

Wagon 1/10/22  
1949

With the creation of the Hawaiian Detachment of the U.S.

fleet, Hawaii's role as the nerve center of American military activity in the Pacific was greatly magnified. The war in Europe coupled with continuing developments in Asia to strengthen Washington's established policy of military readiness, and an intensive Federal program for increasing the territory's defenses was introduced. Included were millions of dollars worth of new facilities to be built in Hawaii itself, as well as a blueprint for the establishment of a vast military support network stretching far out into the Pacific. Construction activity was most in evidence at Pearl Harbor, and at Hickam Field, the latter being developed as America's largest military aviation center

Newspapers reported that, "...all of this has aided the Territory financially. More work has been provided, much money has been spent in Hawaii for equipment and other necessities, and the community purchasing power has increased. And it is interesting to note that, from the W.P.A. standpoint, the number of persons provided with or applying for work has lately dropped beneath the quota."

Pan American Airways, which already linked Hawaii with the Phillipines, the Orient and the U.S. mainland, announced that service to Australia and New Zealand would begin soon.

In January, 1940, dredging was started at Johnston Island for a U.S. Navy seabase which would cost more than a million dollars. Sears, Roebuck and Company announced that it had acquired a building site in Honolulu, and would soon construct a \$500,000 store building. Designed by \_\_\_\_\_, the structure was erected by Contractor \_\_\_\_\_.

There were rumors that Naval facilities at Pearl Harbor would be tripled, and on a visit, General George C. Marshall forecast "the early expansion of army units throughout the Territory". With little in the way of prior announcement, 130 ships of the U.S. Fleet arrived in Hawaiian waters, and Police Chief Gabrielson suggested<sup>ed</sup> that parking meters <sup>were</sup> ~~are~~ the solution to Honolulu's parking problems.

The value of new homes constructed during the first six months of 1940 was placed at \$2,902,920, nearly 20 per cent higher than the same period for the previous year. Residential contractors of the day included

Overall construction volume through June was estimated at \$5,524,474.

The Navy announced<sup>ed</sup> that it ~~will~~ <sup>would</sup> build a base on the Island of Maui, and <sup>almost</sup> at the same time <sup>that</sup> Admiral James O. Richardson, Commander In Chief of the U.S. fleet in Hawaii <sup>was</sup> ~~is~~ on a secret mission to Washington.

Wharf congestion <sup>was</sup> becoming a <sup>critical</sup> ~~real~~ problem, and a <sup>business man's</sup> ~~civilian~~ organization <sup>ad</sup> opened meetings with military authorities in hopes of finding a solution.

July, 1940 saw the signing of new contracts with Contractors, Pacific Naval Air Bases, (C.P.N.A.B.), this time adding the Morrison-Knudson Company of Boise, Idaho, and J.H. Pomeroy Company, Inc. of San Francisco, California. The former, best known for its role in the building of Boulder Dam, was assigned <sup>to</sup> ~~the~~ work at Midway Island; the latter, who were specialists in steel construction, would work at Guam.

In August the Navy announced plans for a 2,700 acre air base at Barbers Point, and the Mayor's food survey committee reported that Oahu could survive for only 45 days without hardship should outside food sources be cut. In October the War Department <sup>revealed</sup> ~~announced~~ plans for <sup>building</sup> 250 family quarters at Fort Kam, and 300 at Hickam Field. The Navy followed <sup>would</sup> saying it ~~will~~ build 600 homes at Pearl Harbor and 500 at Makalapa Crater. The Rivers and Harbors Authorization Bill <sup>was</sup> ~~is~~ passed by Congress, and <sup>d</sup> included an appropriation of \$3,000,000 for a seaplane base at Keehi Lagoon. In November the F.C.C. established a 24-hour listening post to check on possible illegal radio broadcasts. As finishing touches <sup>were</sup> ~~are~~ put on the new Naval Air Station at Kaneohe,

the Territorial Labor commission <sup>was urging</sup> urged the adoption of a 48-hour maximum work week, <sup>with</sup> and a minimum wage of 25¢ per hour.

By year's end military construction activity included innumerable new projects at Pearl Harbor, Naval Air Stations at \_\_\_\_\_, Molokai and \_\_\_\_\_, Maui, and scores of new facilities throughout the Western Pacific.

It also included the highly classified "Red Hill" underground fuel storage complex. Code named "Underground", the Red Hill project remains today as one of the most demanding building projects ever undertaken.

The concept of James P. Growden of the Aluminum Company of America, the Red Hill scheme called for the construction of 20 vertical storage tanks, each taller than a 20 story building, and each located 150 beneath the surface. It was "high-rise" construction but in the wrong direction!

Two six-foot approach tunnels were started at the side of the mountain, one at the upper, and the other at the lower grade for the project's main tunnels. When these approach tunnels had reached the project's outer boundary, tracks were laid, and rail-cars removed the debris as work progressed. Main tunnel walls were jackhammer finished,

then coated with a "soupy mixture of cement and water" called gunite.

Gunite superintendent was Al Spangler of Morrison-Knudson

Now came the challenging job of carving 20 huge cylinders, each perfectly rounded, from the inside out. In the book "Builders for Battle", author David O. Woodbury included a lengthy quotation from Charlie Boerner, a civil engineer inspector.

