

**THE NATIONAL SURVEY OF HISTORIC SITES  
AND BUILDINGS**

Theme XVII-b

**COMMERCE AND INDUSTRY**

1 9 6 6

**VOLUME II**

**SURVEY OF HISTORIC SITES AND BUILDINGS  
IN STATES LOCATED WEST OF THE MISSISSIPPI**

United States Department of the Interior  
Stewart L. Udall, Secretary

National Park Service  
George B. Hartzog, Jr., Director

The National Survey of Historic Sites and Buildings

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PART II

SURVEY OF HISTORIC SITES AND BUILDINGS

SECTION A

SITES OF EXCEPTIONAL VALUE LOCATED IN STATES

WEST OF THE MISSISSIPPI RIVER

## JEROME (UNITED VERDE MINE), ARIZONA

Location. Yavapai County, at Jerome, on U. S. Alt. 89,  
33 miles northeast of Prescott.

Ownership and Administration. City and private.

### Significance

By 1907, as the result of the huge production of high grade copper ores at Jerome and Bisbee, Arizona had become one of the great copper producing centers of the world.

High grade copper ore was discovered in 1876 in the Black Hills of central Arizona at the future site of Jerome by John Rufner and August McKinnon. Extraction, however, did not become profitable, due to high costs of transportation, until 1882, when the Santa Fe's Atlantic and Pacific Railroad reached Ash Fork, Arizona, about 60 miles northwest of Jerome.<sup>1</sup>

In 1883 the United Verde Copper Co. was formed, with New York City financial backing, to exploit the deposits. One of these financiers, Eugene Jerome (grandfather of Winston Churchill) gave his name to the wild mining town that sprang up on the side of Mingus Mountain in 1883. A 50-ton furnace was erected to smelt the ore. The United Verde Company produced 1,763,000 pounds of copper during the first year. In 1887 a drop in the price of copper made production unprofitable and in 1888 William Andrews Clark, the famous Montana copper king who later became U. S. Senator, purchased the United Verde Property and started fresh exploratory work. Operations were renewed in 1889. In 1894 Clark erected a copper smelter with a monthly capacity of 3,500,000 pounds over the mine workings at Jerome and also built a narrow gauge railroad from Jerome to connect with the Santa Fe, Prescott & Phoenix railroad at Jerome Junction.

In 1911 the company laid out the town of Clarkdale, located some six miles from the Jerome mines, and here, in 1912-1915, erected a larger and more modern smelter. The huge copper production at Jerome, together with that at Bisbee, was important in making Arizona the leading copper producing state in the nation by 1907. By 1923 the United Verde company had produced nearly 1,112,000,000 pounds of copper, 564,000 ounces of gold, and 18,500,000 ounces of silver.<sup>2</sup>

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<sup>1</sup>In 1887 the Santa Fe railroad built a branch line southward from Ash Fork to Prescott, 33 miles southwest of Jerome.

<sup>2</sup>Thomas R. Rickard's figures for the United Verde mine, for the period 1888 to 1930, are as follows: The mine yielded a total of 20,314,000 tons of ore, from which 1,959,098,900 pounds of copper had been extracted, together with 1,009,800 ounces of gold and 34,586,000 ounces of silver. The value of this output he estimated to be slightly more than \$350,000,000.

This output had yielded Clark a fortune of over a hundred million dollars.<sup>1</sup>

In 1935, when copper prices were at their lowest, Phelps Dodge bought out the United Verde property. The demand for copper during World War II led to intensive mining that depleted the known ore deposits, and both Jerome and Clarkdale are today rapidly becoming ghost towns.

#### Condition of the Site

Perched precariously on the sheer slope of Mingus Mountain, Jerome, with its rickety frame buildings propped on stilts and its narrow, steep streets, retains much of its 1890 appearance and atmosphere. A museum in the center of the town displays objects relating Jerome's early mining history. Across the street still stands the old water-jacket blast furnace that went into use at Jerome in 1883.\*\*

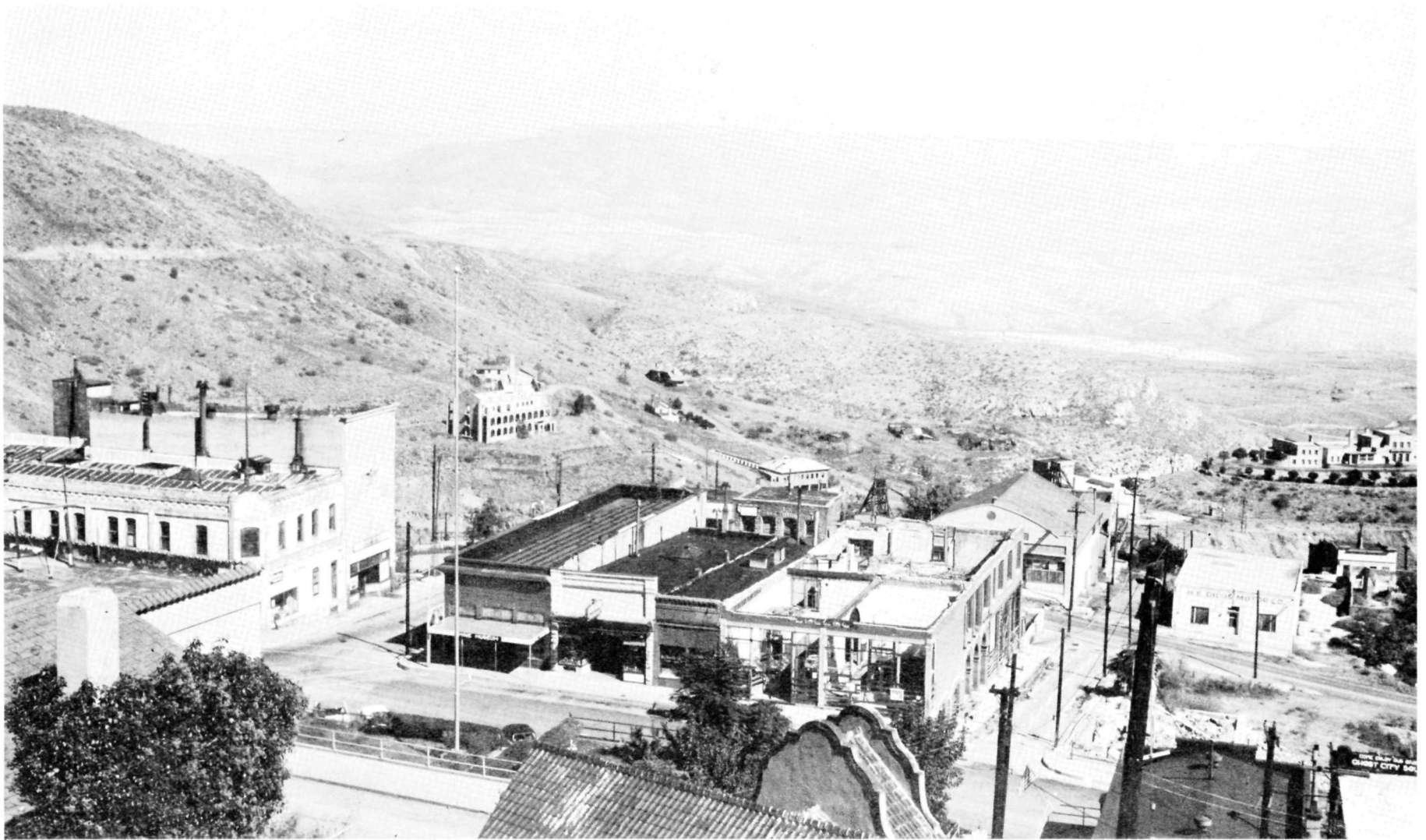
References. Robert G. Cleland, A History of Phelps Dodge, 1834-1950 (New York, 1950), 238-241; Thomas A. Rickard, A History of American Mining (New York, 1932), 288-291; Rufus K. Wyllys, Arizona, The History of a Frontier State (Phoenix, Ariz., 1950), 225-26, 277, 286; Hubert H. Bancroft, History of Arizona and New Mexico (San Francisco, 1889) 590-91, 605.

\*\* This site is recommended as a historic district, the precise boundaries of which remain to be established at a later date when the absolute ban on travel has been lifted.

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<sup>1</sup>In 1888 Clark owned 70% of the stock, and by the time of his death in 1925, he held 95 1/2% of the 300,000 shares in the United Verde Copper Company.





Jerome, Arizona

N. P. S. Photo, 1958

## SITES OF EXCEPTIONAL VALUE

### ALASKA PACKERS ASSOCIATION FLEET, CALIFORNIA

- Location.
1. Balclutha, Located at Pier 43, Fishermen's Wharf, City of San Francisco, San Francisco County.
  2. Star of India, Located at the San Diego Embarcadero, City of San Diego, San Diego County.
- Ownership.
1. Balclutha. Owned by the San Francisco Maritime Museum Association.
  2. Star of India. Owned by the Maritime Museum of San Diego.

### Significance

These two ships, the Balclutha and Star of India, are the last surviving vessels of the Alaska Packers Association's great salmon fleet of the 1893-1920 period.

From 1867 to 1873 the Pacific Coast salmon canning industry was concentrated solely on the Columbia River, but in 1874 it began to spread to four other major salmon producing areas. In 1874 a cannery was opened on the Sacramento River in California, in 1876 two canneries appeared on the Fraser River in British Columbia, and in 1877 one cannery became active on Puget Sound, Washington. The last of the great salmon producing areas to be opened was Alaska: In 1878 the Francis Cutting Packing Company of San Francisco established the first Alaska commercial salmon cannery at Old Sitka on Baranof Island in Southeastern Alaska. Its pack for that year was 8,159 cases. The industry developed slowly in Alaska, however, until the 1880's. In 1888 Alaska emerged as the greatest salmon producing area in the Pacific--a position it was to maintain thereafter. In 1889 Alaska's 37 canneries packed 719,196 cases representing a value of \$2,786,929. In 1900 its 42 canneries packed 1,548,139 cases and by this date salmon canning had surpassed the fur trade and evolved into Alaska's second major industry, exceeded only by gold mining.

The movement toward combination and consolidation advanced rapidly in the Alaska salmon industry during the early 1890's. After an era of violent physical and economic warfare, individual cannery owners entered into cooperative agreements, formed marketing pools, and restricted production as a means to stabilize prices and profits. These steps led to an even more thorough-going reorganization, with the formation in 1892 of the Alaska Packers Association of San Francisco, which represented a merger of 90 per cent of the canneries operating in Alaska. Individual companies surrendered their plants, received capital

stock in the Association in return, and accepted a single unified management. A number of less efficient canneries were closed, cut-throat competition was largely brought to an end, and production was held at profitable levels. The Association was a financial success from the beginning, and from 1893 to 1920 it controlled one-half to three-fourths of the total pack of Alaska salmon. From 1900 to 1920 the Alaska Packers Association produced well over a million cases annually, out of a total pack of from two to three million cases a year.

Libby, McNeil and Libby, and the Pacific American Fisheries, Inc., operating from the cities of the Northwest and San Francisco, also acquired a number of canneries and established themselves as the other big concerns in the Alaska salmon trade.

In 1906 there were 3,405 fishermen, 6,868 cannery employees and 474 transporters engaged in the Alaska salmon industry. They produced 2,219,014 cases valued at \$7,896,392. In 1910 the value of the annual salmon pack (2,413,054 cases) reached \$11,086,322, and increased rapidly thereafter to more than \$18,920,000 by 1914.

