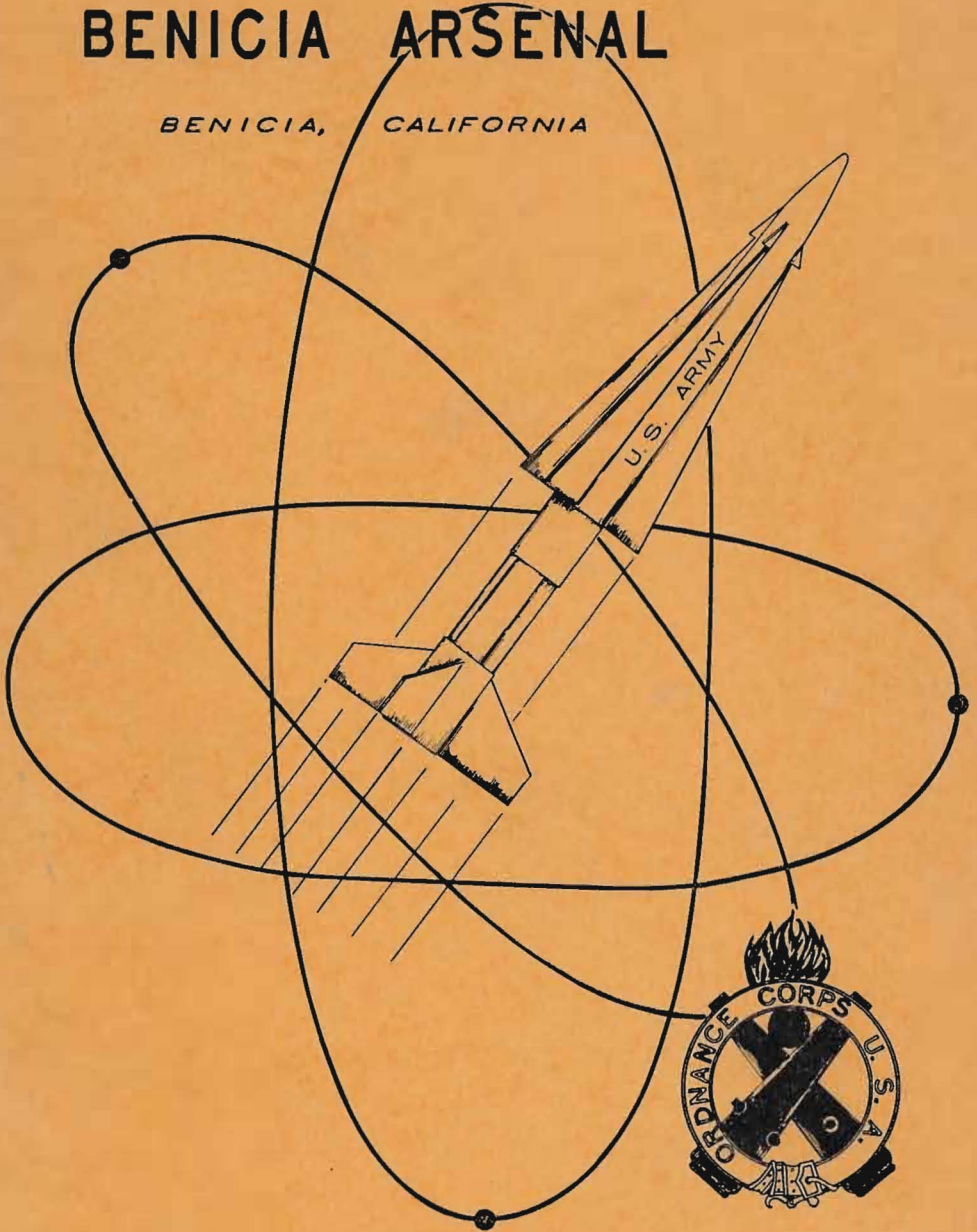
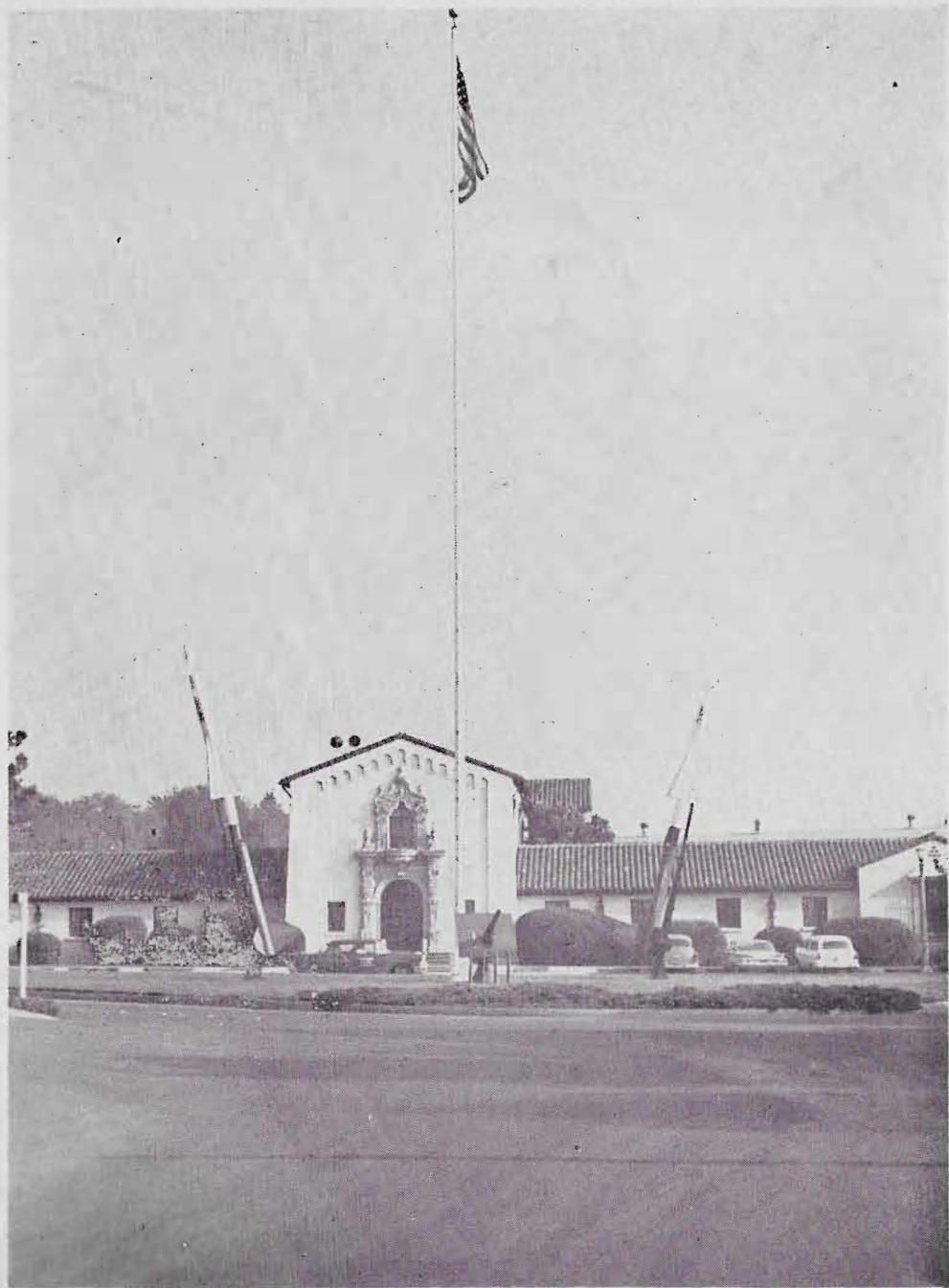


