

# Bombing of

See Necke

THIS IS A SHORT HISTORY of the bombing of the Hawaiian Islands by military aircraft of the United States. The United States first dropped bombs on the Islands in 1935 and continues to do so.

Two of the U.S. bombing missions were short, one-time affairs to try and save Hilo from being covered with molten lava.

Volcanologists, after the two bombings of flowing lava, now think there are three ways to use bombs to slow — or stop — a moving lava flow. Aerial bombardment, in all three ways, aims to disrupt the steady flow of lava that supplies the moving front.

One way is to bomb open a break in the solid roof of a pahoehoe flow. Debris drops into the flow, dams it to make the lava come out of the break to spread out or turn in another direction — something like putting a hole in a hose to stop or reduce the stream coming out the nozzle. This was the way tried in 1935.

Another way deals upslope with an advancing 'a'a flow. This type of clinkery flow builds its own side channels and flows between them. This way bombs open a channel to let the liquid lava inside ooze out and spread — something like opening a hole in the side of a high river bank or flood wall. This was the way tried in 1942.

The third way — to bomb open the cone at the source of the flow to let the lava lake inside drain off in a new direction — has not yet been tried. But extensive testing in 1975 and 1976 of large aerial bombs on prehistoric lava flows on the Big Island indicates a good chance of diverting fluid lava flows by this method.

Here's a rundown on the two bombings of lava flows which threatened Hilo.

## 1935 — Mauna Loa Lava Flow

IN LATE 1935, A LAVA flow fed from a cone near top of Mauna Loa, 13,677 feet high, threatened Hilo. The flow was 20 miles long, advancing steadily, was within five miles of Hilo's water supply, and within 15 miles of the city itself. The people of Hilo were frightened.

Suggestions that explosions might rupture a tube filled with flowing lava were first considered in 1881, when an earlier flow threatened Hilo. Then in 1929, Lorrin Thurston, publisher of the *Honolulu Advertiser* and president of the Hawaii Volcano Research Association, advocated the use of explosives to disrupt or slow a threatening flow, but he suggested dropping a charge of TNT into an existing opening from a tripod over the hole.

It was Thomas A. Jaggar, director of the Hawaiian Volcano Observatory, when faced with the 1935 flow toward Hilo, who conceived of the use of aerial bombs.

At the request of the Hawaiian Volcano Observatory, backed by business and government officials of Hilo, the U.S. Army Air Corps agreed to drop 600-pound bombs to try to divert the flow.

An Army transport ship landed in Hilo with 20 600-pound bombs loaded with TNT, and 20 300-pound bombs to be charged in Hilo with black powder and sand to be used for aiming purposes.

By air from Luke Field on Ford Island in Pearl Harbor came 20 officers and 37 men. They came in 10 bombing planes, two observation planes and two amphibians.

Those 20 TNT bombs were dropped on the flow on Dec. 27, 1935, by 10 fabric-covered Keystone B-3 and B-4 bombers of the 1920s vintage. The Army stated that the bombs were placed exactly where

THE LAVA FLOW STOPPED its forward motion almost immediately, but then resumed its forward motion at a slower pace. The eruption ceased altogether within a week after the bombing without harming either Hilo or its water supply.

While at the time it was thought the bombing had stopped the flow, volcanologists now believe that the stopping of the flow soon after the bombing must be considered a coincidence.

One Hawaiian was quoted in the Hilo newspaper as predicting that the fivers who dropped their bombs on lava flows of the Hawaiian volcano goddess Pele would die by fire.

A few days later, six army airmen were killed in a Luke Field crash. Some Hawaiians said that the six men killed were the same men who had bombed the flow and that the bombers wrecked in the crash were the same one used.

Army authorities neither confirmed nor denied the rumors.

What meager information exists indicates that some of those killed had been in the Mauna Loa bombing runs; some had not; and some who were in the bomb runs had escaped unharmed from the Luke Field crash.