The largest fleet engaged in the salmon fisheries of Alaska from 1893 to 1920 was that owned by the Alaska Packers Association. In 1894 the company operated 26 sailing vessels and thereafter for many years the company annually dispatched an average of 30 ships to the fishing grounds. Steamers were used for the first time in 1926 and thereafter began to rapidly replace the sailing vessels.

In the spring these sailing ships, loaded with supplies for the canneries in Alaska, left San Francisco. The passage to the fishing grounds, a distance of about 2,500 miles, was usually made in 25 to 30 days. Arriving at the scene of operation, the fishermen, cannery employees, and supplies were landed and all preparations were made to receive the fish, which usually began to run in the early part of July. The "run" or period in which actual fishing was carried on, lasted for 2 or 3 weeks. At the close of the season, the catch, cooked, canned, labeled, and packed ready for the market, was loaded on the ships, together with the fishermen and cannery employees.

Putting out to sea, the vessels raced for San Francisco, usually making the return trip in 20 days. Cargoes were discharged, the larger part being transshipped direct on the transcontinental railroads to the East. After being cleaned and fumigated, the vessels were returned to their winter quarters and overhauled in preparation for the next voyage to the North in the following year. In 1904 the Alaska Packers Association operated 23 out of the 55 canneries in Alaska and employed over 7,000 hands; its salmon pack was worth about 5 million dollars that year.

The last survivors of the great Alaska Packers' Association fleet are sailing ships Balclutha, docked at San Francisco, and the Star of India, berthed at San Diego.



Sailing Ship *Balclutha*, 1886, San Francisco, California

N. P. S. Photo, 1961

## Condition of the Ships

1. The Balclutha. Built at Clyde, Scotland in 1886, this steel three-masted, square-rigged vessel spent her first 13 years as general trader carrying grain, lumber and whiskey to Auckland, Calcutta, and Rangoon, sailing 17 times around Cape Horn. In 1899 she was purchased by the Pope & Talbot Lumber Company of San Francisco, placed under Hawaiian registry, and carried lumber from Washington to Australia.

In 1904 the Balclutha was acquired by the Alaska Packers Association of San Francisco, and in 1906 was renamed the Star of Alaska. For the next 26 years, the Star of Alaska transported workers the 1500 to 2500 miles to the Alaska canneries each spring, and brought them back, with the salmon, to San Francisco each fall. The ship was the fastest of the Alaska Packers fleet of eight "Star" vessels and was the last of them to be retired as a cargo carrier in 1934. Renamed the Pacific Queen, the Balclutha was exhibited as a "pirate" ship until 1953.

The vessel, 1689 gross tons, 256.5 feet long, with a beam of 38.6 feet, and depth of 22.7 feet, was acquired by the San Francisco Maritime Museum in 1954. The ship has been carefully and authentically restored in every detail to its 1886 appearance as a general trading ship.<sup>1</sup> The ship is open to the public.

2. Star of India. Built by Gibson, McDonald & Arnold at Ransey, Isle of Man in 1863, as the full-rigged, three-masted ship Euterpe, the Star of India is the oldest iron-hulled sailing ship afloat.<sup>2</sup> The vessel, owned by the British firm of Wakefield, Nash & Company of Liverpool, first sailed in the India trade and then carried emigrants to New Zealand and occasionally to Australia.

In 1898 the Euterpe was purchased by the Pacific Colonial Ship Company of San Francisco (J. J. Moore & Company), placed under Hawaiian registry, and carried lumber from Puget Sound, Washington, to Australia.

In 1901 the Alaska Packers Association of San Francisco acquired the vessel and changed its name to the "Star of India." The Star of India carried cannery employees and fishermen to and from the Alaska fisheries until 1923, when the ship was finally laid up. In 1926 the Star of India was purchased by the late James Wood Cofforth as the nucleus for a maritime museum.

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<sup>1</sup>Alan Villiers and Roger R. Olmsted, Balclutha - Two Stories in the Life of a Ship (Reprinted from Ships and the Sea, 1955).

<sup>2</sup>The Star of India, 1,200 gross tons, is 205 feet long.





Sailing Ship *Star of India*, 1863, San Diego, California

N. P. S. Photo, 1961

As part of the Alaska Packer's Star Fleet of 8 vessels, The Star of India's rig was reduced from that of a full rigged ship to a bark, so that she might be handled by a smaller crew. A long extension was built onto her poop, carried forward almost to the mainmast, to provide quarters for the 45 fishermen; the remainder of employees, the 250 Chinese and Mexican cannery hands, slept packed in the 'tween-deck where she had formerly carried steerage-class emigrants.

In 1962-63 the Star of India was carefully restored as a bark. The ship is in excellent condition and is open to the public.<sup>1</sup>

References. (Salmon Canning Industry): Hubert H. Bancroft, History of Alaska (San Francisco, 1886), 660-663, 744-745; Report on Population and Resources of Alaska at the Eleventh Census; 1890, VIII 217; Clarence C. Hulley, Alaska, 1741-1953 (Portland, Oregon, 1953), 217-218; A. W. Greely, Handbook of Alaska, its Resources, Products, and Attractions (New York, 1909), 134-139, 269; A. W. Greely, "The Economic Evolution of Alaska," National Geographic Magazine, XX (July, 1909), 588-89; The Fisheries of Alaska in 1906, Bureau of Fisheries Doc. No. 618 (Washington, D. C., 1907), 14; David B. De Loach, Salmon Canning Industry (Corvallis, Oregon, 1939); Dorothy O. Johansen and Charles M. Gates, Empire of the Columbia (New York, 1957), 480-483; Walter McArthur, Last Days of Sail on the West Coast, San Francisco Harbor (San Francisco, 1929), 45-50; John N. Cobb, Pacific Fisheries (Washington, D. C., 1921) (Bureau of Fisheries Document No. 902).

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<sup>1</sup>Jerry MacMullen "Iron Lady", in Westways, November, 1963, 11-13.

THE CASCADES (LOS ANGELES-OWENS VALLEY AQUEDUCT), CALIFORNIA

Location. 4 miles north of San Fernando, on the east side of U. S. Highway 99, Los Angeles County.

Ownership. City of Los Angeles

Significance

First of the mammoth aqueduct systems to be completed in the Far West, 1905-13, the Los Angeles-Owens Valley Aqueduct symbolizes one of the greatest industries of the arid West - the unrelenting drive to secure additional water supplies to permit unlimited urban and agricultural expansion. The success of this example has resulted in the construction in the western two-thirds of the United States of the most monumental aqueducts the world has ever seen.

Los Angeles, in arid Southern California, experienced its first boom in the 1880's: from a city of 11,183 in 1880, the population increased to 50,395 by 1890 and to nearly 100,000 by 1900. This growth, plus increased irrigation for agricultural purposes, together with a 10-year period of drought, reduced the water in Los Angeles reservoirs to a two-day supply in July, 1903. It became clear that at this current rate of growth, Los Angeles was not only approaching its own limit but was entering into a combat for water with outlying agricultural districts; already the San Fernando Valley - rendered barren by city lawsuits to prevent the pumping of water for farm use - stood as an example of sacrifice before the prior necessity of Los Angeles.

As early as 1892 an engineer and later Mayor of Los Angeles, Fred Eaton, had located a large supply of water to the northeast in Owens Valley, Inyo County, California, and suggested that it could be diverted to the city some 250 miles distant. The suggestion was not acted on at this time, but in 1904 City Engineer William Mulholland became interested in the plan and with Eaton, investigated the possibilities and decided that such a project was feasible from an engineering point of view. Early in 1905 Eaton acquired the necessary options on land in Owens Valley and broached the subject to the Los Angeles Board of Water Commissioners. Enthusiastically endorsed by Mulholland, the city Water Board acted at once. It acquired the site, approved Mulholland's plan for a \$23,000,000 aqueduct, and asked the voters of the city to authorize the necessary bond issue to finance the construction in May, 1905. It was estimated that the Owens River would provide at least 400 cubic feet of water per second--enough to provide for a city of 2,000,000 people. Immediately property in much of Los Angeles County doubled in price. Citizens approved the issuance of the initial bonds in September, 1905, and the bulk of the bonds for construction in June, 1907.

As an engineering venture the great aqueduct was a most creditable performance. Preliminary work began in September, 1907. The big ditch was thrust across deserts, driven through or over mountains by tunnels, or siphons; dams and reservoirs were also built. The first water was delivered into San Fernando Reservoir on November 5, 1913. Mulholland had completed it within his estimate both as to time and money, and in addition to providing water, Los Angeles also benefited by the production of electric power at a very moderate cost. The new aqueduct was recognized across the country as the first in America and was declared to be second only to the Panama Canal as an engineering feat.

In other respects the results of the Los Angeles-Owens River Aqueduct were less happy. In 1903 the U. S. Reclamation Service had found Owens Valley to be eligible for a federal reclamation project and the Owens Valley settlers appeared to have success almost within their grasp. Plenty of water for the Valley and Los Angeles could have been impounded by a large dam built upstream above the cultivated area. City officials, however, refused to pay Fred Eaton the \$1,000,000 he demanded for the dam site, which he had previously acquired. Instead, the city engineers proposed to follow the quicker and cheaper expedient of taking the water right out of the river without building the costly dam. Los Angeles delegates carried their uncompromising fight to the Nation's Capitol in 1906; with the backing of President Theodore Roosevelt and Chief Forester Gifford Pinchot, they were able to secure a right-of-way through the Federal reclamation project in Owens Valley and also across public land in Inyo, Kern and Los Angeles Counties. In July, 1907, the new Secretary of the Interior, James R. Garfield, proclaimed the formal abandonment of the Owens River Federal Reclamation Project, but the thousands of acres of public land withdrawn from entry because of this project were not restored to entry. To gain a similar defense throughout the entire length of Owens Valley, Los Angeles officials next requested the Federal government to extend the eastern boundary of the Sierra National Forest. This proposal was also endorsed by Pinchot and a proclamation extending the Sierra National Forest Reserve eastward over treeless Owens Valley was signed by President Roosevelt on April 20, 1908.<sup>1</sup> This restriction was finally removed by President Taft in 1912.

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<sup>1</sup>In 1907 and 1908 Chief Forester Pinchot had also brought heavy pressure on President Roosevelt to grant the public land known as Hetch Hetchy Valley in Yosemite National Park to the City of San Francisco for water and power purposes. Secretary of Interior James R. Garfield signed such a permit on May 11, 1908, subject to approval by a vote of the people in San Francisco. The fate of Hetch Hetchy, however, was decided in Congress, and on December 13, 1913, President Wilson signed the bill that finally granted the valley to San Francisco. San Francisco received its first Sierra water from the 155-mile \$100,000,000 Hetch Hetchy Aqueduct in October, 1934.

As built without the dam in 1907-1913, the Los Angeles aqueduct gradually devastated Owens Valley, for the increasing population of the city required even larger diversions of water to the metropolis. The city's population increase from 300,000 in 1913 to almost 600,000 by 1920 and to over \$1,000,000 by 1930.

In 1923, when the water situation became critical in Owens Valley, the Valley citizens took the law into their own hands. Rifle-men, dynamiters and the Klu Klux Klan assaulted the Los Angeles aqueduct; the city replied with machine guns and detectives. The open violence continued from 1923 to 1927. In 1929 Los Angeles finally decided to arbitrate the matter and between 1930 and 1932 it spent \$12,000,000 buying out the Owens Valley settlers. In 1941 Los Angeles finally completed the Long Valley Dam, thereby correcting the mistake made in 1913 when the water was taken directly from the river. This reservoir and dam permitted a partial restoration of agriculture through irrigation in Owens Valley as well as an increased water supply for the city.