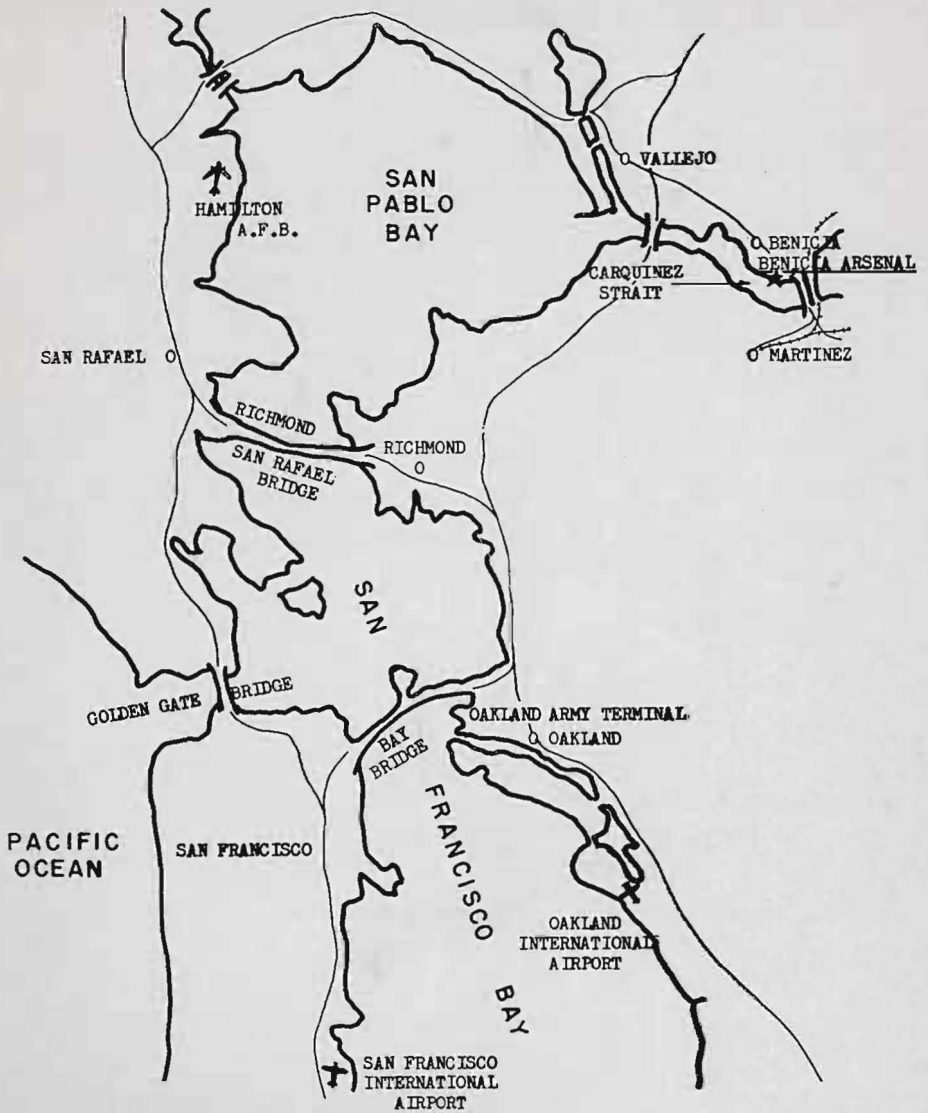
# BENICIA ARSENAL

BENICIA, CALIFORNIA



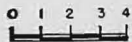


BENICIA ARSENAL HEADQUARTERS



BENICIA ARSENAL  
MAP OF LOCALE

SCALE IN MILES



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## Location, Terrain and Climate

Benicia Arsenal is within the Sixth U.S. Army area, situated on a point of land at the western end of Suisun Bay and the Northeast shore of Carquinez Strait which connects Suisun and San Pablo Bays.