"You're standing now exactly where the work on this vault began. This is the end of the adit that was blasted out to reach the spring line of the dome. Imagine that you're facing a dead end--solid rock. Now, here's how we began the excavation. From the face of this adit we started out and cut a ring tunnel--an annular drift curving around and coming back here to its starting point in a complete circle--the full diameter of the finished vault and a little more. That much was easy--just a lot of trick surveying and careful cutting. But the next part was more trouble. Working upward from the roof of this ring, we spotted out the rock all around, little by little narrowing the diameter as we climber. until we had closed in to the center point at the top. This gave us an open space about 6 feet wide and the exact shape of the future dome, something like a mould in a foundry. Every square foot of it, as we curved up to the top, had to be timbered up solid

and strong. In a huge area like that, we had the whole weight of the mountain on top of us. The timbers were footed down and wedged onto the rock below--the rock that was later to be removed to make the tank. We did not survey this because it was too complicated. We figured out an easier way. Up topside they built heavy timber sets--curved beams like the ribs of an umbrella--and sent them down to us in short lengths. We set them up piece by piece starting down here on the floor of the ring tunnel and used them like templates to tell us how the curve ought to go. When we were through we had that big space up there. The next job was even harder. The inside surface of our spining, of course, had to be lined with steel plate welded up to make the actual lining of the dome. That was Fred Divita's job--a Pomeroy man. His gangs had to make it fit perfectly, without a pinhole anywhere. The boys upstairs were ready for us again, however. They sent down twelve new sets made of I-beams cut in sections, ready to be bolted together to make umbrella ribs of metal. These our steel workers assembled at regular intervals all around the opening, each one curving up from the spring line here to the center of the crown. Up to now, the excavations were very rough--quite a bit wider than final dimensioned. Now we had to be exact. So the

steel sets were blocked up on the rock underneath them in perfectly symmetrical fashion, and, as I said, bolted in place and crosstied to each other to hold them firm.

Now we have our steel umbrella ribs all in place. Next we bring in our welding gangs and topside begins sending down steel plate. Every piece is cut to a special shape and exactly fills the space between two ribs. The flat plates are wide at the bottom and narrow at the top, like small sections of orange peel flattened out. Each one covers only a small area. But when their edges are welded together, they make a single skin that is approximately a hemisphere. You remember the old glass lampshades made of glass leaded together? Well, the finished steel lining looks like that. We weld them up plate by plate, one row above another, and of course as the plates go in we have to take the timbering out, shorten it, and put it back in again, bearing on the plates instead of on the rock. There's still nothing else to hold up the mountain above. We did not fasten the welded steel dome to the beams to the ribs underneath because in a few weeks we're going to knock those steel sets out 'from the inside'. Once the concrete is in, they won't be needed. Then we simply cast our

concrete on top of the plates. But first we have to fill the cavity outside the plates with a network of reinforcing rods to give the concrete strength. These are supported with wires and rods; you might say, floating on air. Quite a trick, getting everything right, with all those timbers and men.

We poured the concrete down the center shaft by gravity. While the dome excavation has been going on, a mining crew has started on the surface overhead and has come down through with an eight foot diameter well, hitting the exact center of our dome and keeping right on down to bottom grade, 10 feet or so below the invert line. The invert is the lower dome, 300 feet below here, very similar to this one, only upside down. Now this center shaft is the secret of the whole business. As soon as it has reached our level, we can begin to pour concrete. The boys on the top have their batching plant already set up, they rig a steel chute down the opening, and we put in a series of 12" down pipes fanning out around the whole dome space. Then we signal for concrete and they let us have it in a steady stream. It falls to the bottom all around and fills the whole space, beginning on the floor of the ring tunnel and working gradually up and inward towards the top.



As fast as the concrete fills in the space, we rip out the timbering just above it and keep on puring round and round, raising the level a few inches at a time. The whole job, bottom to top, takes about 70 hours -- 70 hours and 5,000 cubic yards of concrete poured without a stop. Now we are ready to do real business. We have the concrete shell in the shape of a dome, with steel plate on its underside, and beneath that the steel ribs, and then solid rock. As soon as the concrete is stiff all the way up, a crew of miners starts in cutting out the rock under it, working from the center shaft outward in all directions, exposing the steel sets from below. Now we are actually beginning to hollow out the oil storage space. A lot of work has been going on down below all this time. Another gang of miners has come in under the invert with an adit, meeting the bottom of the shaft. Mechanics have followed, setting up a belt conveyer that leads back to the main gallery. This meets another conveyer running the length of the gallery and out through the original cross tunnel to the mountain side. Now, as our miners up here at the crown of the dome loosen the rock, they just let it fall down the hole, 300 feet, where it hits a screen, breaks up, and lands on the belt. No on touches it from

the minute it breaks loose up here until it arrives outdoors, ready to be crushed and graded and hauled up the outside to be used in making more concrete. The Belt Conveyor was made of rubber and fabric made by Goodrich tire people. It was 48" wide and rugged enough to carry off boulders 4 feet in diameter. There were five miles of belt throughout the tunnels.

With the vaults roughed out to size, the whole expanse of walls and bottom was grouted to seal off the cracks in the rock. The invert dome was then cast exactly as the upper one had been, except that no timbering was necessary. Then, great steel ring sets were fabricated above and sent down to be installed one above the other till a vast circular skeleton rose through the gloom to meet the spring line of the upper dome. Davita's welders put on the plates, concrete was poured into the space outside them next to the rock, and the sets were removed. Finally, you had the vault complete--a steel shell as tall as a 25-story building, as large around as a house lot--backed by many feet of solid concrete butting tight against the rock. As the concrete hardened, it shrank slightly away from the steel. Into this space grout under heavy pressure was forced through pipes welded into the plates. This

filled in every remaining crevice and pushed inward against the steel with a pressure equal to the outward thrust expected from the oil. The technique was called "pre-stressing"; it was the only way that the gaint oil pressure could be prevented from bursting the plate seams and causing leaks."