By 1928, however, it became clear that Owens Valley could not supply all the need water and Los Angeles and 11 other Southern California cities organized the Metropolitan Water District to build another 240-mile ditch across the California desert to obtain water from the Colorado River. Construction on Los Angeles' second gigantic project, the Colorado Aqueduct, began in 1933 and was completed in 1938 at a cost of \$220,000,000.

#### Present Condition of the Site

As built in 1913, the head gate of the Los Angeles-Owens Valley Aqueduct was on the Owens River north of Independence, in Inyo County. From here a great open ditch ran along the eastern foothills of the Sierra Nevada into the first reservoir site at Haiwee. South of this main storage point the flow was carried by closed conduit - the first in a series of 11 miles of tunnels and steel siphons along the jagged mountains that form the west rim of the Mojave Desert, and then in a covered concrete trough across a corner of that desert, just west of Mojave, to the Coast Range, north of Los Angeles. Here, with a catchment reservoir at each end, the giant Elizabeth Tunnel took the stream through the mountains and permitted the generation of electrical power in San Francisquito Canyon. Another series of tunnels and siphons then took the water across the rugged canyon country below to the final reservoirs at San Fernando Valley, 223 miles south of the Owens River intake. This system, although modernized and expanded some 27 miles in 1940, is basically intact.

As a point approximately 4 miles north of San Fernando and to the east of U. S. Highway 99, is a readily accessible site from which an impressive view can be obtained of the Cascades of the Los Angeles-Owens River Aqueduct. Here the great steel conduits made their final plunge over the Santa Paula Mountains before entering into the San Fernando



Reservoirs. The site is marked as California Registered State Historical Landmark No. 653.

References. Remi A. Nadeau, The Water Seekers (Garden City, New York, 1950), 15-134; 228-239; Mary Austin, The Land of Little Rain (New York, 1903); Report of the Aqueduct Investigating Board (Los Angeles, 1912); W. A. Chalfant, The Story of Inyo (Chicago, 1922); Morrow Mayo, Los Angeles (New York, 1933); Carey McWilliams, Southern California Country (New York 1946); John W. Caughey, California (Englewood Cliffs, N. J., 1957), 423-424; California - A Guide to the Golden State (American Guide Series) (New York, 1954), 452.



The Cascades of the Los Angeles-Owens Valley Aqueduct, 1905-13, California

N. P. S. Photo, 1961

## FOLSOM POWERHOUSE, CALIFORNIA

Location. Folsom State Park, near Folsom, in Sacramento County.

Ownership. State of California (Division of Beaches and Parks).

### Significance

One of the oldest existing powerhouses in the United States, this plant began producing hydroelectric power on July 13, 1895 and continued to operate until 1952.

On the Pacific Coast, the earliest hydroelectric plant appears to have located at Spokane Falls (now Spokane), Washington, where the Spokane Falls Electric Light and Water Power Company, using a dynamo removed from the coastal steamer Columbia and installed in the basement of a flour mill, lighted the village streets with 10 arc lamps in 1886.

California was not far behind the Pacific Northwest in developing hydroelectric power. The location of the first hydroelectric power. The location of the first hydroelectric plant in California is not fully established, but evidence indicates that a small direct-current generator was installed at Highgrove near Colton, in Southern California, by the San Bernardino Electric Light and Power Company, to supply San Bernardino, 8 miles distant, and placed in operation in June, 1887. By August, 1887 Northern California gold mining communities, such as Grass Valley and Nevada City, were also lighted by power provided by small hydroelectric plants and by 1892 many mountain towns were similarly lighted by short-distant transmission plants.

The first hydroelectric installation in California for long-distance transmission of alternating current at high voltage was the Pomona hydro plant on San Antonio Creek, in Southern California. Transmission at 10,000 volts, single phase, started on November 28, 1892, to Pomona, 13-3/4 miles, distant, and in December, 1892, to San Bernardino, 28 3/4 miles away.

The next advance was the completion of Folsom hydro plant, on the banks of the American River, in July 1895. Its successful transmission at 11,000 volts to Sacramento, the state's capital, 22 miles away, for use by the electric street railway system and by industries and commercial establishments, represented a momentous advance in the commercial application of electricity.

A pioneer at Folsom Power project was Horatio Gates Livermore, of Livermore, Maine, who arrived in California in 1850. By 1862 Livermore and his sons, Horace Putman and Charles, had obtained control of the Natoma Water and Mining Company which held water rights on the American River; it was their hope to create an industrial city at Folsom. An essential feature of their plan was the erection of a dam on the American River to provide the necessary water power. Construction of the dam was started in 1867, but was not completed until January, 1893, because delays caused by shortages of capital, lawsuits and political difficulties.

One of Livermore's sons, Horace P., gradually assumed the leadership of this enterprise. In the late 80's H. P. Livermore began to see that by the time the great dam and canal were finished, water as a direct motive force for the wheels of industry would be superseded by electric power. He kept abreast of electrical developments, reading of the early applications of electric power in California and also the reports of transmission experiments conducted in Germany and Italy. It became obvious to Livermore that the water power developed at Folsom Dam could be used for the production of electric power and that the market for that power was in Sacramento. The problem was how to transmit the electricity such a distance economically.

When Livermore learned of the advances made by Frank J. Sprague in the development of a direct-current motor for operation of electric railways, he wrote to Sprague at Richmond, Virginia and obtained an offer to design a workable system. As part of this plan, Livermore also secured a franchise to build an electric railroad system in Sacramento.

On November 5, 1892, Livermore incorporated the Sacramento Electric Power and Light Company and assigned to it his street railway franchise.

Turning to eastern manufactures, he requested their assistance in creating a transmission system from Folsom to Sacramento and also in devising a method to convert alternating current to direct for delivery to the street cars. The Westinghouse Company and the General Electric Company both sent engineers to study the problems and each firm submitted an offer to build the system.

After obtaining capital from Eastern sources, Livermore signed a contract early in 1894 with the General Electric Company, which was to build and install equipment for the electric system. Work on the powerhouse began in 1894; the canal was extended 1-1/2 miles from its former terminus at the Folsom prison generating plant, to the site of the new plant at the town of Folsom; a twin cedar-pole transmission line and a new substation, which was equipped to deliver direct current to the street railway system, were completed at Sixth and H Streets in Sacramento. The generators, turbines, and other equipment were received

early in 1895, and after severe tests the Folsom Powerhouse was put into operation on July 13, 1895, transmitting at 11,000 volts, to the state capitol. By October the plant's four generators were in operation, with a total capacity of 3,000 kilowatts. Within a short time, when more power was needed, another 750-kilowatt generator was installed in a building erected below the main Folsom Plant to take advantage of an additional 26-foot fall in the stream that dropped from the forebay. The main plant operated under a head of 55 feet. The Folsom Powerhouse produced electricity from 1895 to 1952, using its original generators during the entire period.

With the successful installation of this project in 1895, engineers came from distant cities to study and inspect the Folsom Power Plant. By 1900, the hydroelectric industry of California, grown to a producing capacity of 30,500 kilowatt hours, was developing rapidly into a major industry.

#### Present Condition of the Site

Still standing and in excellent condition are the 1895 two-story brick powerhouse, with its original generators still in place, the second smaller generating plant, and an original shingle-covered workshop. These buildings are unaltered and form a part of Folsom Lake State Park. The structures are open to the public as exhibits and interpretive signs help explain the operations of the plant. The site is marked as California State Registered Historical Landmark No. 633.

References. Charles M. Coleman, P. G. & E. of California, The Centennial Story of Pacific Gas and Electric Company, 1852-1952 (New York, 1952), 102-107, 116-127; Robert G. Cleland and Osgood Hardy, March of Industry (Los Angeles, 1929), 216-219; Robert G. Cleland, A History of California: The American Period (New York, 1926), 456; California-A Guide to the Golden State (American Guide Series) (New York, 1954), 83.





Folsom Power House, 1895, California

N. P. S. Photo, 1961

PICO CANYON (WELL NO. "CSO" 4), CALIFORNIA

Location. Los Angeles County, 9.6 miles north of San Fernando, via U. S. Highway 99 and to the west of the highway, or 7 miles northwest of Newhall, via Lyons Avenue.

Ownership. Standard Oil Company of California; Headquarters, 225 Bush Street, San Francisco.

Significance

The birth of California's oil industry occurred in Pico Canyon, which in the 70's and early 80's was the principal oil region of California. There the pioneers of the industry received both training and substance, which enabled them to make California the second oil producing state in the nation in the first two decades of the 20th century.

The successful completion of the Drake Oil Well near Titusville, Pennsylvania, in August, 1859, sent a wave of excitement across the continent and from 1861 to 1867 California experienced the first of its numerous oil booms. Wildcatting was carried out in a dozen widely separated regions of the state. By 1867, when the boom finally collapsed, 75 companies capitalized at about 50 million dollars, had drilled 60 wells in California. At a cost of one million dollars they succeeded in producing some 28,000 barrels of oil worth about \$60,000. When, in 1867, Eastern "coal oil" began selling in San Francisco at less per gallon than the costs of refining and marketing of inferior kerosene made from the California fields, the Pacific Coast oil boom was over.

As a part of this early excitement, Southern Californians turned their attention to the springs and seepages of Pico Canyon. The first claims were filed in January 1865; the San Fernando Petroleum Mining District was formed under the mining laws in June, 1865, and by June, 1866, nearly 300 individual claims covering an area, if combined, of more than 7 square miles, had been entered on the books of the San Fernando district. Although some oil exploration was done, this activity was largely of a speculative nature. Up to 1873, Pico Canyon, consisting of a series of steep and rugged canyons cutting into the northern slopes of the Santa Susana Mountains, had been bright with promise but of little account otherwise. The major efforts to find and produce oil had been made in Humboldt County of Northern California.

In 1873 oil promoters of Los Angeles again began to "puff" the merits of the potential oil field at Pico Canyon. As a result, a small refinery was erected at Lyons Station, about a mile and a half southeast of Newhall, in 1873-74. This modest establishment, built at a cost of \$3,000, included a single 15-barrel still with wooden flumes



for running the crude oil from storage tanks, and a pipeline to supply water from a nearby spring. It was hoped that oil would be found in sufficient quantities to keep the refinery operating. Drilling began in July, 1874, and by early 1875 one well succeeded in producing a little oil, but not enough to keep the refinery in operation.

In early 1875 three migrants from the Pennsylvania oil fields, Denton Cyrus Scott, Robert C. McPherson and John J. Baker, arrived in Los Angeles, decided to lease the shut-down refinery at Lyons Station, and to try their luck in the Pico area. Organizing the Star Oil Works for this purpose, they employed C. A. Mentry, who was also from the Pennsylvania fields, to drill at Pico Springs in July, 1875. At the depth of 120 feet Mentry got a production of 10 to 12 barrels a day, which was the best showing yet made by any well in California. By the end of the year he had also completed Pico #2 and #3, shallower wells, both of which yielded some oil.

John A. Scott, a Titusville refiner, was then employed at the Lyons Station Refinery, and in early 1876 he succeeded in turning out better oil than any yet made in California. Encouraged by these beginnings, the partners reorganized their company in June, 1876, as the California Star Oil Works Company, with an authorized capital of 1,000,000 dollars; they acquired the Lyons Station refinery, took leases in Pico Canyon, and received additional financial backing from San Francisco capitalists.