One elderly Hawaiian man in Hilo, who claimed descent from Pele, said that when it became obvious the bombing had not stopped the flow, that he personally went to the flow and petitioned Pele to save his friends, his home, and the people of Hilo.

Pele, he said, had answered his prayer.

## 1942 — Mauna Loa Lava Flow

IN THE MIDST OF WARTIME blackout, Mauna Loa erupted on April 26, 1942, a few months after the Japanese attack at Pearl Harbor.

Red glow from lava fountains and flows high on the mountain could mark the location of the Hawaiian Islands for the enemy fleet and its long-ranging aircraft. That glow could also silhouette American ships at night for any lurking enemy submarines.

If Japan knew about it.

With martial law in effect in Hawai'i, the eruption was classified as a military secret. Newspapers were not permitted to publish any account of it until eight days after the eruption ended. No mention of it could be made in letters — censors opened, read, clipped out all prohibited information and suspicious parts, resealed and stamped all outgoing mail as "Passed by Censor."

Of course, island people knew about the Mauna Loa eruption. Its glow could be seen from Honolulu — brilliant in the blackout.

Island people wrote to their friends and relatives on the Mainland, especially to those who knew of Jaggar's long years of studies of Hawaiian volcanoes, that, "Dr. Jaggar's baby has been sick again — vomiting all over the front yard."

Military censors, army officers brought from the Mainland and unfamiliar with island affairs, stamped and forwarded letters with such information to the Mainland.

One rumor said that Tokyo Rose broadcast the news the day after the eruption. A Japanese submarine was thought to have seen the glow and relayed the news by radio to the Japanese fleet.

BY MAY 1, THE FLOW was threatening to destroy the water flume which supplied the Big Island community of Mountain View, and irrigated its fields of sugar cane. It threatened to cut the only road which linked Hilo with the Kilauea Military Camp at Volcano, and even threatened to invade Hilo and destroy part of its harbor — the only port open on the Big Island, and vital to military freight and passengers. Raw sugar from all Big Island plantations was shipped from Hilo to California for refining — and sugar was a high priority, critical and rationed war material.

Hawai'i's military government did not want to hurt the sugar industry nor lose the port of Hilo. It was receptive to a bombing mission to try to

article

# the Isles

## Tales of Old Hawai'i

By Russ Apple



Ruy Finch had succeeded Jaggar as director of the Hawaiian Volcano Observatory.

Finch flew over the 'a'a flow and selected the most favorable places to break the natural levees. He also selected alternate levees higher on the mountain.

By the time the bombers arrived, smoke and clouds hid the selected sites — and the alternate sites became the targets.

Army censorship cloaked the event at the time, and the extensive military records of the eruption and bombing have since been lost. It's believed that an unknown number of twin-engine Douglas B-18s dropped the bombs — number unknown — on the alternate sites.

**ONE SIDE NOTE** — a volcano buff of Hilo hiked up Mauna Loa with his 15mm movie camera to watch and film the lava flow. He was standing on a vantage point when U.S. Army Air Force bombers unexpectedly flew low over his head on their bomb runs. This civilian filmed what was a highly classified military secret at the time.

No great success was claimed for the bombing — and the flow apparently stopped from a natural cause — although bigger and better bombs were waiting in Hilo for a second try if necessary.

The apparent cause was the natural collapse of part of the rim of the spatter cone which fed the flow. A major new flow ran from the collapsed part to rob more than half the volume from the flow which threatened Hilo.

This led Finch to suggest that source-vent spatter cones might be a good target for future lava diversion attempts.

Years later, volcanologists inspected the sites of the 1942 bombing. Because of the lack of detailed records, the scientists were able to identify the area by viewing that clandestine movie made during the bombing. It showed in the background geologic features which could still be identified.

An unexploded bomb was found. It was identified and exploded by an Army Explosive Ordnance Disposal team from Fort Shafter. It was a pre-World War II vintage MK-1 — a 600-pound TNT demolition bomb, the same type used in 1935.