Still under construction at war's outbreak, the complex was given number one priority over all construction jobs on Oahu. More than 5,000,000 tons of earth were excavated. Its cost in dollars was \$42,000,000, its cost in lives was 16.

The project took \_\_\_\_\_ days to complete, with crews working around the clock. Still in use, the massive 250,000,000 gallon vaults are located three miles inside a mountain, reached by entry tunnels which are guarded by solid steel doors that are two feet thick.

The general contractor was Contractors, Pacific Naval Air Bases, with primary responsibility assigned to Morrison-Knudsen. Superintendents were B.A. Peters and H.S. Leaventon. Those prominently involved in the engineering and design included \_\_\_\_\_

The \_\_\_\_\_ was built under the supervision of Commander Benjamin F. Rush, who would later become Territorial Superintendent of Public Works, and manager and chief engineer of the Board of Harbor Commissioners.

On September 25, 1941, the Secretary of the Navy, Frank Knox,

awarded the Red Hill workers the Navy Department's first certificate for outstanding job progress in the defense effort.

Even more secret than "Underground" was "The Hole", a \$23,000,000 underground aircraft assembly plant located beneath the pineapple fields near Schofield. So self sufficient that it included a cafeteria capable of serving 6,000 meals per day. The air-conditioned "Hole" was serviced at its three levels by two elevators, one big enough to carry four 2½ ton trucks. The complex was never used for its intended purpose, becoming a cartographic processing facility instead.

In early 1941, three additional firms were added to CPNAB's roster of participants, leading to popular usage of the nickname "The Eight Companies", and forming the world's largest construction venture. The new firms were the Utah Construction Company of Ogden, Utah, the W.A. Bechtel Company of San Francisco, California, and the Byrne Organization of Dallas, Texas. Utah Construction was assigned to work in Samoa, Bechtel went to the Phillipines, and Byrne began work on a new hospital facility at Aiea. The latter firm would also later be very active in the building of military housing. A great many of Honolulu's contractors and sub-contractors were participants in CPNAB projects, among them E.E. Black, James W. Glover and Ralph E. Wooley.

At the peak of its activities, CPNAB's work force numbered an incredible 25,000 men, and by the time of its termination in 1943, funds allocated to the group for procurement and construction exceeded \$692,000,000!

In addition to the many employment opportunities being afforded by civilian contractors, sub-contractors and suppliers involved in military building projects, vast numbers of civilian workers were being recruited to work directly with the various services. It was obvious that Hawaii's work force could not keep pace with the steadily increasing demand for both skilled and unskilled laborers, and on November 5, 1940 the first large group of defense workers arrived from the mainland. They were employed by the Navy, and of the some 1,000 <sup>that</sup> ~~one~~ arrived, 895 were assigned to work in Hawaii, <sup>going</sup> ~~and~~ the balance to other stations in the Pacific.

By the time of the Japanese attack on Pearl Harbor, there were some 30,000 civilian defense workers on the Island of Oahu. Immediately following America's declaration of war, many more thousands would be hired. Coming from literally every state in the union, they would number 82,000 at the peak of their employment, a figure equal to one

quarter of all of the people employed in the Islands. They would bring new customs, appetites for new foods, new manners of dress and of speech, and their influence would indelibly change Hawaii in ways both very obvious and very subtle.

At the forefront of construction activity in 1941 were the building of many new Naval facilities and of new airfields, both in Hawaii and at other Pacific locations. <sup>All of these were</sup> ~~in order~~ <sup>part of a plan</sup> to provide an "airborne ferry system" linking the U.S. to the Phillipines. Following war's outbreak, these activities were immediately expanded to provide even longer airfields to accomodate larger aircraft, as well as to provide the staggering numbe of new support facilities necessary to the defense effort. At one point the demand for materials was so great that the Army Engineers established eight separate manufacturing facilities on Oahu for the fabrication of lumber, furniture, cement products, sheet metal, and other goods.

A prominent construction name of the day was Hawaiian Constructors, a joint-venture building firm which had been formed with the signing of a \$1,097,000 military contract on December 20, 1940. Participants were the W.E. Callahan Construction Company, Gunther and Shirley Company, and Rohl-Connolly Company, later joined by the island firms of

Ralph E. Wooley and Hawaiian Contracting Company, Ltd. Before completion of all contracts in January of 1943, fifty-two supplemental amendments were issued, and the total value of work performed was some \$112,000,000!

Under separate contract was Territorial Airport Constructors, a firm composed of Callahan, Gunther and Shirley, and another contractor named Paul Grafe. In early 1941, in partnership with Hawaiian Constructors, they signed airport development contracts with the Army Engineers ~~that were~~ valued at \$1,800,000. When the last of these was terminated some three and one half years later, total contract value was in excess of \$7,000,000. Many of these facilities were designed by a St. Louis firm of consulting engineers named Sverdup and Parcel. In early 1941 it was reported that the neighbor islands were facing a "crisis situation" <sup>as a result</sup> ~~because~~ of the exodus of workers to defense jobs on Oahu. The directors of Mutual Telephone Company authorized \$200,000 for construction of a new building adjoining its Alakea Street offices. Red Cross training programs, blackouts, and plans for converting 8,000 acres of sugar lands to emergency food production were topics of the day. The Army announced that it would



spend \$500,000 on additions to Tripler and Schofield hospitals, and would build a \$750,000 food storage tunnel near Fort Shafter. Fifteen Honolulu attorneys signed a petition for permission to wear aloha shirts in court and the U.S. Engineers turned down a plan proposed by the City and County to tow garbage to sea and dump it 30 miles southwest of Honolulu. A few months later, City Engineer Joseph F. Kunesch recommended to Mayor Petrie and the Board of Supervisors that a \$4,500,000 tunnel be built in Kalihi Valley, in order to better connect Honolulu with Windward Oahu. In November, as U.S./Japan negotiations toward preserving peace appeared to be doomed, all troops in Hawaii were put on an "alert" status. Precautions were taken against the possibility of sabotage to public utilities, bridges, and key highways.