In July, 1876, Mentry began drilling Pico #4, using a steam rig, and on September 26, at a depth of 370 feet, it produced a flow of 25 barrels a day.

In the summer of 1876 the Southern Pacific Railroad laid the last of its track between Los Angeles and San Francisco, thereby opening the Pico Region to rail transportation and connecting it with markets.

These signs of progress were sufficient to induce two more oil professionals, the San Francisco veteran oil merchant Frederick B. Taylor and Demetrius G. Scofield, who years later became the first president of the Standard Oil Company of California, to enter the company, and the firm thus underwent further enlargement. As more oil was found, it became clear that Lyons Station Refinery, by-passed by the railroad, would be inadequate. In 1877 a new site was selected at Andrew Station (at the edge of Newhall today) on the Southern Pacific Line and a new and larger refinery (now called "Pioneer Refinery") was constructed during the summer. This improvement was none too soon, for in November, 1877, Mentry deepened Pico #4 to 560 feet, and oil spurted to the top of the 65 foot derrick, and then flowed oil at about 70 barrels daily. This production was the most spectacular yet known in California and revived what had been a collapsing industry. To handle the increased production, the Newhall refinery and Pico field, located 7 miles apart, were connected in 1879 by means of a two-inch cast-iron gravity-feed pipeline, the first to be used in California.



Well No. "C.S.O."4 (1876), Pico Canyon, California

N. P. S. Photo, 1961

From the Pico oil field in the vicinity of Newhall, oil explorations were extended to the Ventura fields in 1877-78. California oil production rose from 18,000 barrels in 1876 to 41,981 barrels in 1880.

In November 1884, the second future giant of the California oil industry, the Union Oil Company of California, then known as Hardison and Stewart Oil Company, also made its start in Pico Canyon. Here they brought in their first successful well, "Star No. 1," and with funds obtained from this strike, they were able to secure land in Ventura County around Santa Paula, where they brought in a succession of successful wells in 1885, thus launching the firm on a successful career.

#### Present Condition of the Site

Pico Canyon includes about 850 acres of land on which are located the following historical features:

1. Well No. "CSO" 4 ("Pico" #4). The 1876 discovery well of the Newhall Field. This well still produces about one barrel of oil a day and is marked as California Registered State Historical Landmark No. 516.
2. The remains of abandoned oil derricks.
3. A two-story frame hotel, erected in 1880 for use of the oil men and now utilized as a residence.
4. A one-story frame school, erected in 1880, for use of the oil men's children.

These features are little altered and are in a good state of preservation. The area is not open to the general public because of the high danger of fire to the Canyon.

References. Robert G. Cleland and Osgood Hardy, March of Industry (Los Angeles, 1929), 169, 172-178; Frank J. Taylor and Earl M. Welty, Black Bonanza (New York, 1950), 38-44, 46-62; James W. Caughey, California (Englewood Cliffs, N. J., 1957), 418-419; California-A Guide to the Golden State (American Guide Series) (New York, 1954), 83, 452; Gerald T. White, Formative Years in the Far West: A History of the Standard Oil Company of California and Predecessors Through 1919 (New York, 1962), 28-58.



Former Oil Workers' Hotel, Pico Canyon, California

N. P. S. Photo, 1961



## WILLIAM C. RALSTON HOME, CALIFORNIA

Location. On campus of College of Sisters of Notre Dame,  
in Belmont, San Mateo County.

Ownership. Roman Catholic Church (Administered by Sisters  
of Notre Dame.)

### Significance

This great mansion was erected in 1866-68 by William C. Ralston, king of the Comstock Lode, incorporator and leading figure of the mighty Bank of California - the most powerful financial institution of the Far West, as the showplace of San Francisco. His country house established the style and scale of living that all subsequent Pacific Coast millionaires endeavored to emulate. The great town houses built on Nob Hill in San Francisco or on their country estates in San Mateo reflected the example set by Ralston. Ralston's mansion was the home of one of San Francisco's most important leaders as well as a symbol of the influential role played by that city in the last half of the 19th century. In addition to being the first of its type, this house is also one of the last few surviving examples of these former great San Francisco mansions.

William Chapman Ralston was born at Plymouth, Richland County, Ohio, on January 12, 1826. After working for several years as ship carpenter and clerk on the river boats of the Ohio and Mississippi rivers, he joined the gold rush stampede to California in 1849, but stopped at Panama, where he became the agent of Garrison & Fretz, who were operating a line of steamships between New York and San Francisco.

In 1854 Ralston arrived in San Francisco where he continued to act as an agent for the steamship company.

On January 1, 1856 Ralston organized the banking firm of Garrison, Morgan, Fretz, and Ralston with a paid-up capital of \$700,000. In 1860 the successful bank was reorganized as Donohoe, Ralston and Company. His firm soon took the lead in the banking and bullion business of California. The immense bullion shipments from the mines of California and Nevada passed through its hands.

In 1864 Ralston organized the Bank of California, which "became and remained for many years the most successful and powerful banking institution on the Pacific Coast."<sup>1</sup> "The advent of the highly capitalized (\$2,000,000 paid-up capital stock) Bank of California marked a new era in the banking circles of the state . . . Almost from the very first day, the Bank of California assumed the leadership in the financial

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<sup>1</sup>Ira B. Cross, Financing an Empire (4 vols., San Francisco, 1927), Vol. IV, 220.

world, not only in California and on the Pacific Coast, but also in all that territory lying to the west of the Rocky Mountains."<sup>1</sup> Its original stockholders and directors included the most prominent and outstanding capitalists of San Francisco and of the Comstock Lode in Nevada. Darus Ogden Mills served as president and William C. Ralston as cashier of the new bank.

During the first two years the bank accumulated a surplus of \$300,000, earned \$1,000,000 net profits, and paid dividends at the rate of 1 per cent per month to its stockholders. It continued to pay dividends at that rate for many years thereafter. In 1866 the capital stock of the bank was increased to \$5,000,000.

Ralston, the driving spirit behind this enterprise from 1864 to 1875, was "considered a marvel of ability and the ablest financier in California."<sup>2</sup>

Utilizing the resources of the Bank of California, Ralston began to obtain control of the Comstock Lode at Virginia City. By 1864 the easier lodes had been exhausted and large sums of capital were required to tap the lodes that lay deep in the earth. Mine and mill owners were thus forced to turn to the Bank of California for assistance.

Branches of the bank were established in Nevada, with William Sharon as manager, and money was loaned in large quantities at the then liberal rate of 2 per cent a month. In 1865 Sharon, Ralston and Mills next organized the Union Mill and Mining Company to operate the many Comstock mills that the bank had obtained possession of through foreclosure. Utilizing bank loans as a lever the financiers exerted pressure on the mine owners to force them to deliver their richest ore to the company-controlled mills. From 1864 to 1873, Ralston, Mills, and Sharon were the Kings of the Comstock, controlling all phases of the mining business in Nevada with an iron hand.

With the riches from this source available, Ralston began to make San Francisco into the great financial center of the West: \$3,000,000 was loaned to Leland Stanford for use in constructing the Central Pacific Railroad; \$2,000,000 was invested in South American projects; Ralston helped to found the North Pacific Fur Company in 1867 for purpose of exploiting the riches of Alaska. Through the Bank of California he also helped to maintain San Francisco's monopoly on the Pacific sea lanes, by close ties with the Oregon Steamship Company, the Pacific Mail Steamship Company, and the California Steam Navigation Company. Industry was supported and bank funds were invested in Peter Donohoe's iron foundry and the Vulcan Iron Works of San Francisco to produce machinery needed in the mines. Ralston established the Pacific and Mission Woolen Mills of San Francisco in 1865, the San Francisco and

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<sup>1</sup>Ibid., 259-260.

<sup>2</sup>Ibid., 260.

Pacific Sugar Refinery in 1866; he invested in the Buena Vista Vine-cultural Society, with 6,000 acres of land in Sonoma and Los Angeles County; he reclaimed land in San Francisco and Sacramento; he engaged in real estate development and built a great dry dock at Hunter's Point. He invested in the Clup Consolidated Tobacco Company, the Kimball's Carriage Factory, and the Cornell Watch Factory. He also built the Virginia and Truckee Railroad in Nevada, the Grand Hotel, the California Theater, and great Palace Hotel in San Francisco, and he erected the West Coast Furniture Company.

This imperial empire was based on the wealth drawn from the Comstock and when new kings finally broke Ralston's hold in 1875, the Bank of California collapsed as the result of a great stock market crash in mining stocks on August 26, 1875.

An audit of the bank's books showed unsecured liabilities in excess of \$4,500,000. Ousted as cashier, Ralston, on August 27, walked to North Beach for his usual swim; a few minutes later his drowned body was found floating in San Francisco Bay.

By 1867 Ralston was acknowledged as California's first citizen. Upon him devolved the responsibility of entertaining all the distinguished travellers who passed through the Golden State. The banker resolved to present California's image and potential properly. In 1864 he had purchased a modest hillside villa in the Cañada del Diablo at Belmont, 22 miles south of San Francisco. In 1866 he began transforming this estate into San Francisco's and the Peninsula's most extravagant showplace. Only "the most studied effects of taste" would now do for the former riverman. Architects, artisans, and gardeners changed the Belmont villa in what Gertrude Atherton called "an immense, rambling, French-looking structure," thrusting out guest wings in all directions," however, it was alleged at the time that a country estate described in "The Merchant of Venice" served as the basic architectural inspiration for the mansion. Designed in the Italian Villa style, its architect was probably Henry Cleaveland. When completed in 1868, the house had accommodations for 120 guests. The floors were of parquetry, the walls paneled with mirrors, and the ceilings hung with crystal chandeliers. Europe and the Orient were plundered for rugs, hangings, vases, furniture, glassware and napery to furnish the spacious, high-ceilinged chambers.

The mansion contained a large ballroom, several parlors, a library and dining room. This latter room was separated from the library by a glass paneled wall that was raised slowly at the proper instant to reveal to the astonished guests an immense banquet table laden with the finest plate, china and glass.

Outside the mansion were brick and glass greenhouses; a bowling alley; a gymnasium with a Turkish bath; a "Little Belmont" for the Chinese servants, the grooms and hostlers; and a great stone-built, mahogany-stalled stables. To illuminate his country seat, Ralston



erected gas-works, and to irrigate his gardens, he built a dam and reservoir in the hills.

With the erection of this mansion Ralston set the mode that other California and Comstock millionaires felt impelled to equal or surpass. The great San Francisco mansions of the Stanfords, the Crockers, the Mills, the Hearsts, and the Hopkins, as well as their country seats, all became larger and more lavish as a result of the example set by the Belmont Mansion. Indeed, the Ralston house also equalled or surpassed the Nouveau Riche splendors of the now-destroyed first-erected mansions of the Vanderbilts, Cookes, Fishes and Goulds in New York City.

Among many distinguished guests entertained at Belmont were Admiral Farragut, General W. T. Sherman, General Sheridan, President Hayes, General U. S. Grant, and Mark Twain.

On Ralston's death the estate passed into the hands of William Sharon, his former business partner who lived there until his death in 1885. Subsequently the mansion served as a private school, a hospital, and finally, in 1923, it became the College and Convent of the Sisters of Notre Dame.