# by U.S.

ry of Hawai'i started in 1933 and was due to expire in 1954.

In mid-1940, MacPhee sub-leased an unused part of the island to the Navy for use as a bombing range.

That's when the United States started to drop bombs on Kaho'olawe — 1940.

Martial law was declared on Dec. 17, 1941, a few hours after the surprise attack in Pearl Harbor. Within a few days, the Navy took over the entire island of Kaho'olawe. It put targets in selected places for practice in aerial bombing and ship-to-shore shelling.

MacPhee, his family and ranch hands were forced to abandon Kaho'olawe immediately. They left behind fences, walls, cisterns, dwellings, corals, cattle, horses and personal possessions — all without compensation — although suit was eventually brought, and may still pend.

After World War II, a Presidential Executive Order while Hawai'i was still a territory put Kaho'olawe under naval jurisdiction. Statehood in 1959 did not change that status.

From 1941 through 1967, 26 years, the land and waters of Kaho'olawe were off-limits to civilians. Starting in 1967, on some weekends the waters off the island were opened by the Navy to civilian fishermen. The Navy refrained from bombing and shelling on those weekends.

**UNDER THE EXECUTIVE ORDER**, when the Navy had no further use for Kaho'olawe, it was to rehabilitate the island — do such things as plant trees to halt erosion and remove unexploded ordnance — and then turn the island over to civilian control.

In 1969, a 500-pound unexploded bomb was discovered on a Maui pasture, a pasture leased to Elmer Cravalho, the mayor of Maui County. He was a leader in the move on Maui which pushes to return Kaho'olawe to civilian control.

That bomb in the pasture fell, the Navy finally explained, unfused from an aircraft in 1966.

One early move toward rehabilitation came in

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*Occasionally the explosions were dropped in attempts to interrupt the flow of lava, but mostly it has been for training purposes.*

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# Military Planes

1972, when the Navy permitted a civilian party ashore to plant about 1,500 trees and shrubs. Feral goats which roam the Island promptly ate them.

Also in 1972, the Navy reduced the weight of individual bombs to be dropped on Kaho'olawe targets from a thousand pounds to 500.

In 1976, a number of Hawaiians and others protested the continued bombing of Kaho'olawe. Some occupied the Island for short periods — apparently the first activist-type protest by ethnic Hawaiians.

WITH HAWAIIAN PROTESTERS roaming Kaho'olawe, the Navy was not about to bomb or shell the Island and risk turning protesters into martyrs. To evict the unauthorized visitors, the Marines landed.

Hawaiian activists played hide and seek successfully, until they tired of the game and left unseen — sailing silently back to Maui.

Under the federal historic sites act, the Navy was obligated to survey Kaho'olawe for historic sites. One result — the Navy has restricted large areas of the Island from bombs and shells to protect the sites.

Now regularly, with Navy permission, Hawaiians and their guests spend a few days and nights on Kaho'olawe to learn about the Island, associate themselves with its land, and honor their past.

During such times, the Navy schedules no missions — but at other times, bombs still drop and shells still land.

## 1940-1950 — Ka'u Bombing Range

WHEN THE NAVY got its bombing range on Kaho'olawe in 1940, the U.S. Army Air Corps wanted its own range. It found one in a national park.

A remote, uninhabited area of 6,000 acres on the Big Island was chosen. This aircraft bombing range was part of the Hawaii Volcanoes National Park. Like Kaho'olawe, this bombing range threatened World War II in the Pacific.

A bill was introduced early in 1940 in Congress to withdraw this acreage from the national park and transfer it to the secretary of war for military purposes.

In Hawaii, the *Honolulu Star-Bulletin* broke the news on March 30, 1940. Its editor, Riley H. Allen, spoke both editorially and privately against the bombing within a national park. Public reaction was immediate and adverse, and soon spread to the Mainland. Opposition came from organized conservation groups and a few individuals.

Objections did not center on bombing Hawaiian land, but on bombing within a national park.