The point is roughly 35 miles northeast of San Francisco, adjacent to the City of Benicia, approximately seven miles East of transcontinental Highway 40 at Vallejo, in Solano County, California.

The confluence of the Sacramento and San Joaquin Rivers which drain the great central valley of California is to the East of the post and visible from the reservation's hilltops.

Approximate distances from the arsenal to other points are:

Berkeley, Calif. (University of California) .....	31 miles
Oakland Airport, Calif. ....	40 miles
Travis Air Force Base .....	30 miles
San Francisco International Airport .....	50 miles
Sacramento (State capitol).....	60 miles

The arsenal terrain comprises low-rolling hills and flats, the former ideal for ammunition bunkers and the latter for transport and combat vehicle storage. During World War II, there were 109 magazines burrowed into the hills for the storage of ammunition and for bombs ranging in size to 500 pounds. The installation's ammunition mission was transferred to Sierra Ordnance Depot following World War II.

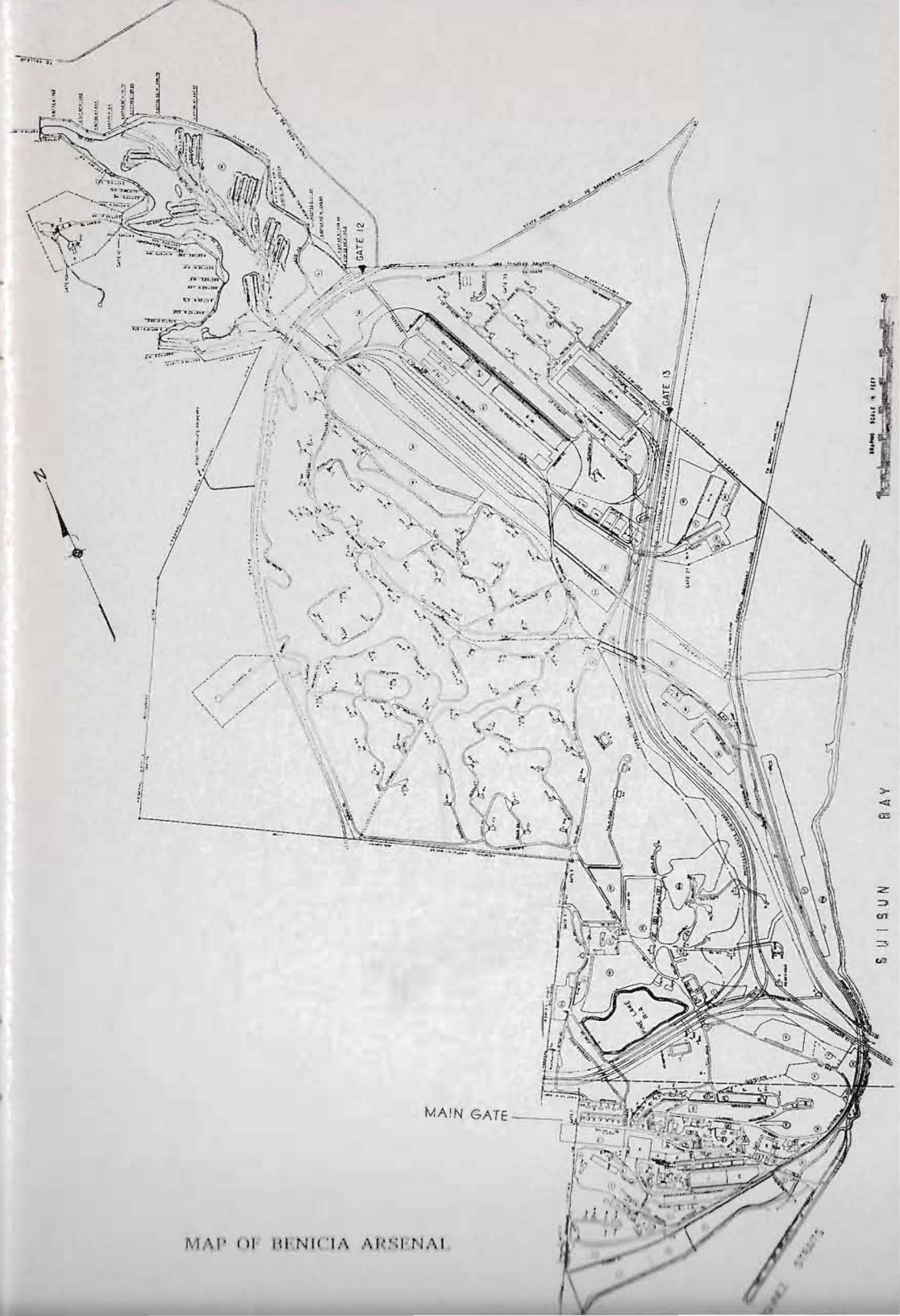
The hills are of sandstone rock from which the famous early-day Benicia cement was manufactured and from which blocks were quarried to build the post's first hospital, magazines, storehouses and fort.

The arsenal's location, removed from coastal fogs from the west yet tempered by ocean breezes and hill-protected from extremi-

ties of heat and cold of the state's great interior valley to the East, permits year-round weather mildness. The approximate mean temperature is 58 degrees.

The rainy season is usually from late November through February, storms being intermittent with bright sunshine. Flowering trees and shrubs burst into bloom in February.

Elevation from sea level ranges from zero to 200 feet.



MAP OF BENICIA ARSENAL

## *Security*

Since its activation in 1849 Benicia Arsenal has been a "closed" post, as differentiated from an "open" military installation to which the public has free access. Until 1935 when civilian police took over guard duties, soldier sentinels stood watch at its gates.