#### Present Condition of the Site

The exterior of the mansion appears to be basically intact, although some changes have occurred. These include a simplification of the originally elaborate wooden window trim, also the glassing-in of the large first story porches and the addition of a third floor on the south wing. The first floor of the interior, with the great ball-room, numerous parlors, library, large dining room, and elaborate staircase all appear to be virtually unaltered. Original mirrors and chandeliers are still in place. Other Ralston furnishings, however, are gone, but these have been replaced with similar pieces of the period. The interior still conveys an impression of unlimited wealth. The upper floors of the building, now called Berchman's Hall, are utilized as a convent; the first floor, however, is open for public inspection upon request.

The grounds immediately adjacent to the mansion have been largely retained with the plantings and trees as they were set out by Ralston. The great stone stable also still stands a few hundred feet north of the manion and is in an excellent state of preservation.

References. Ira B. Cross, Financing An Empire (4 Vols., Chicago, 1927), IV, 214-220, 259-263, 284-287, 398-408; Cecil J. Tilton, William Ralston, Courageous Builder, (Boston, 1935); Julian Dana, The Man Who Built San Francisco: William Ralston (New York, 1936); George D. Lyman, Ralston's Ring, California Plunders the Comstock Lode, (William Ralston) (New York, 1937), 98-108; John W. Caughy, California

(Englewood Cliffs, N. J., 1957), 270-273; Robert G. Cleland and Osgood Hardy, March of Industry (Los Angeles, 1929), 227-238; Mildred B. Hoover, Hero E. Rensch and Ethel G. Rensch, revised by Ruth Teiser, Historic Spots in California (Stanford, 1958), 320; California - A Guide to the Golden State (American Guide Series) (New York, 1954); 372-373, 82; Hubert H. Bancroft, History of California (7 Vols., San Francisco, 1890), Vol. VII, 163, 610, 674, 678; Gertrude Atherton, California, An Intimate History (New York, 1914), 273; Harpers Magazine, 1882, 713-728. Harold Kirker, California's Architectural Frontier (San Marino, Calif., 1960), 69, 70; Oscar Lewis, Here Lived the Californians (New York, 1957), 165-168.



William C. Ralston House, 1868, Belmont, California

N. P. S. Photo, 1962

C. A. THAYER (LUMBER SCHOONER), CALIFORNIA

Location. In Aquatic Park at the foot of Hyde Street,  
San Francisco Maritime State Historic Park,  
City of San Francisco, San Francisco County.

Ownership and Administration. State of California  
(State Division of Beaches and Parks).

Significance

The C. A. Thayer is the last of the old three-masted lumber schooners built especially for the Pacific Coast lumber trade still afloat.

For many years the only practicable way to ship the redwood products of the northern California forests was by sea, and most of the sawmills were built on or very near the coast. But this stretch of shoreline was notoriously dangerous. Except at Humboldt Bay and Crescent City there were no harbors worthy of the name. Fogs, strong winds, rocks, and powerful currents plagued the navigator. Most shipping points were mere "dog-holes", slight indentations in a rocky coast, where ships had to anchor close to shore and load by chutes, lighters, or cables.

These conditions quickly gave rise to a fleet of small sailing schooners capable of maneuvering in difficult locations. A sizable industry grew up in coastal ports, particularly at San Francisco and Humboldt Bay, to build these specialized vessels.<sup>1</sup> The sail schooner did yeoman service in the redwood lumber trade until gradually replaced by the steam schooner, which was developed in the 1880's.

Typical of the sailing lumber carriers built on the Pacific Coast in the last half of the 19th century, the 453-ton Thayer is 156 feet long, has a beam of 36 feet, and a cargo capacity of 575,000 board feet of lumber. The sailing schooner was built by Hans D. Bendixsen in 1895 at Fairhaven, across the narrows of Humboldt Bay from Eureka, California, for the E. K. Wood Lumber Company.<sup>2</sup>

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<sup>1</sup>In 1880 California had 62 ship-building establishments with a capital of \$1,800,000; they employed 534 men and produced 221 boats and vessels. Of these 21 were new vessels totaling 7,361 tons, valued at \$771,000, and were produced by 13 establishments. The 200 boats were produced by 9 establishments and the value of this work was about \$57,500. In addition, repairs in the amount of \$969,000 were made on 40 other vessels. Total value of the manufacture and repair of boats and vessels was placed at \$1,800,000.

<sup>2</sup>The Thayer was one of 35 three-masters built by Bendixsen and one of a total of 122 such vessels built on the Pacific Coast. The last sailing schooner was built in 1905.

From 1895 to 1912 the Thayer operated between the lumber company's Grays Harbor sawmill, in Washington, and other California ports, with occasional trips to Hawaii. For the next 12 years the Thayer did deep sea duty as a salmon packet to Western Alaska,<sup>1</sup> and from 1925 until her retirement in 1950 she cruised the frigid waters of the Bering Sea as a codfisher.<sup>2</sup> The schooner was then laid up at Seattle.

### Condition of the Ship

The three-masted C. A. Thayer stands half-way in design between the little two-masted schooners that scuttled into the Mendocino coast "dog-holes" in the '60's and '70's and the last huge four and five masters that were built to meet the shipping crisis of World War I.

Acquired in 1957, the Thayer was repaired and carefully restored in 1962-63 by the State Division of Beaches and Parks in cooperation with the San Francisco Maritime Museum Association. The schooner now forms a part of the historical exhibits at the San Francisco Maritime State Historic Park and is open to the public.

References. News and Views (Published by California Division of Beaches and Parks, Sacramento), November, 1963, Supplement, 7a; also News and Views, January 1962; Hubert H. Bancroft, History of California, (7 vols., San Francisco, 1890) VII, 79.

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<sup>1</sup>From 1912 to 1925 the Thayer was owned and operated by Peter Nelson.

<sup>2</sup>From 1925 to 1950 the Thayer was owned and operated by J. E. Shields' Pacific Coast Codfish Company of Poulsho, Washington.



Sailing Schooner *C. A. Thayer*, 1895, San Francisco, California

N. P. S. Photo, 1965



## THE WAPAMA (STEAM SCHOONER), CALIFORNIA

Location. In Aquatic Park at the foot of Hyde Street,  
San Francisco Maritime State Historic Park,  
City of San Francisco, San Francisco County.

Ownership and Administration. State of California  
(State Division of Beaches and Parks).

### Significance

The Wapama is the last of 225 steam schooners that were built in the latter decade of the 19th century to carry lumber products from the sawmills to San Francisco.

In the last half of the 19th century the only practicable way to ship the redwood products of the northern California forests was by sea, and most of the sawmills were built on or very near the coast. But this stretch of shoreline was notoriously dangerous. Except at Humboldt Bay and Crescent City there were no harbors worthy of the name. Fogs, strong winds, rocks, and powerful currents plagued the navigator. Most shipping points were mere "dog-holes", slight indentations in a rocky coast, where ships had to anchor close to shore and load by chutes, lighters, or cables.

These conditions quickly gave rise to a fleet of small sailing schooners capable of maneuvering in difficult locations. A sizable industry grew up in coastal ports, particularly at San Francisco and Humboldt Bay, to build these specialized vessels. These two-masted sail schooners did yeoman service in the 1860's and 1870's, but they were subject to delays and wreck because of the vagaries of wind and weather.

Then, during the early 1880's steam engines were installed in a few of these vessels. Soon a second unique type of vessel, the steam schooner, was being specially constructed for the trade of the redwood coast.<sup>1</sup> These small wooden vessels, displacing only from about 200 to 2,500 tons, dominated the redwood trade until about the 1920's, when railroads, trucks, and larger steel ships began to draw them into retirement.

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<sup>1</sup>The first of the wooden steam schooners was built at San Francisco in 1884, and the last was built at Portland in 1923.



### Condition of the Site

The Wapama was built at St. Helens, Oregon, in 1915, by the St. Helens Ship Building Company. Twenty-five years of development lie between the first steam schooners built in San Francisco in the early 1880's and the great Wapama, but in essential design and purpose the vessels were quite similar.

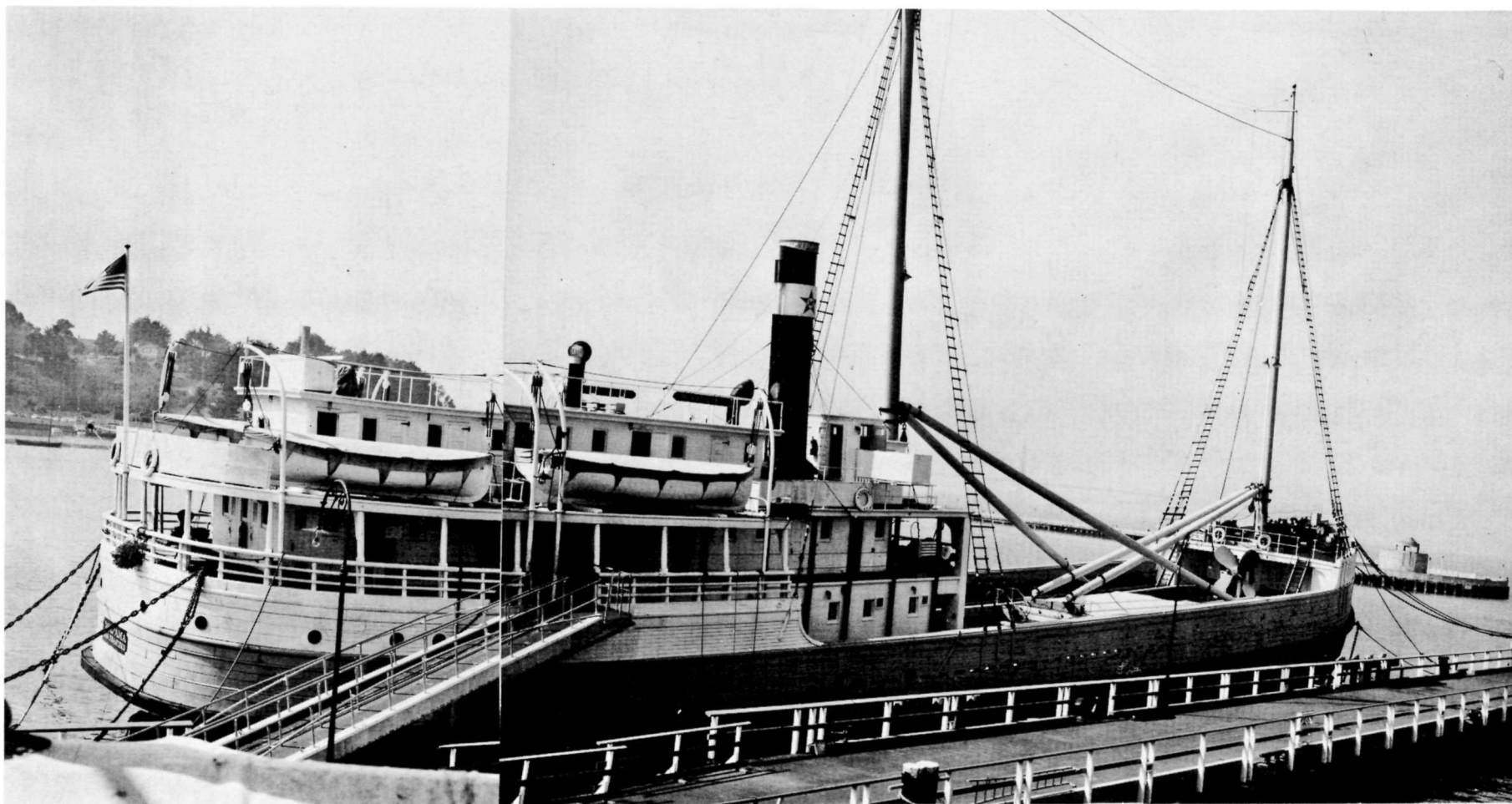
The Wapama is a fine example of the "single-ended" steam schooner (engine room and superstructure aft in the tradition of the early steam schooner). She was about as big as a single-ender could be built--205 feet long, 951 tons, with a lumber capacity of 1,050,000 board feet and accommodations for 30 passengers.

