ports); on steamers of the Dollar Steamship Lines' Trans-Pacific and Round-the-World services, one every Friday for Honolulu en route to the Orient; on steamers of the Canadian-Australasian Line and Canadian Pacific Co. from Vancouver direct to Honolulu every 4 weeks.

Travelers from New Zealand may reach Hawaii on steamers of the Canadian-Australasian Line, leaving Auckland every 4 weeks; from Australia and New Zealand on steamers of the Oceanic Steamship Co., and Matson Navigation Co. agents, leaving Sydney every 4 weeks; and on those of the Canadian-Australasian Line, leaving the same port every month. Travelers from the Orient may go direct to Hawaii on steamers of the Dollar Line leaving oriental ports for Honolulu every 2 weeks; on steamers of the N. Y. K. Line, leaving at the same intervals, and on Canadian Pacific liners every 28 days.



U. S. Geological Survey photo.

LAVA CASCADES

Hawaii National Park—Hawaii

REFERENCES

- ALBRIGHT, HORACE M., and TAYLOR, FRANK J. Oh, Ranger! A book about the national parks.
- ALEXANDER, W. D. Brief History of Hawaiian People.
- BRIGHAM, WILLIAM T. Memoirs of the Bernice Pauahi Bishop Museum. Vol. II, no. 4, The Volcanoes of Kilauea and Mauna Loa. 1909.
- BRYAN, WILLIAM A. Natural History of Hawaii.
- CASTLE, WILLIAM R. Hawaii Past and Present. 1926. 256 pp.
- DALY, R. A. Our Mobile Earth. Charles Scribner's Sons. 1926. 342 pp.
- DANA. Characteristics of Volcanoes (Textbook). 1891.
- DEGENER, OTTO. Ferns and Flowering Plants of Hawaii National Park. 1930. 350 pp., 89 full-page plates. 49 figures.
- DU PUY, WILLIAM A. Hawaii and Its Race Problem.
- ELLIS, WILLIAM. Tour of Hawaii.
- FORNANDER SERIES, or Collection of Hawaiian Antiquities and Folk Lore.
- GROSVENOR, GILBERT. The Hawaiian Islands. The National Geographic Magazine for February 1924.
- HAWAII TOURIST BUREAU. Near-by Hawaii and Tourfax. Issued for free distribution. Honolulu, Hawaii.
- HILLEBRAND, WILLIAM. Flora of the Hawaiian Islands. 1888.
- HITCHCOCK, C. H. Hawaii and Its Volcanoes (Honolulu Advertiser).
- KANE, J. F. Picturesque America. Frederick Gumbrecht, Brooklyn, N. Y., 1935. 256 pp. Illustrated. Hawaii on pp. 243-252.
- POPE, W. T. Manual of Wayside Plants of Hawaii. 1929.
- ROCK, JOSEPH F. Indigenous Trees of the Hawaiian Islands. 1913. 518 pp.
- ROLFE, MARY A. Our National Parks. Book Two. A supplementary reader on the national parks for fifth- and sixth-grade students. Benj. H. Sanborn & Co., Chicago. 1928. Illustrated. Hawaii National Park on pp. 73-92.
- STAR BULLETIN, Honolulu—All About Hawaii. A detailed handbook.
- STEARNS, HAROLD T., and CLARK, WILLIAM O. Geology and Water Resources of the Kau District, Hawaii. U. S. Geological Survey Water-Supply Paper 616.
- TAYLOR, ALBERT P. Under Hawaiian Skies. Advertiser Publishing Co., Honolulu, Hawaii. 1926. 607 pp.
- THE VOLCANO LETTER, a monthly leaflet, published by the Hawaiian Volcano Research Association, James Campbell Building, Honolulu.
- U. S. GEOLOGICAL SURVEY. Bulletins of the Hawaiian Volcano Observatory. Published by the Hawaiian Volcano Research Association.
- WESTERVELT, W. D. Hawaiian Historical Legends.
- WILSON, SCOTT B. Birds of the Sandwich Islands. 1890.
- YARD, ROBERT STERLING. The Book of the National Parks. 1926. 444 pp., 74 illustrations, 10 maps, 4 diagrams. Hawaii begins on p. 229.

GOVERNMENT PUBLICATIONS

Recreational Map. Shows Federal and State recreational areas throughout the United States and gives brief descriptions of principal ones. Address Director, the National Park Service, Washington, D . C. Free.

Glimpses of Our National Parks. Brief descriptions of national parks. Address as above. Free.

National Parks Portfolio. By Robert Sterling Yard. Cloth bound and illustrated with more than 300 pictures of places of outstanding scenic interest. Superintendent of Documents, Washington, D. C. \$1.50.

Illustrated booklets about the following national parks may be obtained free of charge by writing to the Director, National Park Service:

Acadia, Maine.

Carlsbad Caverns, N. Mex.

Crater Lake, Oreg.

General Grant, Calif.

Glacier, Mont.

Grand Canyon, Ariz.

Grand Teton, Wyo.

Great Smoky Mountains, N. C.-Tenn.

Hot Springs, Ark.

Lassen Volcanic, Calif.

Mesa Verde, Colo.

Mount McKinley, Alaska.

Mount Rainier, Wash.

Platt, Okla.

Rocky Mountain, Colo.

Sequoia, Calif.

Wind Cave, S. Dak.

Yellowstone, Wyo.-Mont.-Idaho.

Yosemite, Calif.

Zion and Bryce Canyon, Utah.