December 7th, 1941.... "without warning," Japanese planes bombed Pearl Harbor. 2,340 officers and men were killed and 946 wounded. Forty-nine civilians were killed or wounded. All but three of the ships which were sunk at Pearl Harbor were refloated. Japan lost 3 submarines and 41 planes. Martial law was proclaimed.

The Hawaii Territorial Guard was activated and nightly blackouts were instituted. E.R.L. Doty, Director of Civilian Defense,

<sup>that</sup>  
announced "Honolulu's business will continue as usual."

On December 17th, the Matson freighter "Manini" was torpedoed and sunk 270 miles out of Honolulu, all hands surviving. The Honolulu Junior Chamber of Commerce prepared to build 8 air raid shelters in downtown Honolulu. The ports of Hilo, Nawiliwili, Lahaina, and Kahului, each were subject to enemy shellings before the year was out.

<sup>(now? - check)</sup>  
Permanente Cement Company, then the largest cement producer in the world, opened offices in Honolulu to supply Hawaii and the Pacific with material to build pillboxes, pipelines, warehouses, and air fields. The firm operated 2 large vessels, transporting both material and personnel to the mainland<sup>U.S.</sup> and to the Far Pacific. At the peak of activity, more than 25 per cent of Permanente's concrete production was routed through Honolulu.

In January of 1942 nearly 1,000 civilians on Oahu joined the "Kiawe Corps", dedicated to clearing trees as a defense measure aimed at eliminating possible cover for invading troops.

*Literally every firm in Hawaii*

~~Many Oahu firms had now~~<sup>converted</sup> their operations to support the war effort.

The Hawaiian Tuna Packers dry dock at Kewalo Basin became a <sup>marine</sup> repair and overhaul facility, ~~for craft belonging to all of the military branches,~~ and its canning facilities were converted into an assembly plant for aircraft equipment. The entire fleet of sampans was taken over for patrol duty.

Continental Trailer and Equipment Company of Honolulu first converted all of its facilities for the repair of damaged military equipment, later turning to the manufacture of Army trailers and buses. The firm also designed and manufactured aircraft unloading dollies and bomb racks.

Territorial Motors, Ltd. became one of only five tire recapping plants in the country capable of handling Naval aircraft tires, at the same time doubling its output of truck and automobile retreads.

Honolulu Iron Works began manufacturing dredges and other heavy equipment, converting more than 85 per cent of its output to serve military needs.

Hawaiian Gas Products supplied gases for barrage balloons, for medical purposes, and for flame throwers.

The luxurious trappings of Matson Navigation Company's liners were ripped out to provide maximum troop-hauling capabilities, and

their hulls were painted an increasingly familiar dull gray. The line's four passenger ships would log 1,500,000 miles and would carry 750,000 passengers by war's end.

Many of Young Brothers' barges were also chartered for military service.

In a flood of regulations the Office of the Military Governor declared that only persons on official business would be permitted out of doors between 6:00 p.m. and 6:00 a.m. It became illegal to carry lighted cigarettes, or to strike matches outside after dark. All flash lights were required to have blue painted lenses. It was illegal to carry more than \$200.00 on ones person.

The Royal Hawaiian Hotel was taken over by the Navy for conversion to a rest and recreation center.

President Roosevelt's inquiry regarding the attack on Pearl Harbor was called the "Roberts Report", and it placed the blame for the severity of American losses at Pearl Harbor upon the shoulders of Rear Admiral Husband E. Kimmel and Major General Walter C. Short. Charged with "dereliction of duty", Kimmel and Short were replaced by Admiral Chester W. Nimitz.

Earl D. Bourland was named to head a group of Honolulu businessmen called the Businessmen's Military Training Corps (B.M.T.C.), their function ~~was~~ to assist the Armed Services in the <sup>event</sup> ~~advent~~ of an emergency.

Lei-makers were hired by the Army to weave camouflage nets.

In February of 1942 the Office of the Military Governor instructed all Hawaii residents to build bomb shelters, "even if the materials are not available." Another remarkable pronouncement by the P.M.G. stated that, "pedestrians, except enemy aliens, <sup>may</sup> could use the streets up to 8:00 p.m."

All men between 18 and 60 were signed up to act as a last line of defense in the event Hawaii was invaded. 29 persons were lost at sea when the Army transport, "General Royal T. Frank" was sunk in the Hawaiian area by a Japanese submarine. Thirty-three others survived.