The Wapama was built for Charles McCormick of San Francisco who later sold her to the "White Flyer Line"--operating between San Francisco and San Pedro.<sup>1</sup> Before World War II she turned northward to Alaskan waters when she ended her career under the flag of the Alaska Transportation Company in 1947. The Wapama was rescued from a Seattle junk dealer and carefully repaired and restored in 1961-63 by the California Division of Beaches and Parks, in cooperation with the San Francisco Maritime Museum Association. The Wapama now forms a part of the historical exhibits at the San Francisco State Historical Park and is open to the public.

References. News and Views (Published by California Division of Beaches and Parks, Sacramento), November, 1963, Supplement, 9a; News and Views, January, 1962; Hubert H. Bancroft, History of California (7 vols., San Francisco, 1890) VII, 79. Edwin T. Coman, Jr. and Helen M. Gibbs, Time, Tide, and Timber: A Century of Pope and Talbot (Stanford, 1949), 265-280, 424.

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<sup>1</sup>Charles McCormick owned a complex of lumber industries at St. Helens, including the St. Helens Ship Building Company and a fleet of 12 steam schooners.



Steam Schooner *The Wapama*, 1915, San Francisco, California

N. P. S. Photo, 1965

## ST. CROIX BOOM SITE NEAR STILLWATER, MINNESOTA

Location. Washington County, 3 miles north of Stillwater,  
via state Route 95.

Ownership and Administration. State of Minnesota.

### Significance

From 1880 until 1900 Minnesota was the third ranking lumber producing state in the nation.<sup>1</sup> The St. Croix Boom site was the earliest, most important, and longest-lived of the major log storage and handling areas in Minnesota.

The St. Croix Valley includes about 8,500 square miles or approximately 5,440,000 acres; at least 70% of the area was originally covered with heavy growths of white and Norway pine. These forests were readily accessible for commercial exploitation by means of the St. Croix River, which provided cheap water transportation for the logs from the forests to the mills and then to the markets in the Mississippi Valley.<sup>2</sup>

From 1840 to 1914, the St. Croix Boom site served as the terminal point for the great Minnesota log drives down the St. Croix River and its tributaries. Here each year the millions of logs were stored, sorted, scaled and measured, and their ownership determined. Here the "fitting-up crews" finally made the logs up into rafts for movement down river to the mills.

The St. Croix Boom Corporation was chartered by the Minnesota Territorial legislature on February 27, 1856.<sup>3</sup> This firm constructed a large boom at the point where the river runs between steep bluffs and three long, narrow islands divide the stream into several channels. At the peak of the drives the stored logs sometimes covered a stretch of the river nine miles in length.

From 1840 to August 12, 1914, when the last log went through the boom, the St. Croix Boom had handled more than 15 1/2 billion feet of logs.<sup>4</sup> By 1907, however, Minnesota's great forests were cut over and the lumber industry in the state was rapidly dying.

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<sup>1</sup>During this period Minnesota was exceeded only by Michigan and Wisconsin in lumber production.

<sup>2</sup>The major markets for St. Croix lumber were located "down stream" in Iowa, Illinois, and Missouri.

<sup>3</sup>However, there had been booms at or near the St. Croix Boom site since 1840.

<sup>4</sup>Figures on the number of feet of logs passing the St. Croix Boom are as follows: From 1840 to 1874 3,504,000,000; from 1875 to 1903 7,781,835,650.

### Present Condition of the Site

The Boom Site is marked and interpreted by means of state historical signs that are located in an attractive wayside park at the river side. There are no remains of the boom, but the general setting of the site is still unimpaired.

Reference. June D. Holmquist and Jean A. Brookins, Minnesota's Major Historic Sites, A Guide (St. Paul, 1963), 49-51; Agnes M. Larson, History of the White Pine Industry in Minnesota (Minneapolis, 1949), 17, 130-33, 228; Minnesota, A State Guide (American Guide Series) (New York, 1947), 90-92, 456-458; Frank R. Holmes, ed., Minnesota in Three Centuries (4 vols., Mankato, Minn., 1908) Vol. 4, 401-409; Theodore C. Blegen, Minnesota, A History of the State (St. Paul, 1963), 315-337.

## PILLSBURY A MILL, MINNESOTA

Location. Ramsay County, on the east bank of the Mississippi River, Main and Third Ave., S. E., Minneapolis.

Ownership and Administration. Pillsbury Company.

### Significance

The Pillsbury A Mill, erected in 1880, symbolizes Minneapolis' importance as the chief flour milling center of the United States from 1880 to 1930.

Minneapolis early became the most important milling center of the Northwest due to the immense amount of water power available at the Falls of St. Anthony. Here the Mississippi River is only about 1,000 feet wide and it has a fall of about 75 feet within the space of a mile, thus creating a potential power estimated at about 50,000 horsepower. The first use of the water power was by troops stationed at Fort Snelling, who built saw and grist mills on the west bank in 1821-1822 to supply the garrison. In 1847-1848 Franklin Steele built a dam and the first commercial sawmill on the east side of the falls. In 1849, Robert Smith secured control of the old government mills on the west bank, and put into operation the first commercial flour mill. There also, he laid out the city of Minneapolis. After 1848 an ever-increasing number of logs cut in the forests above were floated down to the falls, and a large sawmill complex began to grow up there. By 1870, with 13 sawmills in operation, and an annual cut of 118,233,113 board feet, Minneapolis became the chief sawmill center of Minnesota, and from about 1890 to 1905 it was the chief sawing center of the world.<sup>1</sup> The last of Minneapolis' once great sawmills, that of Frederick Weyerhaeuser and Associates, closed forever in 1919.

<sup>1</sup>Sawmills and lumber production at Minneapolis, 1848-1902.

	<u>No. of Mills</u>	<u>Annual Cut in Board Feet.</u>
1848	1	500,000
1856	8	12,000,000
1871	13	118,233,113
1878	17	130,274,076
1880		195,452,182
1888		337,663,301
1890		343,573,000
1899		594,373,000
1902		465,244,000

During the 1860s a flour milling center also began to slowly evolve at the Falls of St. Anthony and in the next two decades that followed, it eclipsed lumbering as Minneapolis' largest industry. Miles of tunnels and canals riddled the land along the river, draining water from the Mississippi above the falls to power the flour mills. In 1880, with 27 mills producing over 2 million barrels of flour annually, Minneapolis surpassed St. Louis as the milling capital of the United States--an honor it finally lost to Buffalo, New York, in 1930.<sup>2</sup>

### Present Condition of the Site

All traces of the Minneapolis' once important sawmills, which ceased operations in 1919, are completely gone.

One of the important flour mills that helped make Minneapolis the flour milling capital of the nation from 1880 to 1930, however, still stands. This mill, the giant Pillsbury A mill, is still an active flour mill. When erected in 1880-81, this was the largest such mill in the world. The structure was 180 feet long, 150 feet wide, and six stories or 117 feet high. The foundation side walls are of limestone 8 1/2 feet thick and the rough coursed ashlar walls even as high as the sixth story are 2 1/2-feet thick. When the mill was completed in 1881, it had a daily capacity of 5,000 barrels. It was further improved in 1905 so that its daily capacity was increased to 14,000 barrels. The mill is not open to visitors.

References. June D. Holmquist and Jean A. Brookins, Minnesota's Major Historic Sites, A Guide (St. Paul, 1963), 33-38; Charles B. Kuhlmann, The Development of the Flour Milling Industry in the United States (Boston, 1929); Minnesota, A State Guide (American Guide Series) (New York, 1947), 92-94, 188-189; Frank R. Holmes, ed., Minnesota in Three Centuries (4 vols., Mankato, Minn., 1908) Vol. 4, 419-30; Theodore C. Blegen, Minneapolis, A History of the State (St. Paul, 1963), 346-357; Agnes M. Larson, History of the White Pine Industry in Minnesota (Minneapolis, 1949).

<sup>2</sup>Flour Mills at Minneapolis and annual production, 1849-1916:

	<u>No. of Mills</u>	<u>No. of Barrels</u>
1849	1	
1860	4	30,000
1870	13	250,000
1880	27	2,052,000
1890	24	7,434,000
1900	24	14,863,000
1910	24	16,697,000
1916	24	20,443,000

By 1890 87% of this milling capacity was in the hands of four large corporations.

## SOUDAN MINE, MINNESOTA

Location. Tower-Soudan State Park, one-half mile north of State Highway 1 and 169 at Tower-Soudan, Saint Louis County.

Ownership. State of Minnesota; Division of State Parks.

### Significance

The opening of the Soudan Mine on the Vermillion Range marked the beginning of the exploitation of one of the richest iron deposits of the nation. Described as "one of the great commercial events" of the 19th Century, the shipment of the first iron mined from the Breitung pit of this mine on July 31, 1884, marked the beginning of the development of Minnesota's great iron ore deposits. Despite the fact that the mine has long been an underground operation, the Soudan at first was mined from seven open pits. This mine which operated from 1884 to 1962 is the oldest and deepest in the state. The shaft extends to a depth of 2,500 feet, with drifts and tunnels running three fourths of a mile to the east and west of the shaft. During its peak of production in 1892, the Soudan shipped more than 568,000 long tons of high grade ore and employed 1,800 men.

Iron was first reported in Minnesota as early as 1850. It was not, however, until 1865 that the survey of the iron range was made by state geologist, Henry H. Eames. His report, published in 1866, that he discovered gold as well as iron, touched off the Vermillion gold rush and the discovery of iron was largely overlooked. After the gold of the Vermillion proved unprofitable, George C. Stone, a promoter from Duluth, brought Minnesota iron to the attention of Charlemagne Tower, a wealthy Pennsylvania industrialist. After sending Professor Albert H. Chester to report on both the Mesabi as well as the Vermillion range over five years later, Tower purchased land on the Vermillion. In 1882, he incorporated the Minnesota Iron Company and transferred to it more than 20,000 acres of land Stone had acquired for him in Minnesota. A year later, Tower gained control of the Duluth and Iron Rouge Railroad, which he completed the following year, linking the mine with Two Harbors on Lake Superior.