Entrance to the reservation is by pass only of which there are three types issued—one for civilian employees, one for visitors, one for contractors with business on the depot. Post residents enter by their military identification. Visitors are issued passes at the main gate. Passes are not required during open house and similar events, although on such occasions guests are required to remain within designated and patrolled areas.

Arsenal civilian police cars are equipped with short-wave two-way radio sets which constitute one of the installation's radio networks. The other network is operated by the post's motor pool for dispatch of taxi cabs and other vehicles in the intra-arsenal transportation system.

## *Tours and Scenic Drive*

A scenic drive of approximately 12 miles has been developed on the arsenal reservation to take the visitor past historic buildings; to observation points from which expansive and fascinating views of hills, rivers, bay and strait may be enjoyed; over wandering hill roads where close-ups may be glimpsed of World War II bunkers tucked into the hillsides; where combat vehicles line little ravines in impressive rows; around the "big horseshoe", utilized for vehicular storage; along Pine Lake, man-made for arsenal water supply; and beside the tiny cemetery which has been there more than 100 years and where eight German soldiers, prisoners of World War II campaigns, lie buried.

Through the arsenal's Public Information Office tours may be arranged for the scenic drive (which requires approximately an hour) or for a complete tour of the installation which includes visits to the shops and other operating areas. The latter type tours are conducted only on week-days during regular working hours and require approximately two and a half hours.

Further tour information may be obtained from the Public Information Office by telephone or letter.

## Mission

Being a unit of the Army Ordnance Corps' depot system, Benicia Arsenal's prime mission is that of supply of ordnance items. Its continental "customers" are Army, Navy, Marine Corps, Air Force and National Guard installations located in Nevada and California. Its overseas "customers" are U.S. military forces in Taiwan, Guam, Philippine Islands, Ryukyu Islands, Hawaii, Japan, Okinawa, Korea, and Mutual Assistance Pact countries including Laos, Philippine Islands, Cambodia, Vietnam, Taiwan, Republic of South Korea, Indonesia, Japan, Thailand and Burma.

In addition, the arsenal is responsible for accountability and stock control for general supply items at Sierra Ordnance Depot at Herlong, Cal.

The arsenal's operation is divided into three main functions—stock control, storage, and maintenance.

The Maintenance Division repairs and rebuilds artillery; anti-aircraft artillery; fire control items; ground control, launching and handling equipment and propulsion and internal guidance systems of guided missiles; combat and transport vehicles and their assemblies; tires and tubes; electronic test equipment and calibration standards equipment.

The installation maintains primary reference calibration standards for the entire area of the United States West of the Mississippi River and for the Far East Command, and performs calibration of Ordnance test equipment and calibration standards equipment.

Technical assistance and advice for agencies in the arsenal's distribution area are provided by the installation's Regional Liaison staff.



ELECTRONIC COMPUTERS ARE UTILIZED FOR INVENTORY AND STOCK CONTROL ACCOUNTING

## *Organization and Operation*

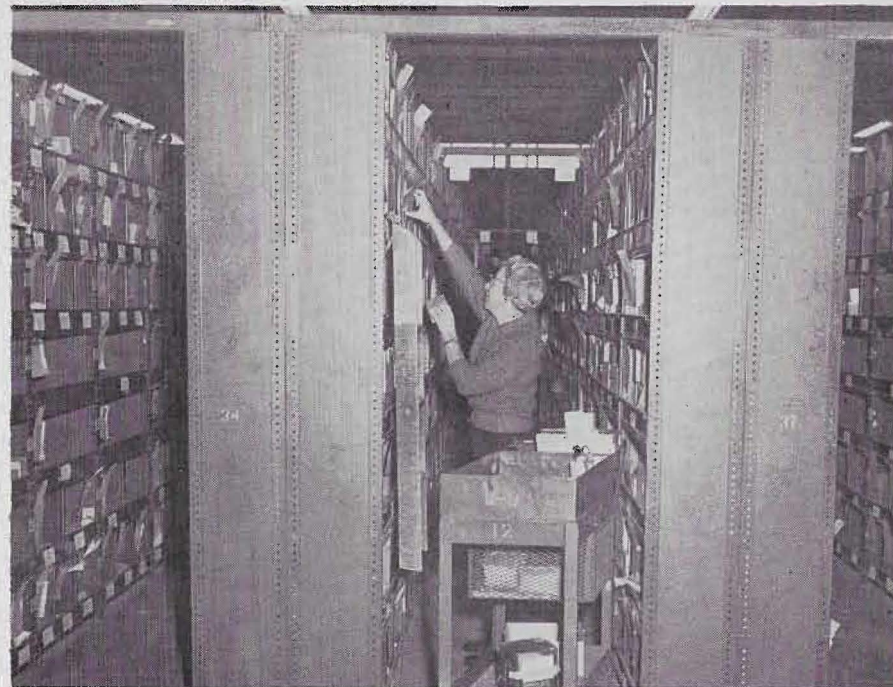
Organization, administration and management of Benicia Arsenal incorporates the most modern industrial and business concepts modified to the unique requirements of a military installation.

Personnel-wise, the depot is a prime example of the "One Army" doctrine since here military and Department of the Army civilians work in unison in the Government's Power for Peace effort. Many of the civilian employees are members of the military reserve forces or of the California National Guard. A company of the latter is based on the arsenal with headquarters in the installation's original fort.

The military commander's immediate aides are a military executive officer and a civilian executive assistant.

Operationally, the depot performs under the director system, it's function being divided into four areas, each with a director who reports directly to the commander. These comprise the Comptroller, Director for Administration, Director for Services, and Director for Supply Operations.

Significant of the modern-pacing of the arsenal's management was the introduction of automatic data processing of its accounting and stock control in the spring of 1959.