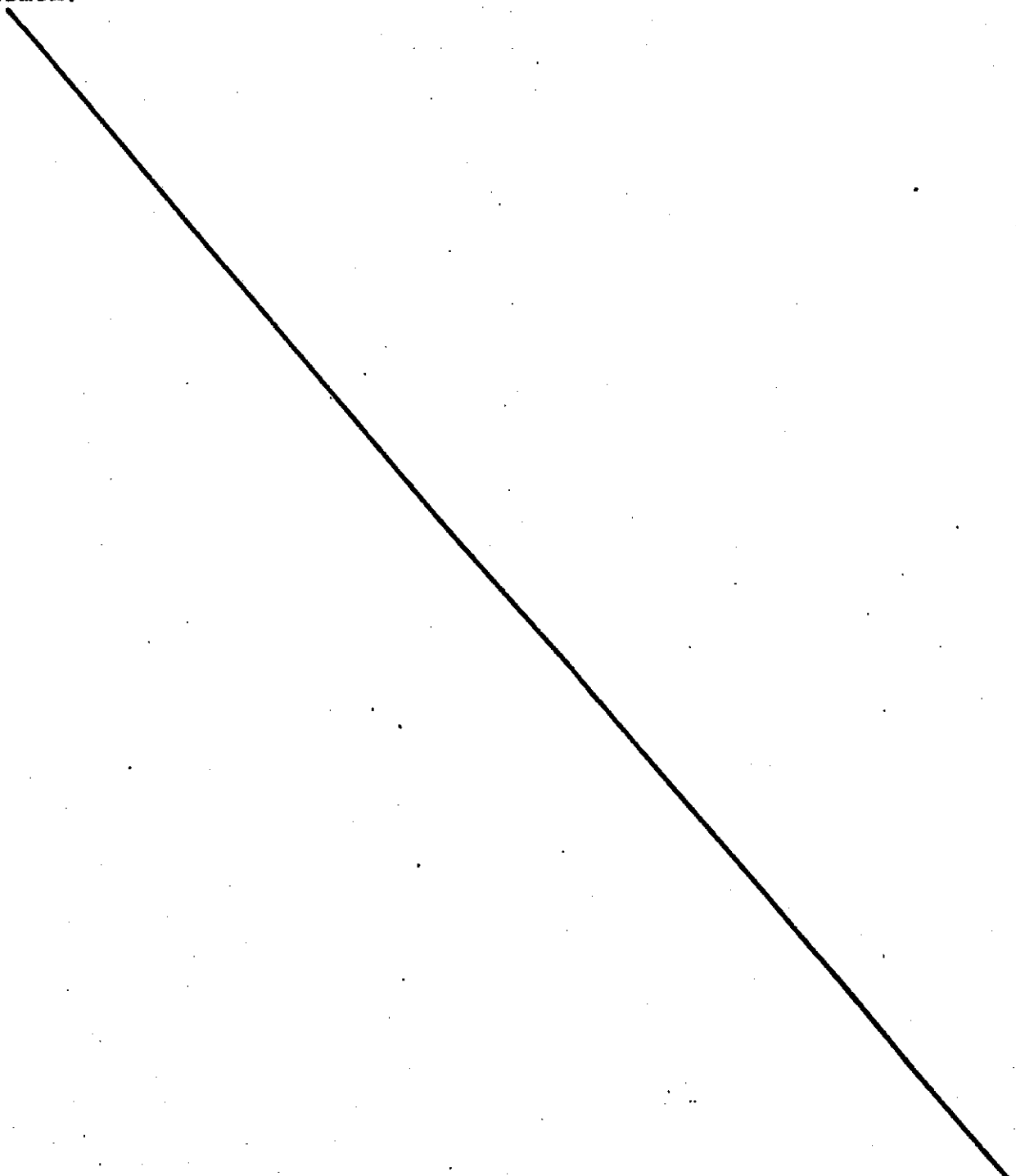
On February 26, 1942, the ban on alcoholic beverages was lifted. A liquor rationing system was established, but in the first two days of repeal nearly \$10,000,000 in fines for drunkenness were collected.

Early in March Honolulu was bombed again, this time at 2:15 a.m.

Three medium size bombs were dropped on Mt. Tantalus about 1,000 yards Northeast of Roosevelt High School. No damage was reported. The incident was attributed to a lone enemy plane.

Colonel Albert K.B. Lyman was named U.S. Army distribut engineer.

In April more than 400,000 gas masks were issued to the adult population.



On April 25, 1942, Charles W. Dickey, M. I. T., Class of 1894 died, at the age of 70. He <sup>had been</sup> ~~was~~ one of Hawaii's leading citizens and certainly one of her most gifted architects and builders. His collaboration with Hart Wood on the Alexander and Baldwin Building created a monument that would endure for years to come. Other prominent structures which he contributed include \_\_\_\_\_

The Navy announced the death of prominent Honolulu John V. Kluegel, who died while a prisoner of the Japanese. Thought to be the first man from Hawaii to die as a result of the war, Kluegel was on Guam as office manager for Contractors Pacific Naval Air Base when the conflict began.

Captain John A. Burns of the Honolulu Police Department became Director of a "racial contact system", charged with promoting Americanism among the Japanese residents in Hawaii. It was suggested that one way in which a person could show their patriotism was to buy war bonds.

The Office of the Military Governor announced that it was forbidden for civilians to wear khaki trousers and shirts.

In June all United States currency in Hawaii was withdrawn, to be replaced by new bills bearing the overprint "Hawaii", a move to

thwart utilization by the enemy in case the territory was conquered.

In October, 1942 prominent contractor Everett Earl Black of Honolulu was appointed by Governor Ingram M. Stainback to serve as Territorial Director of Civilian Defense. Among his contemporaries E. E. Black had<sup>long</sup> enjoyed a reputation for "getting it done", and in less than a year ~~by July of 1943~~, he ~~would~~<sup>ad</sup> succeed in trimming the operating budget of the Office of Civilian Defense by 40%.