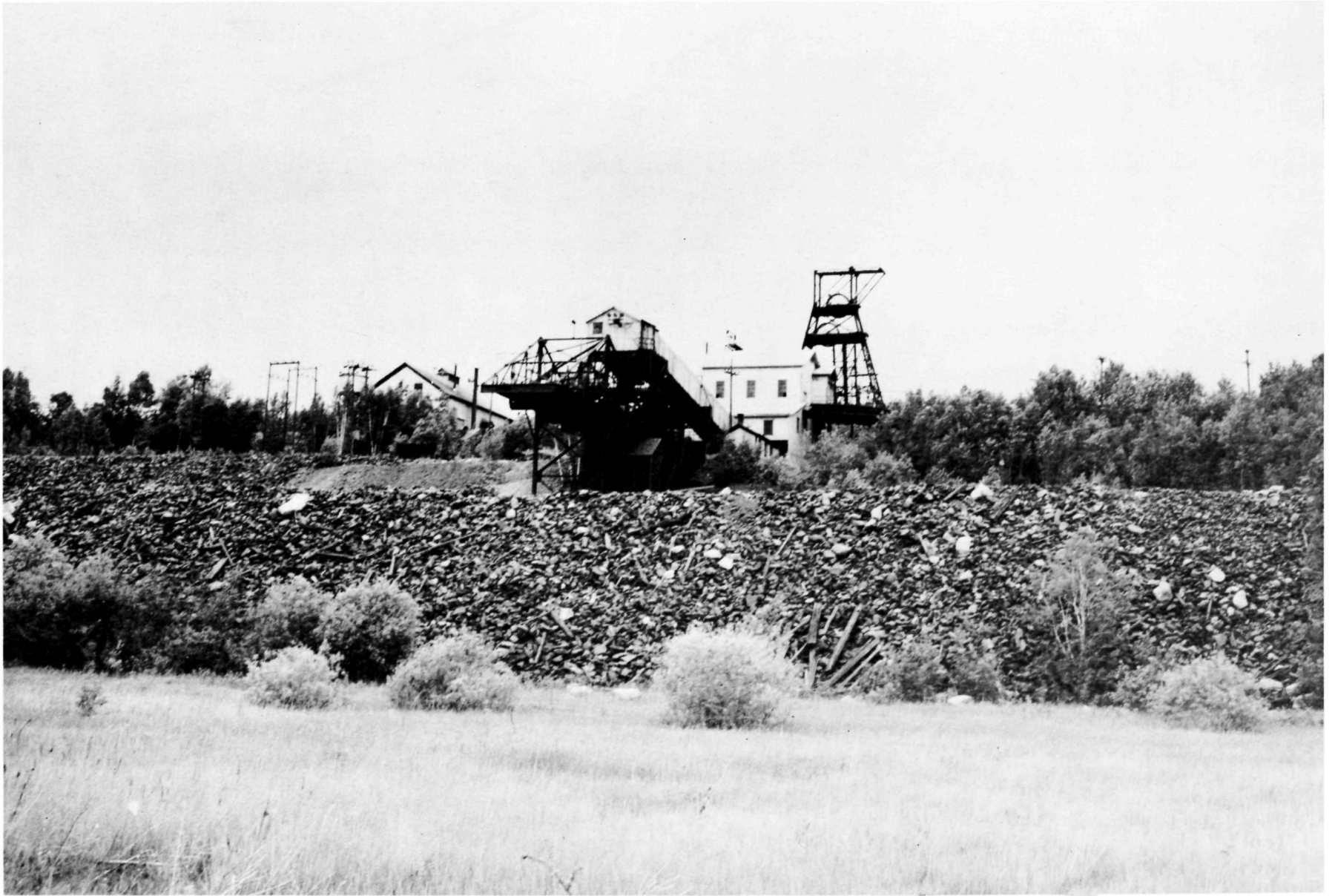


### Present Condition of the Site

After the mine ceased operation in 1962, it was presented to the State of Minnesota by its owners, U. S. Steel Corporation (Oliver Iron Mining Division). It has been under development as a State Park since 1963, and during the summer of 1965 tours of its underground shaft were offered to visitors and a new visitor center was opened.

A number of structures survive from the early days of operation. They include the engine house, drill shop, crusher house, and dry house; the head frame was installed in 1924. The visitor center contains exhibits, a small theater for showing of a film on iron mining, and a gift shop.

References: June D. Holmquist and Jean A. Brookins, Minnesota's Major Historic Sites: A Guide (St. Paul, 1963); Works Progress Administration, Minnesota: A State Guide (New York, 1938); "Mining Industry to Celebrate 75th Birthday at Tower-Soudan," Ore Iron and Men (Oliver Iron Mining Division Publication), Vol. 9, No. 6 (June 1959); Henry O. Evans, Iron Pioneer, 1840-1940 (New York, 1942); Hal Bridges, Iron Millionaire, Life of Charlemagne Tower (Philadelphia, 1952).



Soudan Mine, Vermillion Range, Minnesota

N. P. S. Photo, 1964

## HULL-RUST-MAHONING OPEN PIT IRON MINE, MINNESOTA

Location. Saint Louis County, north of Hibbing,  
via Third Ave. East.

Ownership and Administration. U. S. Steel Corporation.

### Significance

The Hull-Rust-Mahoning open pit mine of the Mesabi range is the largest iron mine in the world. It was the immense output of this mine, as the chief producer of the Mesabi range, that was to revolutionize the American steel industry, make Minnesota the largest producer of iron ore in the nation, and enable the United States to become the world's largest manufacturer of steel. Developed in 1895, the Hull-Rust-Mahoning mine was also among the first of the world's mines to be worked by open pit or strip mining techniques.

While the Mountain Iron Mine was the first to be developed on the Mesabi range, it was far from the largest and most productive mine to be discovered there.<sup>1</sup> That distinction is reserved for the combination of mines known as the Hull-Rust-Mahoning open pit mine near Hibbing. The area of this mine was explored by W. C. Agnew in 1893-94 and operations began in 1895. Unlike the deep iron deposits of the Vermilion range, which had to be mined by underground workings, those of the Mesabi lay near the surface. This circumstance led to the invention of the new technique known as open pit or strip mining. In this latter process the earth above these shallow deposits is removed and then the exposed ore is mined by giant steam shovels which load the excavated ore directly onto railroad cars to be carried to the steel mills. This method was first experimented with at the Biwabik mine on the Mesabi range in 1892-93 and was then immediately adopted at the Hull-Rust-Mahoning mine in 1895.

From the first shipment of ore in 1892 until 1961, the giant Mesabi range has supplied over two billion gross tons of iron ore for the nation's steel furnaces, or more than one-half of the iron ore mined in the United States during those years. Of this Mesabi output, more than 500,000,000 gross tons--or about a fourth of all ore shipped from this range--have come from the giant Hull-Rust-Mahoning mine.<sup>2</sup>

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<sup>1</sup>Mountain Iron Mine was discovered on November 16, 1890, and began producing on October 17, 1892.

<sup>2</sup>For Footnote 2, see next page.

### Present Condition of the Site

The Hull-Rust-Mahoning mine is not one mine but a combination of more than nine open pits operating from what appears to be a single hole in the ground. It has frequently been called "Minnesota's Grand Canyon," because more material has been removed from it than was removed from the Panama Canal in its construction. The mine, which is still active, is now more than 1 1/2 miles wide, 3 miles long, and 534 feet deep. An observation platform is located on the south rim, from which visitors can safely view the operations. The State of Minnesota has also undertaken to interpret the history and operations of the mine.

References. F. P. Wirth, The Discovery and Exploitation of the Minnesota Iron Lands (Cedar Rapids, 1937); June D. Holmquist and Jean A. Brookins, Minnesota's Major Historic Sites, A Guide (St. Paul, 1963), 172; Frank R. Holmes, ed., Minnesota in Three Centuries (4 vols., Mankato, Minn., 1908), Vol. 4, 375-384; Theodore C. Blegen, Minnesota, A History of the State (St. Paul, 1963), 359-383; Charles E. Van Barneveld, Iron Mining in Minnesota (Minneapolis, 1912), 40-41.

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<sup>2</sup>Comparative figures, 1892-1907, on the output (in tons) of iron ores from the Vermilion and Mesabi ranges in Minnesota:

	<u>Vermilion Mines</u>	<u>Mesabi Mines</u>
1892	1,167,650	4,245 (First Year)
1893	820,621	613,620
1894	948,513	1,793,053
1895	1,077,838	2,781,587
1896	1,088,090	2,882,079
1897	1,278,481	4,275,809
1900	1,675,949	7,809,535
1905	1,578,626	20,156,566
1907	1,792,355	23,792,553

## ANHEUSER-BUSCH BREWERY, MISSOURI

Location. 721 Pestalozzi, St. Louis

Ownership. Anheuser-Busch, Inc., 721 Pestalozzi, St. Louis;  
August A. Busch, Jr., President.

### Significance

The brewing industry in St. Louis had its inception in the first decade of the 19th century, but not until the great German migration of the 1840's did it attain major economic importance. The first lager-beer brewery was founded in 1841, and by 1854 there were 24. The Missouri Republican reported in the latter year that St. Louis residents consumed some 18 million glasses of beer between March 1 and September 17, "the time the lager beer gave out". [Quoted in Scharf, Vol. II, p. 1331.] By 1881, the output of St. Louis breweries for local consumption had reached over 263 million glasses, or 658 glasses for every man, woman, and child. By that time, however, the St. Louis product had attained a world-wide market.

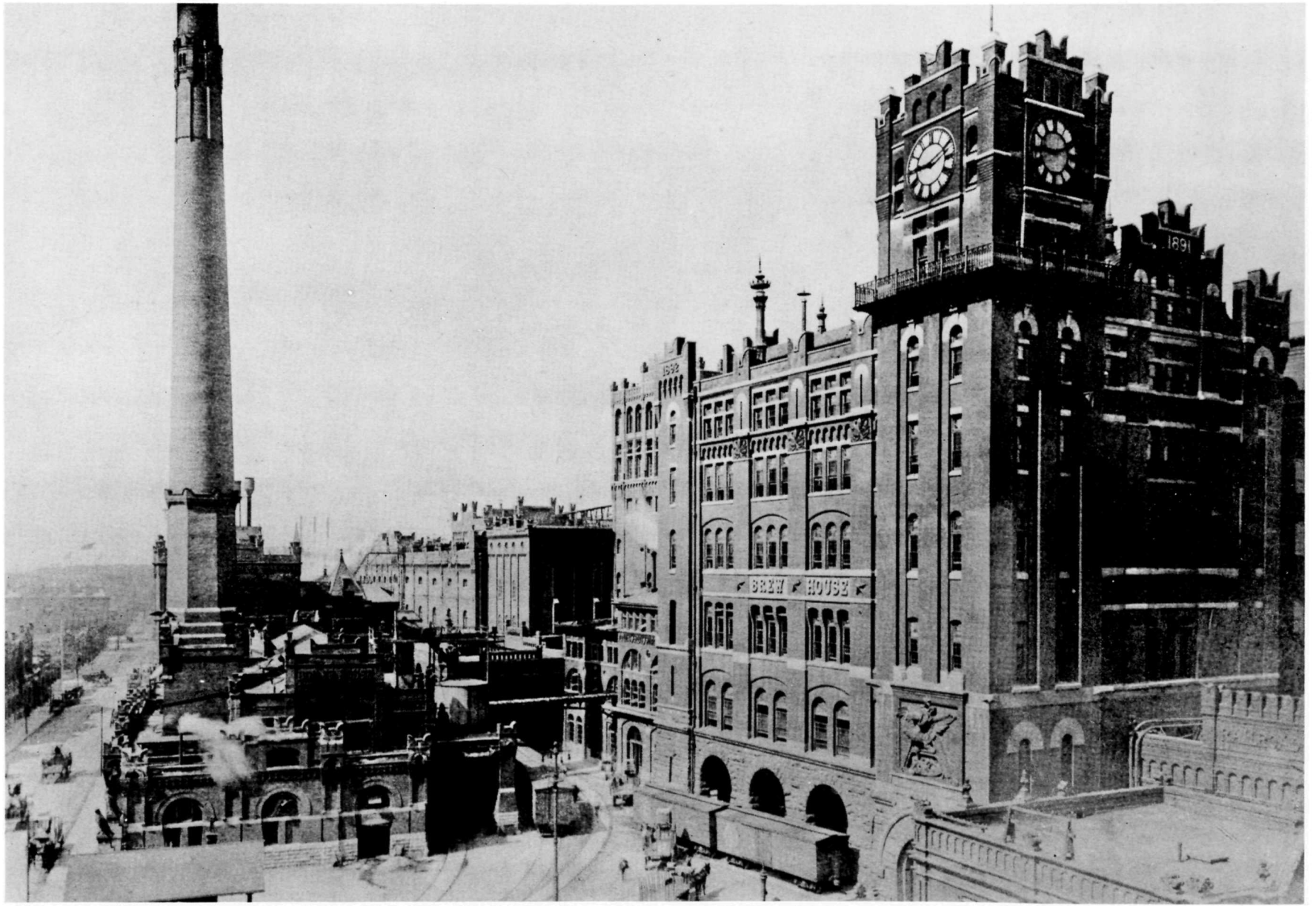
The international expansion of the St. Louis brewing industry was due primarily to the business acumen of Adolphus Busch, a German immigrant who had come to the city in 1857 as a young man of 20. Four years later he married the daughter of Eberhard Anheuser, who was proprietor of the small Bavarian Brewery. Busch bought control of the business in 1865, and his vigorous administration brought rapid growth: from 8,000 barrels in 1865, its output increased to 18,000 in 1870 and to 27,000 in 1873. In the latter year, he perfected a method of pasteurizing his product before bottling it, thus making possible its distribution over long distances. Vigorous salesmanship paid tremendous dividends, and the output grew phenomenally. The rate of increase rose from 40,000 barrels annually to more than 100,000; in 1901, sales passed the million barrel mark, and six years later they reached nearly 1.6 million barrels - by far the largest output of any brewery. Today the firm, which was incorporated as E. Anheuser and Company in 1873 and became Anheuser-Busch in 1880, operates four breweries with a total annual shipping capacity of 11 million barrels.