The bill, which became law, was revised to permit the secretaries of the interior and war to select a suitable bombing range within the 6,000 acres specified.

They selected 3,000.

SELDOM, IF EVER, did the Army Air Corps use the range. Instead it was used frequently and

regularly by aircraft of the Naval Air Station, 35 miles away in Hilo.

Aircraft which used the Ka'u Desert Bombing Range, especially for strafing, did not always confine their firing to the range. On one occasion, civilians fishing some miles away were wounded.

In 1950, the army cleared the range of all the unexploded bombs and shells it could find, and returned the area to national park administration.

As a park ranger in the 1950s, I saw many unexploded bullets and empty shell casings on the range. Many of the large brass shell casings went into the machine shop of the Hawaiian Volcano Observatory to be made into parts for precision instruments.

One hangs on the Apple-Macdonald front porch at Volcano on the Big Island. An 'ohi'a clapper hangs beside it. The brass shell it strikes is our doorbell.

## 1942 and Continuing — Pohakuloa

WHEN ARMY AND MARINE CORPS engineers built the Big Island's Saddle Road in 1942, between Hilo on one side of the Island and Waimea on the other, a huge, uninhabited area between the volcanoes Mauna Loa and Mauna Kea became accessible.

Use of this Pohakuloa area for live firing through 1945 seems to have been for intermittent artillery exercises. As the wartime buildup of armament went on, the size of the artillery pieces in use at Pohakuloa grew from 75mm through 155mm.

Tanks trained there as well.

During the Korean War, the use of Pohakuloa expanded. Training for aircraft support of ground troops became Pohakuloa's specialty.

Witnesses report that napalm and high explosive shells are still frequently dropped from aircraft in the Saddle region. Aircraft which drop them are usually based on O'ahu. Army and Marine Corps units also come from O'ahu bases for training exercises because Pohakuloa is removed from civilian centers.

## 1942-1945 — Multiple Targets

DURING WORLD WAR II, when the Hawaiian Islands were major supply and training bases for the war in the Pacific, apparently many off-shore islands and remote coastal areas were bombed from aircraft used in training pilots and aircrews.

Most places hit were apparently authorized targets; others apparently not.

Among the known targets:

*Hawai'i Island:* the cinder cones and sand dunes around Waiahukini, near South Point, Ka'u District.

*Moloka'i:* Mohuo'oniki islet near east end. As late as the 1950s, napalm and high explosives were seen by residents as they struck the islet.

*O'ahu:* Mana (Rabbit) islet and Kaohikaipi islet off Waimanalo. The Army claims it shot only artillery shells at these islands, but scientists claim they have found bomb fragments and craters there.

Also, judging from the recent underwater demolition of live World War II bombs in their adjacent waters, Moku'aula and Kihewamoku islets off Malaekahana were also targets from aircraft.

## 1952 and Continuing — Ka'ula

**OFTEN CALLED KA'ULA ROCK,** Ka'ula Island is a small, steep-sided islet about 23 miles southwest of Ni'ihau. So little is known about Ka'ula that sources variously list its acreage as 108, 136 and 280.

Colonies of seabirds make Ka'ula their home. Fishermen from nearby Kaua'i depend on some of these birds to scout schools of fish for them.

Rare and endangered humpback whales cluster around Ka'ula from December through May.

Somehow left out of the Northwest Hawaiian Islands Wildlife Refuge in President Theodore Roosevelt's executive order in 1909, Hawai'i's Gov. Wallace Rider Farrington made Ka'ula a lighthouse reservation in 1924.

Uncle Sam built a lighthouse on it in 1932 and maintained it through its closure in 1947. By this time the U.S. Coast Guard had jurisdiction.

Perhaps it was a telephone call between admirals, perhaps a conversation in a social situation, but sometime in 1952 a naval admiral got a favorable reply from a Coast Guard admiral to his question, "Is it OK with you if the Navy bombs Ka'ula Rock?"