By November of 1943 the War Production Board and the FHA permitted anyone wishing to build a home to do so, providing they could find the materials. Heretofore, permission to build was granted only to war workers, essential civilians, hardship situations, or to those owners who would rent to war workers.

Unless exempted, all firms employing eight or more persons were required to adopt a forty-eight hour work week.

In 1943 a major military project called for the construction of the Haiku Radio Facility in the natural amphitheatre of Haiku Valley, on the South side of the Koolau range, on Oahu.

The floor of the valley was to be transformed into an intricate grid system laced with copper ground wires. High above, aerials which



joined the ridges alternately would charge and discharge, thus emitting an extremely powerful signal, allowing the station to communicate with submarines. The design and building of the Haiku project is still adjudged to be one of the major engineering feats Hawaii has yet produced.

Some of the key men associated with the project were: George Ferris, Executive Engineer for Turner Company; Marty Broan, Project Engineer; Bill Adams, Otto Louis, Ray Cotherman and Roswell M. Towill. The latter, a local engineer, headed the survey team.

David O. Woodbury, in his excellent book, "Builders for Battle" described the final stages of the project.

## THE WAR YEARS

"The mere act of raising the aerials into the clouds were expected to produce enough voltage in the downleads to kill a man. Everything had to be kept carefully grounded throughout the operation."

"When the giant power of the Alexanderson Radio Alternator was poured into the aerials for the first time, the whole valley seemed to become electrified. Ernie Gray had driven over from Honolulu in a station wagon to look the project over. As he returned to his car, a spark jumped out from it that threw him ten feet... At least, according to Ray Cotherman. Mr. McKesson (with RCA) had predicted that when the station went into operation it would electrify the atmosphere enough to cut down the rainfall. He was quite right. Haiku had not been in service a month when complaints began to come in from the Kaneohe Water District, which obtained its water supply from a dam and pool at the head of the Valley. Before

CPNAB went in there with its high voltage cable, as many as 127 waterfalls could be counted shooting over the cliffs. Now there were none. The contractors were forced to build a series of catch basins up and down the slopes to keep the whole region from drying up."

Now Year's Day, 1944, <sup>was</sup> celebrated as a normal work day.

Three months later Col. Jorgen Jorgensen died in an Army hospital at the age of 77. This extraordinary Army and Civilian Engineer had been a resident of Hawaii for 46 years. Projects with which he had been associated included \_\_\_\_\_

In June, commercial rents were frozen.

<sup>That</sup> August, ~~1944~~ marked the completion of the 110,000,000 <sup>gallon</sup> per day Halawa Valley water project. Designed by \_\_\_\_\_, and constructed by \_\_\_\_\_, the project included a <sup>inclined</sup> foot shaft (get more details)

In September, all houses of ill repute were ordered closed.

In November it was announced that Honolulu's housing shortage was so severe that "56,000 people lack adequate facilities", <sup>and</sup> two months later plans <sup>were</sup> ~~are~~ revealed for the construction of 800 emergency housing

units, 300 of which were to be built on the site of Palolo Golf Course.

Only a few months later Congress approved funds for building 2,180 additional units of emergency housing, and the Chamber of Commerce urged that the figure be increased to 11,000.

In March, the War Labor Board set a minimum wage rate of 50 cents per hour, and the work week for office workers was reduced to 44 hours.

The Boston engineering firm of \_\_\_\_\_, which had been commissioned by the \_\_\_\_\_ to conduct a survey of Honolulu's sewage problems, recommended that the city embark on a \$15,517,000 building program. In a special message to the Legislature, the Governor proposed the creation of a Hawaii Home Development Authority, its purpose to condemn property to be sub-divided and re-sold as home sites. In Washington meanwhile, Representative \_\_\_\_\_ Izac of \_\_\_\_\_ proposed the immediate construction of 11,000 units of housing in Hawaii. His plan called for utilization of public lands, as well as private lands gained through condemnation. The Army and Navy would be required to release necessary materials, with one full shipment a month devoted to the importation of critically needed plumbing materials. Electrical wiring was also in

extremely short supply. Massive labor would be required, and it was suggested that military men could <sup>be utilized to</sup> work in their spare time.

At the end of April the National Housing Administration called for bids on 1,000 units of housing in Honolulu. Bidders were: .....  
(plus arch. and contractor data if available from FHA office)

On March 10, 1945, the Honolulu Advertiser reported that "200 contractors and sub-contractors met last night at the YWCA to form a permanent organization of general contractors, and to discuss OPA prices and the methods of cooperation with that office. John de Mello presided. Plans for a future meeting were arranged and committees <sup>for</sup> the different types of contractors <sup>appointed</sup>.

The building contractor committee consists of John de Mello, chairman T. Scott, Alfred Ching, T. Tanaka and one other. It will meet in Mr. De Mello's office next Monday with OPA officials. Committees were also appointed for electrical, plumbing, painting and masonry contractors.

These various committees will meet and report back at another meeting of the main group at which time the permanent organization will be perfected."

In May the Nazis surrendered to the allies, and there was real hope

that the fighting might be over soon. Land condemnation for the construction of emergency housing continued, and in July an additional 2,000 units were authorized. The Governor announced a plan to turn Thomas Square into a housing area for workmen, the idea being defeated in a cloud of protests from irate citizens.

A young plumber who had served his apprenticeship with E.W. Quinn opened his own modest shop on Kapiolani Boulevard. His name was Francis Sen, and he named his firm Oahu Plumbing Company.

On August 8th, Russia declared war on Japan, and just six days later the war was over.