STOCK PICKING IN A BIN WAREHOUSE



SEGMENT OF BULK WAREHOUSING



## *Transportation*

Transportation-wise, Benicia Arsenal is ideally located, having direct access to transcontinental highways, railways and the sea. It is only 30 miles from Travis Air Force Base where Military Air Transport Service is quickly available for urgent overseas shipments.

Commercial airlines are also within easy range at San Francisco International Airport and are utilized with constantly increasing frequency when economy or urgency are factors. Reversely, incoming shipments of parts and supplies are often received via airshipment.

The arsenal is unique in that it is the only Ordnance Corps depot which can ship material from warehouse by barge for direct loading to overseas transports. Barge shipment to the Oakland Port of Embarkation is extensively utilized since this method effects savings in freight charges of 80 percent over those of rail or truck movement.

Located on a deep-water to the sea channel, oceangoing craft can dock at the installation's wharves for discharging or taking on of cargo, the docking facilities having a capacity for handling four 10,000-ton vessels simultaneously.

For continental rail shipping, the arsenal is served by a direct siding from the Southern Pacific Railway system. The installation has slightly more than 25 miles of railroad trackage within its boundaries.

For trucking, the depot is within a few miles of major highways, both transcontinental and coastwise.



***Arsenal Wharf***

Constructed in 1942 at a cost of \$3,412,000 it is 2-level, 2,500-ft. long, capable of accommodating four 10,000-ton sea-going, cargo ships. Equipped with truck and rail service and a 60-ton capacity floating crane.

## ***Communications***

The arsenal operates on a 24 hours daily, seven day basis an Army-owned dial telephone communication system and a switch-board tied in with the Pacific Telephone Company. Pay phones are installed in various buildings.

Teletype facilities are located in Headquarters Building and are part of the Army network which receives and transmits messages throughout the world.

Western Union telegraph services for government or personal use are available in the Teletype Office.

Two internal radio nets are maintained, one for the Civilian Police force as a security measure, the other for the Motor Pool for dispatching of taxi cabs and the arsenal's fleet of cargo trucks.

A Military Affiliate Radio System (MARS) station is located in Building No. 8, manned by civilians during off-duty hours, which provides amateur radio communications. Personnel train on their own time to be available for duty in event of disaster. The station is available to transmit messages for emergency personal services and its personnel constantly ready for duty in event of disaster.

The arsenal is a part of the Army Transceiver network which transmits and receives supply status data on pre-punched cards.

Communications Branch craftsmen repair and calibrate all radiological testing devices.

The Communications Branch maintains in its office in Headquarters Building a library of telephone directories of post, camps and stations and of all major cities.

## ***Arsenal Services***

### **Parking**

Parking facilities are established at locations convenient to administrative, storage and shop areas. The main parking area is outside the main gate and has a capacity of 349 cars.

Maximum speed limit throughout the reservation is 20 miles per hour, unless otherwise posted.

### **Intra-Depot Taxi**

Intra-depot taxi service is maintained on a regular schedule, with stops at all major activities. Copies of this schedule are posted on all bulletin boards.

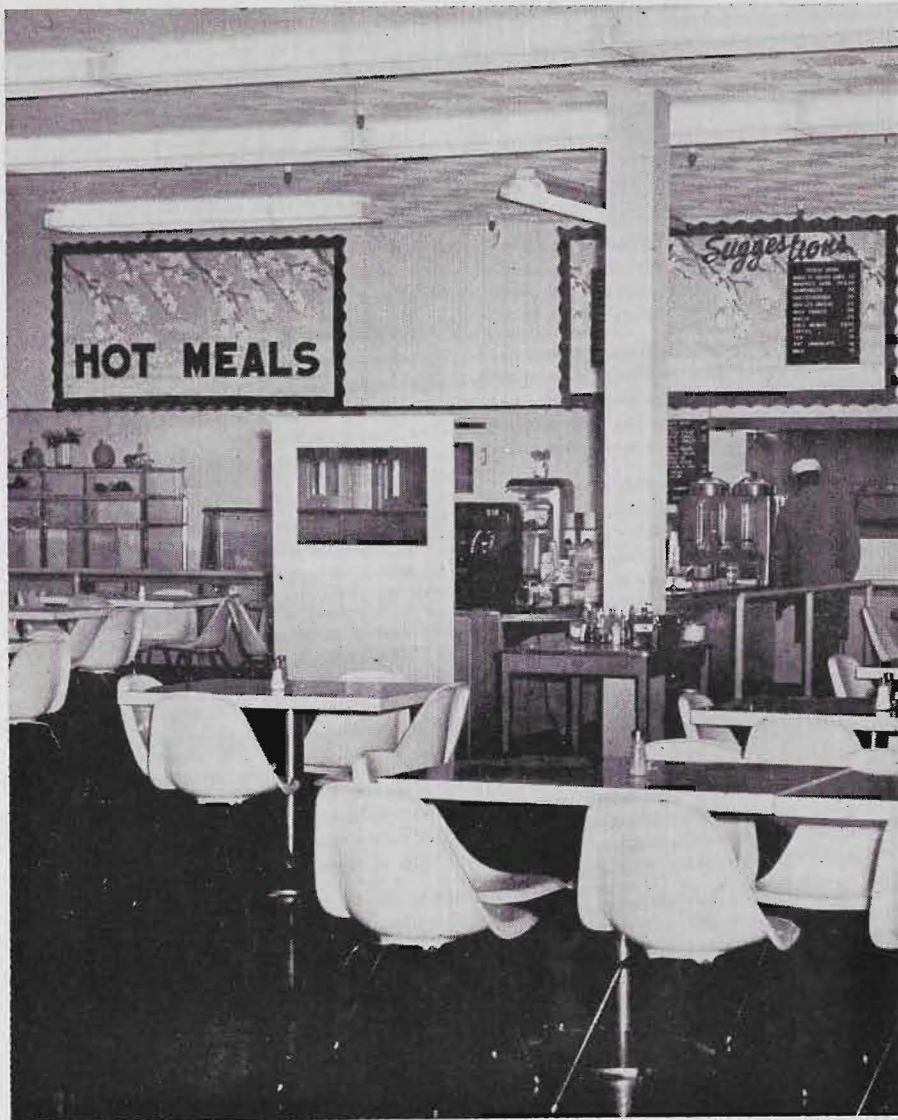
Special taxi service when necessary may be obtained by calling Motor Pool dispatcher.