Whatever the method of communication, an informal agreement was reached.

That started the aerial bombing of Ka'ula in 1952.

Ka'ula's target area is a small area the southeast tip — perhaps 5 percent of the total island area.

**MISSED BOMBS APPARENTLY** hit into the bird colonies on the rest of the island, or fall into adjacent waters.

Bird watching civilians protested — to cause the National Marine Fisheries, the U.S. Fish and Wildlife Service and the State of Hawai'i Wildlife Division to get into the act. Raw data were needed to either nail the Navy or get the Navy off the hook under various federal laws.

Since 1976, a joint federal-state team makes annual surveys of the birds, and the Navy voluntarily stopped dropping live bombs on Ka'ula during the whale season — and at other times are now reportedly dropping only inert bombs.

In 1963, two Navy pilots mistook inhabited Ni'ihau for Ka'ula and dropped eight 250-pound bombs on Ni'ihau. No one on Ni'ihau was injured.

## 1975-1976 Bomb Testing

IN JULY 1975, ANOTHER eruption of Mauna Loa — confined to its summit, however — caused Hilo and state authorities to ask the Army and Air Force to prepare contingency plans for lava diversion.

Field tests were conducted in the Pohakuloa Training Area on the north slope of Mauna Loa, using prehistoric lava features as targets. The three types chosen were an 'a'a spatter cone, its downslope 'a'a lava channels with levees, and a lava-tube system on an adjoining pahoehoe lava field.

Effects on each area were tested with different bombs, explosive fillings, fuses, and delivery aircraft; 36 different bombs were dropped.

Aircraft that were in Hawai'i for training exercises and scheduled for bombing practice were used.

Volcanologists concluded that most lava flows of the type likely to endanger Hilo in the future probably could be diverted from harmful paths by aerial bombing — if vulnerable areas in the lava supply conduit develop; if they are identified; if they are bombed when most vulnerable; and if the weather is favorable.

Scientists also note that bombing must be the last resort — if all other ways to divert lava flows fail — because many people in the islands hold religious convictions that the use of explosives during an eruption is an insult to Pele, the Hawaiian volcano goddess.

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*The above bombing missions were connected with volcanic flows as targets and were humanitarian in nature. They sought to save endangered life and property.*

*Other bombing missions and targets were and are longer-term programs to train aviation personnel in the use of live ordnance.*

*Much of this live-ammunition training was during World War II. Some of that training continues today, but on a much reduced scale. Here's a rundown.*

## 1940 and Continuing—Kaho'olawe

ANGUS MacPHEE, A MAUI RANCHER, first leased the Island of Kaho'olawe for cattle ranching in 1920. His last ranch lease from the Territo-



*An Army plane after making its run over Mauna Loa in 1935.*

### **1959-1969 — South Kona Range**

U.S. GEOLOGICAL SURVEY maps show this bombing target about three-quarters of a mile inland from the ocean in the land of Kapua in the Big Island's South Kona district.

Coastal Kapua is remote and uninhabited — far from the few houses which are close to the highway several miles inland.

In 1939, the Navy leased the target area from the Bishop Estate. Carrier aircraft used it intermittently for both bombing and strafing. When targets were destroyed, eventually a Navy team traveled overland to repair them.

Those houses inland were close enough that when some bombs landed, dishes on kitchen shelves rattled. Occupants watched parachute flares at night illuminate the target area as carrier planes dropped live bombs.

It was night that the dishes most often rattled.

Complaints brought a response from the Navy admiral. He was firm in stating that the South Point Bombing Range was only used during daylight hours — and it was never bombed, only strafed.

Local residents inland, and the fishermen along the coast were glad when the target was abandoned about 1969.

Floating off shore at Kapua in an outrigger canoe in the early 1960s, I watched a carrier plane work the target over with machine gun and light cannon fire. I was thankful the pilot did not switch his gunsights to a nearby outrigger canoe.

He did wiggle his wings at us as he flew back to sea.