Ofter than for those who had turned their skills to the design of military structures, Hawaii's architects had been idle for several years. Only four of the architectural firms which had been in existence prior to war's outbreak survived the duration. These were Guy Rothwell, C.W. Dickey Associates, Mark Potter and Harl Wood.

But many architects had come to Hawaii, both as civilian employees of the government and in actual military service, and many would now make the islands their home. Among them were \_\_\_\_\_.

Insert 11

Also right in here somewhere

the formation of the Hawaii Housing

Authority & the G.C.A. we need full details on both ... I can get the latter. In connection with H.H.A., <sup>if possible</sup> I would like to <sup>fully</sup> document Mayor Wright Housing 1. for its size 2. Postwar 3. Many people will remember it.

~~construction industry began to boom.~~

We need a long quote from somebody like E.E. Black right here.

"Now that <sup>the</sup> war was over, we began to look in earnest ~~and~~ at all the things that Honolulu was going to need just to catch up with herself. — — — — —"

Maybe several quotes would be more appropriate. Should be lots of guys around.

Also guys still here who were then defense workers. Carlo Partiglio, etc  
OVER

On New Years Day, 1946 the Honolulu Advertiser reported that bids <sup>had</sup> ~~have~~ been opened on three projects for city-county.

"A drainage system, a road, and a fire alarm building were opened yesterday by County Clerk L.K. Sterling Sr. Pacific Construction Co., with a tender of \$85,663.50 was low bidder for construction of the proposed Iwilei drainage, stipulated for completion in 150 days. Three other bidders were Moses Akiona, Oahu Construction Co. and Walker-Moody.

With a tender of \$60,671.44, J.M. Tanaka was low bidder for construction of a road through Kapiolani park parallel to Kalakaua Avenue. The city asks that the job be finished in 150 days.

United Construction Co., submitting a bid of \$26,000 was low bidder for construction of a building to house the fire alarm bureau, at present located in the City Hall basement. The proposed structure is to be erected next to the city treasurer's office as an addition to the City Hall. United offered to do the job in 125 days.

In March, another newspaper account, this one in the Honolulu Star-Bulletin, *spoke of critical labor shortages.*

"Sharp complaint that building construction workers are being



needlessly drained from private employ by the Army and Navy has been made by the General Contractors Association of Hawaii.

Local contractors fear that 2,000 more such employees are soon to be drained from the local field.

The association asked an immediate survey of manpower and reduction in the building workers in Pearl Harbor and other naval installations.

Herewith is further comment on this situation from a letter to the local newspaper from E.E. Black, president of the Contractors Association: 'Due to the large number of employees on the payrolls of government agencies such as the Pearl Harbor navy yard, USED, etc., the industry has had a great deal of difficulty in finding enough labor to carry on the great load imposed upon it by imperative postwar construction. It has been repeatedly rumoured that military construction was to be drastically curtailed but a check with the U.S. Employment Service gives us the information that additional workers are being constantly hired and that if available, some 2,000 more would be employed by the services

The membership of the association has been repeatedly informed that workers in many government areas have little or no work to perform or are

required to work on projects far beneath their skill. Our letter suggests a survey in hopes that skilled workers not urgently needed on service construction can be released to private industry where these skills can be immediately put to good use.'

The General Contractors Association of Hawaii was formed last year and at present consists of 40 odd contractors in the building and construction industry and a few members in the allied industry, e.g. plumbing, electrical and material supply firms."

A major remodeling of the Sears Roebuck & Company store on Beretania Street, designed by architect Guy Rothwell, was completed. Contractor for \$600,000 project was the McNeil Construction Company of Los Angeles. The three-story building featured Hawaii's first escalator.

In October of 1946 a shipping strike, a sugar strike, and stringent government regulations combined to bring total paralysis to the construction industry. The Honolulu Advertiser of October 30, 1946, reported:

"Contractors in Hawaii have been forced to lay off 10 per cent of their labor force and face the prospects of a complete shutdown in 60 days, the General Contractors Association of Hawaii announced Tuesday.

Even now, the association said, contractors are spreading work to make work to postpone a complete shutdown and layoff of the labor force.

The paralysis of the construction work in the islands is the result of the shipping strike and government controls which regulate types of building, according to the association whose directors, representing 46 members and 11 associate members met today.

Delayed are cargoes of dynamite, necessary for highway construction, cement and asphalt. These cargoes are in West Coast ports.

It is estimated that these thousands of tons of materials will take months to get here, even if the shipping strike is settled promptly. The association also charged that the government has frozen materials so that buildings that can be built can't use the materials available. Satisfactory homes cannot be built for the \$10,000 maximum ceiling. Thus the ceiling makes it impossible to build. Contractors have been forced to build 'legitimate slums' and 'chicken farms' for housing on the government projects.

The sugar strike has stopped production of cane building board, eliminating an important supply of building material.

Ninety per cent of all homes under construction are held up for lack of material. At the same time huge stockpiles of Army and Navy lumber are not available because they have not been declared surplus."

It seemed that there would be little to celebrate at the G.C.A.'s first annual stag party.

In the Honolulu Advertiser, reporter Gerry Burnett looked into the housing problem:

"So you would like to build a home. So would we, but we have not been able to survey the costs quoted by Honolulu builders any more happily than you have, in the past few months.

To assess a blame is not the point. What everyone, who believes in the benefits of home ownership wants to know, is not so often 'How much or how' but 'where and when?' In other words the desperation for home ownership has become so acute that many people are almost ready to take anything they can get on any old site, rather than put up with what they have, since war conditions turned everything into a turmoil.

But what should we do...So we asked the men who build homes to tell us what happened since 1939, our last normal home building year, and today.