### ***Officers' Mess, Quarters and Guest House***

"Officers Row" bounds the administrative area on the north with a line of quaintly attractive family-type quarters, the Post Dispensary, and the Officers' Open Mess. There are no Bachelor Officers' Quarters. The Officers' Open Mess does not serve regular meals. However, it is spacious for dancing or for large dinner parties, has a comfortably appointed lounge area and is beautifully equipped with facilities for pleasant off-duty relaxation.

Although the family quarters were built in the 1860's and 1870's, they have been maintained for modern living while reflecting the architecture and craftsmanship of earlier decades.

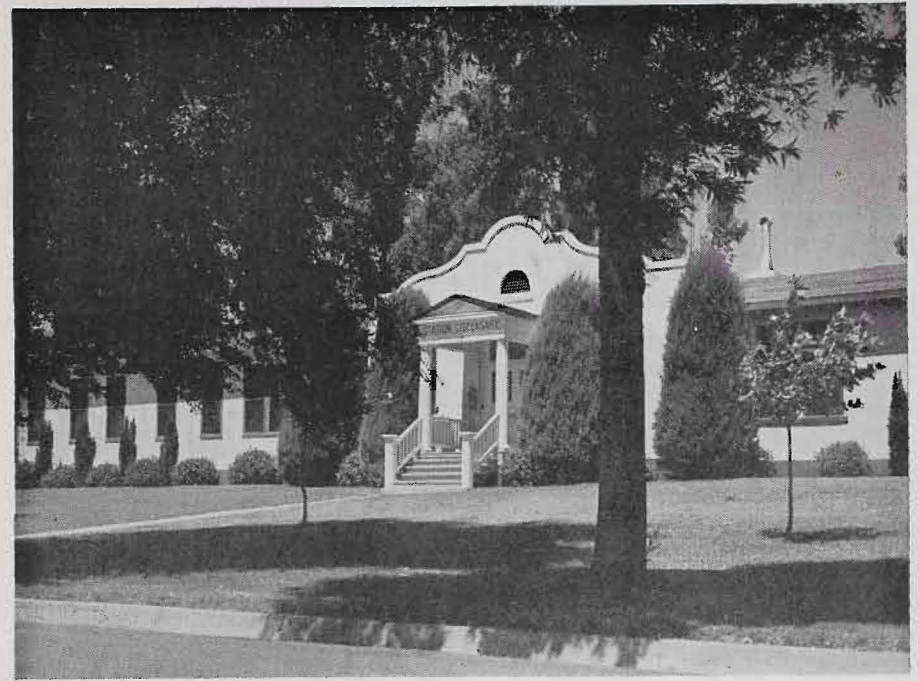
There is limited guest-house space available on the post for brief official use.



### Post Cafeteria

Two attractively appointed and modernly equipped cafeterias, one located in the administrative area and the other in Warehouse W-9, serve meticulously prepared and planned breakfasts and noon-day meals at nominal prices. Hours are from 6 a.m. to 3 p.m.

Snack bars are located in various buildings throughout the arsenal for coffee breaks and light lunches.



### Station Dispensary

Station Dispensary is located on Jefferson Road, familiarly referred to as "Officers' Row", and is equipped and staffed to give emergency first aid and to execute the Government's Industrial Health Program for civilian employees.

In addition to giving physical examinations to new employees, the dispensary staff performs periodic physical examinations of post employees and annual eye and ear examinations. The eye and ear examinations are for recommendation purposes only, to protect the individual as well as the Government in discovering any deterioration of sight or hearing.

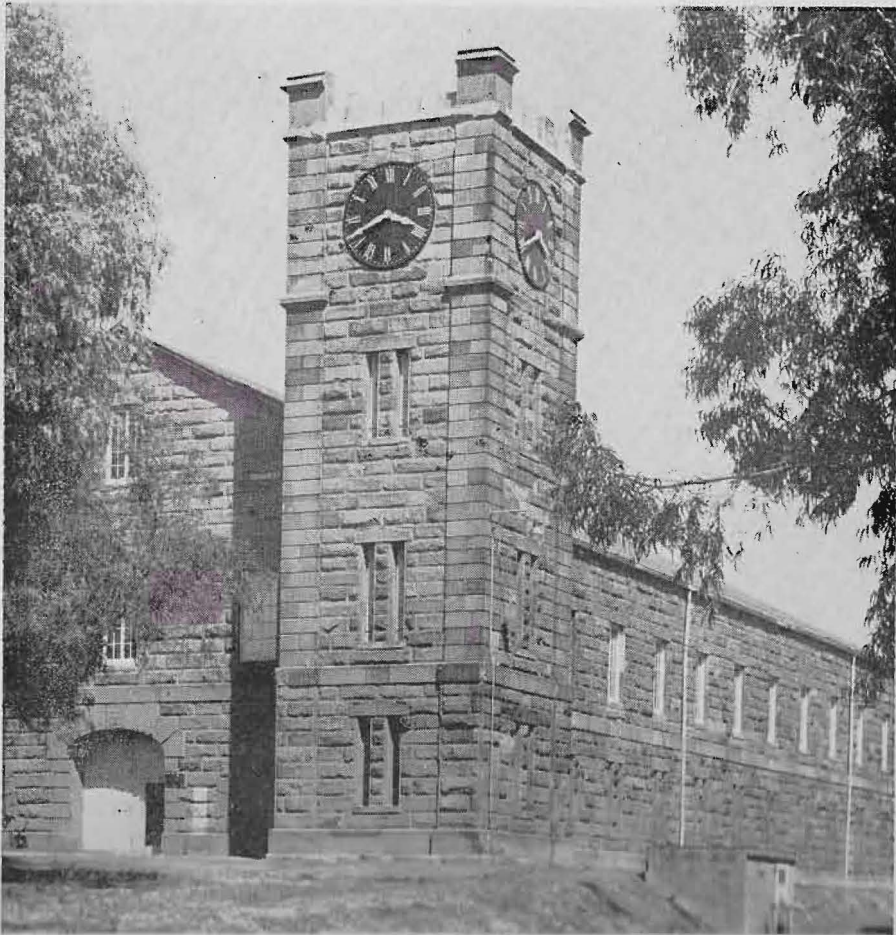
The dispensary is equipped with X-ray facilities and for taking electro-cardiographs. It maintains a complete laboratory with a technician in attendance to perform blood and other tests.

Emergency ambulance service is always available.

## Historic Arsenal Buildings

### Clock Tower

Completed in 1859 as a three-story stone fort, the first military bastillion in California, with two crenelated towers and port holes for heavy guns the building was gutted by explosion and fire in 1912. Subsequently it was restored as a two-story structure and only one of its towers retained. In the latter is the memorial clock from which the building takes its name. The clock was installed as a memorial to Colonel Julian McAllister who served the arsenal as commanding officer for approximately 30 years.



## Oldest Magazine

Built in 1852 of sandstone blocks hewn from surrounding hills, this building, No. 10, is one of California's finest examples of the stone-cutter's art. The exquisite, patterned, vaulted ceiling and modified Corinthian pillars were hand-fashioned and placed by French craftsmen recruited by the U.S. Government and sent to the arsenal especially for construction of this and other sandstone buildings which became the arsenal's first permanent structures. Among them are the Clock Tower (first Army fort in California), the "Camel Barns", Buildings No. 2 and 8 and the first hospital. The building was originally used for storage of gun powder.

### "Camel Barns"

Of hand-hewn sandstone blocks, buildings No. 7 and No. 9 were constructed in 1853 and 1854, respectively, for use as warehouses, but their fame rests on a brief period during which they were used for the stabling of a herd of camels. The camels, imported by the U.S. Government from the Near East in 1856 as an experiment in the transportation of military supplies across our Southwest desert states, proved unsatisfactory. In 1863, they were ordered driven to Benicia Arsenal for disposal at public auction which took place on February 26, 1864. Last camel of this transplanted caravan died in Griffith Park, Los Angeles in 1934.



**Built for Commanding Officers**

**Quarters No. 28**— Standing in the midst of lawns and shrubbery on the Clock Tower promitory, to the west of the imposing early-day fortress and commanding a magnificent view of Carquinez Strait, Suisun Bay, and rolling hills is the old mansion built in 1860 as residence for Benicia Arsenal commanding officers. Woods for the exquisite parquet floors, paneling, stair rails and balustrades were brought by ship around "The Horn". During the last four decades of the 19th century, the quarters were center of much of the gala social life of San Francisco Bay society and military leaders.

### **Original Post Hospital**

One of California's earliest buildings, still in use, is the Arsenal's first hospital structure. It was erected in 1856 of sandstone blocks to serve as a military hospital. Casualties from troop skirmishes with Indian marauders and from the suppression of Indian uprisings as far away as the Northwest Territory were brought here for treatment. During World War II, the building was converted into the Post Chapel. Following the Korean conflict, it was remodeled into military quarters.

### **Pine Lake**

**Reservoir**—An interesting part of the saga of Benicia Arsenal is the installation's search for potable water. From 1873 to 1882 there was a continuous project in operation seeking artesian water. During that period a well was drilled 1,407 feet deep without reaching a flow of water. The project was then abandoned and in 1939-40 a fresh water reservoir was constructed having a capacity of 125,580,000 gallons. The reservoir dam is 55 feet high and impounds water pumped from the Suisun Bay during the annual Spring run-off of the Sacramento-San Joaquin Rivers.

## History of Benicia Arsenal

The story of Benicia Arsenal begins in the days when military transportation in the West was either by horse or by foot, when military fire power was limited to cannon ball and black gunpowder.

Selection of the arsenal site in 1849 as base for military operations on the Coast was due largely to the persuasive wiles of Dr. Robert Semple and Thomas O. Larkin, founders of the City of Benicia who foresaw an Army post as an adjunct to the new settlement. Larkin, pioneer developer of Monterey and San Francisco and partner of Dr. Semple in the Benicia venture, journeyed to Washington, D.C. to win government approval of the proposal to locate an Army post adjacent to the thriving young community of Benicia.

Through the efforts of these two men, the government received a land grant of 252 acres for the reservation from Gen. Mariano G. Vallejo, gallant Mexican caballero and grandee of some 36,000 acres extending from Carquinez Strait to Sonoma on the North. It was from General Vallejo that the enthusiastic Semple and Larkin had obtained a grant for five square miles of property fronting Carquinez Strait upon which to build their envisioned city. The donor's only stipulation was that the city be named for his wife, Senora Francesca Benicia Vallejo.

The arsenal reservation later expanded to approximately 2,200 acres.

First occupation of the new post was on April 9, 1849 when Companies C and G, 2nd Infantry, under command of Lt. Col. Silas Casey, set up camp to establish Benicia Barracks.