Not to explain or condemn anyone, just what it cost then and now.

'we used to figure on a 5,000 sq. ft. lot costing \$600. To build on it a two-bedroom single wall house, with cesspool, would cost \$2,400 more. With extras according to the needs of the owner, say the total cost was \$3,500. I wish I could reproduce that same home today for \$6,000. The same home, with meager plumbing and electrical fixtures will stand at \$8,500, if we can get the fixtures. It might even be \$10,000. In other words, we are forced to offer a home today at three or more times the 1939 cost, with poorer quality finishing. The reason is that while material costs are double, our labor costs are more than double. My payrolls show that I used to pay a master carpenter 75¢ an hour in 1939. Today we are paying \$1.50 an hour. But what you have to add to that is overtime factors, so the figure is really more than double. Actually homes are costing more than three times their 1939 figure in 1946 because of increased labor costs.

The inefficiency of labor on the job is one of the principle reasons When the U.S. Engineers began demanding carpenters in Hawaii early in 1939, any man who could swing a hammer, and knew which end was which, could qualify. The pressure of so-called government 'emergency programs'

brought out a lot of labor that was 'up-graded' ~~as~~ necessity demanded until we had 'helpers' and student carpenters rated as 'masters'. They were not required to work hard then, and they have not been required to work hard since. True, there is a tendency to downgrade these men in their jobs since. They just cannot produce the work of a first class carpenter. But the wages we have had to pay them in the meantime has made the difference in total building costs. When the costs of building for 1947 come down to double what they were in 1939, we won't be too bad off. Good labor will be getting a good price for its hours put in on the job. And the public will be getting more homes at a price it can pay."

A report released by the Federal Housing Administration revealed what everyone in Hawaii already knew, that real estate prices had risen dramatically between 1940 and 1946.

In 1940 a square foot of land in Palolo cost 8 cents. In 1946 the same land was <sup>selling for</sup> 75 cents. In Kaimuki it was 13 cents vs. 80 cents. In St. Louis Heights, 15 cents vs. 75 cents, upon Maunalani Heights, 20 cents vs. 65 cents, and at Coconut Grove in Kailua, 5 cents vs. 45 cents.

Coconut Grove was one of Oahu's fastest growing areas, and the following table outlines a seven-year cost comparison of an 850 square foot, single-wall house built there. Both sets of figures were submitted by the same contractor.

	<u>1939</u>	<u>1946</u>
"Plumbing roughed in	\$160	\$400
Cesspool	130	750
Masonry work	175	420
Wiring	70	200
Painting	225	550
Tile work	28	42
Sanding	28	70
Total Materials	1200	2200
Total Labor (carp.)	450	1650
Plumbing fixtures	135	175
Electrical fixtures	25	45
Taxes and overhead	<u>200</u>	<u>450"</u>
<b>Total</b>		

On January 22nd 1947, the Honolulu Star-Bulletin carried this story;

"The General Contractors Association of Hawaii received the go-ahead signal from its entire membership Tuesday night to take steps with the February legislature to stamp out unfair building practices now prevalent in the territory. The group, meeting in annual session heard a report of the shortcomings and malpractices in building and construction within the islands. To remedy the situation, the organization will propose to the legislature the adoption of a building code law modeled after the California state system, and provision for



a licensing board of builders. The contractors also endorsed by resolution of the AFL's central labor council letter circulated recently, denouncing the citing examples of dishonest builders. New officers for the association were elected at last night's meeting. George E. Freitas was elected to succeed E.E. Black as president. Others who will serve during 1947 are Max W. Moody, first vice president....Chester Clarke, second vice president....Kenneth Sato, treasurer....and H.K. Kobayashi, H.H. Phillips and J.C. Haglund, members of the board of directors."

On July 1, 1947, the U.S. Government relaxed all controls on construction, a move which would purportedly "turn loose the potential two billion dollar flood for pent-up commercial and industrial construction". Millions of dollars worth of basic construction materials were classified as surplus by the military, but finishing materials such as siding, flooring, hardware and some items of plumbing remained in very short supply. The building industry continued to find itself in a frustrating and economically trying situation. It had the demand, it had the desire, it had the financing, but it had neither adequate labor nor supplies with which to move ahead.

A short while later, Washington Delegate, Joseph R. Farrington,  
*what's secret?*  
sent notification to acting Governor Oren E. Long that a 25 million  
dollar post-war building and

improvement program had been authorized for Hawaii, and that a higher ceiling would be allowed on Hawaii's bonded indebtedness. A great many "frozen" projects could now be released, including a 26 million dollar addition to Leahi Hospital, a 2.6 million dollar Territorial Office Building, a 2.1 million dollar tuberculosis hospital at Hilo, a 1.4 million dollars for Central Maui Memorial Hospital, \$750,000 for Leilehua High School High School, and \$500,000 for the Samuel Mahelona Memorial Hospital on Kauai.

In Honolulu, it was predicted that building construction would reach an all-time high of \$34,000 in 1947, the previous high more than 11 thousand dollars over 1946.

Among the largest private projects of the day were six apartment units being constructed by architect Roy Kelley near the Ala Moana Bridge at a cost of over \$638,000, and the new Lewers and Cooke warehouse going up at 404 Piikoi Street, and valued at \$625,000.

Theo H. Davies was building a heavy equipment sales and service

building on Dillingham Blvd., for \$217,600, and Loves Bakery

was adding <sup>a</sup> \$200,000 plant <sup>to</sup> ~~on~~ their ~~old~~ site in Kapahulu.