With U.S. Army troops riding the Pacific frontier country from San Diego in the South to Vancouver in the North on exploratory expeditions as well as in search of marauding hostile Indians, it became obvious that an ordnance supply depot must be established in California. Small warehouse facilities existed in San Francisco on which leases were expiring. However, the bulk of Army supplies

was scattered up and down the coast, inadequately protected from weather and depredation.

Maj. Gen. Percifer F. Smith, Commanding General of the Pacific Division, recommended to Army chiefs in Washington that the Benicia Barracks post be utilized as headquarters for supply operations of the division. His recommendation was accepted and Brevet Capt. Charles P. Stone with 22 Ordnance enlisted men and a shipload of supplies embarked from Fort Monroe, Virginia, in January 1851 for the tedious journey around the "Horn" to Benicia. Seven months later, in mid-August, their ship, the Helen McGaw, dropped anchor off the Benicia Barracks reservation shore and they began the task of setting up the first Ordnance Supply Depot in the West.

The following year, in April 1852, the 252 acres of government-owned land with their troop encampment and their rising warehouses became officially designated Benicia Arsenal.

The installation remained a garrisoned post until 1898 when last of the troops moved out under assignment to duty in the Philippine Islands during the Spanish-American War. During this conflict the arsenal equipped approximately 20,000 National Guardsmen mustered into the Regular Army for service against Spain.

Benicia Arsenal during the Civil War was staging area for Western troops going into service.

While World War I flamed across Europe, Benicia Arsenal gave ordnance support to American troops west of the Rocky Mountains and to such large Army installations as Camp Lewis, Camp Fremont and Camp Kearney. It also supplied Ordnance material to American expeditionary forces in Siberia.

Benicia Arsenal's expansion into one of the foremost Ordnance installations in the country came during World War II. Prior to World War I, civilian worker strength never exceeded 100 and during that conflict its maximum employee strength was less than 300 persons.

Involvement of the United States in World War II resulted in the arsenal's becoming the principal supply point for "shooting" ord-

nance for American troops assigned to the Pacific campaign areas. Tremendous expansion of the installation's facilities—warehouses, shops, ammunition igloos and magazines, roads and docks—was rushed, much of it having been planned far in advance of the Japanese attack on Pearl Harbor. Civilian employment rose to a high of 4,545 persons.

Although Army automotive equipment and supplies became a responsibility of the Ordnance Department early in the war, having been transferred from the Quartermaster Department, such items were not included in the arsenal's supply mission. The Army's huge automotive supply point on the west coast was established in Stockton, approximately 70 miles upstream from the arsenal on the San Joaquin River. With the de-activation of that installation following the conclusion of hostilities, the tremendous stocks of automotive supplies and equipment there were transferred to Benicia Arsenal and "rolling" Ordnance became a part of the latter's supply responsibilities.

Between World War II and the Korean incident, the arsenal was relieved of its ammunition mission, the activity going to Sierra Ordnance Depot located in an isolated mountain area.

Years of the Korean action witnessed the civilian force at the arsenal climb to its all-time high—6,700 workers, largely due to the automotive mission which had been acquired prior to that conflict.

During this period four gigantic re-inforced concrete warehouses were erected in the northeast area of the post, numbered W-9, W-10, W-11, and W-12, five ammunition igloos having been demolished and their sites leveled for the new structures. Warehouses W-11 and W-12 measured 200' x 1200' and were de-humidified for storage of valuable Ordnance materiel requiring special air conditioning to prevent deterioration. Warehouse W-9 had a similar ground measurement with an additional 200' x 200' second story at its north end for offices. The fourth warehouse, W-10, was smaller, measuring 200' x 800'.

Mutual Assistance Pacts entered into by the United States with freedom-loving peoples in the Far East following the Korean

action resulted for the Arsenal in a massive rebuild program of automotive and combat material for shipment with other supplies to Korea, Formosa, Japan, Laos, Viet Nam, Cambodia, Turkey, Thailand and other countries.

The history of Benicia Arsenal reflects the development of U.S. Army weapons and land transportation, extending from the maintenance and supply of single-action rifles and smooth bore cannon to automatic rifles, machine guns, combat tanks, radar operated artillery and guided missiles, and from horse equipment to the most modern motor transport vehicles.

Calibration of Ordnance test equipment is one of the arsenal's more recent technological responsibilities. It is a precise and delicate operation for assuring absolute accuracy of various items such as barometers, micro-wave equipment, torque wrenches, pressure gages and a wide variety of instruments used in maintenance activities. The operation involves the maintaining of instruments of certified standards of known accuracy which are used to detect by comparison any variation in the accuracy of similar instruments and to adjust (or calibrate) the latter to standard requirements.

Benicia Arsenal operates the only Ordnance Corps primary reference standards laboratory West of the Mississippi River. The standards cover every element of electrical measurement from direct current through the upper limits of micro-wave and in the physical fields of pressure, temperature and mass. The laboratory certifies the accuracy of all physical and electrical measurement standards in use at Ordnance depots West of the Mississippi, the San Francisco and Los Angeles Ordnance Districts, White Sands Proving Ground, and agencies in Alaska, Hawaii, Okinawa and Korea.

Many notable personages highlight the installation's story, including Gen. William Tecumseh Sherman and Gen. Ulysses S. Grant, both of whom were at the arsenal while serving as young Army lieutenants; Gen. John Charles Fremont who drew stores from the arsenal to supply survey expeditions into California mountains; Col. James W. Benet, a commanding officer of the post and father of poets William Rose Benet and Stephen Vincent Benet; and Gen.

James Doolittle who received 500-pound bombs from the arsenal before taking off for his world-electrifying 30 seconds over Tokyo.

Mindful of its proud past in the historic and military development of the West, Benicia Arsenal continues to keep pace with a changing era and to be a potent force in the economic and defense posture of the San Francisco Bay community.

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