Besides being the first brewery to adopt the pasteurization process, the firm also pioneered in the use of refrigerator cars to ship beer and icehouses for its storage in the southern part of the United States.

### Present Condition of the Site

The home plant of Anheuser-Busch in St. Louis covers some 70 city blocks and consists of 158 manufacturing and warehouse buildings. The oldest buildings in the complex are the three-story Administration Building (1875); the original stable building, a one-story structure dating from 1885; and the six-story brew house (1891-92). The buildings are of elaborate brick construction, ornamented with gargoyles and other imaginative figures, and with elaborate interiors. Included within the 140-acre area is the site of the original Bavarian Brewery.





Anheuser-Busch Brewery, St. Louis, Missouri, about 1900

Courtesy of Anheuser Busch, Inc.

### WATKINS MILL, MISSOURI

Location. Two miles northwest of Excelsior Springs, Clay County, near junction of U. S. Highway 69 and State Highway 92.

Ownership. State of Missouri; Division of State Parks

Built in 1859-1860 as the central feature of a self-sufficient community on Missouri's western frontier, Watkins Mill today is probably the best preserved example of a mid-nineteenth century woolen mill. Not only the building, but the rare machinery and the voluminous business records also have been preserved.

Waltus Watkins, builder of the mill, was born in Virginia in 1806 and grew up in Kentucky. At the age of 25 he moved to Liberty, Missouri, where he operated a gristmill and later, a cotton mill. The baled cotton was brought up the Missouri River from St. Louis. In 1838 he bought the land for his Utopian community and built a log cabin residence. In 1851 he built a large brick manor house and, some time later, an octagonal schoolhouse for his own and the children of his workmen. At first Watkins carried on a grain and stock farming operation, but in 1859 he began to build his woolen mill. He salvaged a boiler from a sunken steamboat and ordered the latest equipment from the East, along with skilled operators. Other labor was hired locally, but many of his employees lived in cottages he built for them. Watkins died in 1884, and about two years later the mill ceased operation.

The property remained in the hands of Watkins' heirs until 1945. The new owners preserved the buildings and records, but efforts to bring the mill into public ownership were unavailing. When the property was sold again at public auction in 1957, the mill records and Watkins family papers were given to the Jackson County Historical Society, and were deposited in the Harry S. Truman Library. A non-profit organization, the Watkins Mill Association, was formed to operate the mill as a museum under lease from the new owner. It became a State Park in May 1962.

### Present Condition of the Site

The three-story brick mill survives, together with the manor house and the octagonal schoolhouse. Both the mill and its machinery are in an excellent state of preservation.

The mill has been termed "unique" by an authority on the subject, who stated:

...There is not, to my knowledge, one other example of a 19th century textile mill with all the original machinery....

The textile machines--carding machines, spinning machines, looms, and so forth--represent the finest types manufactured in the United States in the third quarter of the 19th century. Generally speaking, textile machines of this period have not been preserved, as mills in operation discarded them as they wore out or became obsolete. The two ring frames, used as twistors, are the earliest full-size machines of this type in existence. The ring frame was invented by an American, John Thorpe, and patented in 1829. We have several patent models in our collection, but I do not know of a single full-size ring frame in a museum collection in this country.<sup>1</sup>

References: W. Howard Adams, "The Story of Watkins Mill", Museum News, Vol. 40, No. 9 (May 1962).

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<sup>1</sup>Letter from Grace L. Rogers, Associate Curator in Charge, Division of Textiles, Smithsonian Institution, to Ray H. Mattison, National Park Service, October 9, 1961.



Watkins Woolen Mill, Clay County, Missouri. Built in 1861 and abandoned in 1886

N. P. S. Photo, 1956

## GLENN POOL DISCOVERY OIL WELL, OKLAHOMA

Location. Tulsa County, about 8 miles south of Tulsa, at Glenn Pool, on N. W. Corner of Junction 75 and State 67. (Ida Glenn Farm, S.E. 1/4 S4-T17N-R12E).

Ownership. Mr. Rudolph E. O'Donley, Jenks, Oklahoma.

### Significance

The Glenn Pool Oil Field, discovered in November, 1905, was the greatest and most important of all the early Oklahoma oil fields. The output from the Glenn Pool field made Oklahoma the No. 1 oil-producing state of the Southwest from 1906 to 1927, and No. 1 in the nation from 1915 to 1927.<sup>1</sup>

Robert Galbreath of Tulsa and Red Fork drilled the first well in the Glenn Pool field on the Ida Glenn farm and on November 22, 1905, brought in an 85-barrel-a-day producer at the depth of 1,481 feet.<sup>2</sup> His second well, a short distance to the south of the first, yielded 700 barrels a day, and the nearby third, 2,000 barrels. Lying near the earth's surface, the Glenn Pool oil could be tapped with moderate drilling cost, and the field yielded high quality petroleum. Promoters, speculators, and developers flocked in and soon derricks rose all around the discovery well. By the end of 1906 there were 125 wells at Glenn Pool yielding a total of about 69,000 barrels of oil a day. The field then included nearly 8,000 acres.

Lack of storage tanks and of pipelines and railroads to transport the oil to the Gulf Coast refineries at first limited production, but by the fall of 1907 these shortages had been remedied. In the first 9 months of 1907 the total output of the Glenn Pool field amounted to 27,050,100 barrels, or an average of 3,381,263 barrels a month; this production broke all previous records in the history of

<sup>1</sup>In 1905 Oklahoma produced only 24.49% of the oil from the Southwest, but in 1906 its output leaped to 50.08% of that regional total. In 1922 the leading oil-producing states, in order of rank, were as follows:

- |                |                           |
|----------------|---------------------------|
| 1. Oklahoma,   | with 149,571,000 barrels. |
| 2. California, | " 138,468,000 "           |
| 3. Texas,      | " 118,684,000 "           |
| 4. Kansas,     | " 35,376,000 "            |

<sup>2</sup>The discovery well was also known as Galbreath-Chesley Well No. 1.

American crude oil production.<sup>3</sup>

Tulsa was but a rural village in 1900, but as a result of the petroleum discoveries at Red Fork in 1901, Glenn Pool in 1905, and at other nearby fields, it had become an oil city of 70,000 people by 1920.

Production at Glenn Pool declined greatly after 1918, but the field still produces some oil. The Glenn Pool Discovery Well is no longer productive.

References. Carl C. Rister, Oil! Titan of the Southwest (Norman, 1949), 89-94, 97, 119, 124. Ruth Kent, et al, Oklahoma, A Guide to the Sooner State (Norman, 1957).

#### Present Condition of the Site

The Ida Glenn farm (now the O'Donley farm) is still located in a rural area, but the locale is rapidly being subdivided for suburban housing purposes. The original Glenn farm house and out-buildings are also still standing but are not used at present. The Discovery Well is located about one-half mile to the northwest of the house in a rear pasture. All that remains of the well is its rusting casing. A concrete slab with an inscription that once marked the well site has disappeared.

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<sup>3</sup>Oklahoma's production of oil, 1904-1916, increased as follows:

1904	-	1,366,748	barrels
1905	-	8,562,716	"
1906	-	18,618,533	"
1907	-	43,524,128	"
1910	-	52,028,718	"
1913	-	62,500,000	"
1916	-	107,072,000	"





Glenn Pool Oil Discovery Well Discovery Site, Oklahoma. Mr. R. E. O'Donley, owner, pointing to the casing, the only visible remains of the well.

N. P. S. Photo, 1966

SAMUEL ELMORE SALMON CANNERY, OREGON

Location. Clatsop County, on the waterfront at the foot of Flaval Street, in the city of Astoria.

Ownership and Administration. Bumble Bee Seafoods, Inc.,  
Foot of 6th Street, Astoria, Oregon.  
Mr. John S. McGowan, President.

Significance

From 1875 to 1887 Astoria was the world capital of the salmon canning industry and from 1888 to date Astoria was the chief center of the Columbia River salmon canning industry. The former Samuel Elmore salmon cannery, built in 1881, is the finest surviving example and also the oldest continuously operated salmon cannery in the United States.

The first commercial salmon cannery on the Columbia River was erected at Eagle Cliff, Washington, in the fall of 1866 by George and William Hume and Andrew S. Hapgood. Their operations, which began in 1867, marked the beginning of the great multi-million dollar salmon canning industry that soon developed on the Columbia River. From 4,000 cases valued at \$64,000 in 1867, production increased in 1870 to 150,000 cases valued at \$1,800,000.

Astoria's first cannery was erected in 1873, and by 1875 that town had emerged as the salmon capital of the world. Between September and December of 1875 24 ships sailed from Astoria bound for Europe with cargoes of salmon. In 1877, 11 out of the total of 17 canneries in operation on the Columbia River were located at Astoria. By 1880 there were 29 canneries operating on both banks of the Columbia and located between Astoria and the Cascades. These represented a capital investment of \$1,000,000 and gave occupation to 2,500 fishermen, half of whom lived in or near Astoria, and the rest in smaller cannery towns along the river, and to 3,100 Chinese, who worked in the canneries. In 1880 these canneries produced 530,000 cases of canned salmon valued at \$2,650,000; 1,200 boats were then employed on the Columbia catching fish.

The peak on the Columbia was reached in 1883, when the 39 canneries (24 of which were located at Astoria) in operation produced 629,000 cases valued at \$3,147,000, and 1,600 boats were employed on the river.

In 1888, however, the Alaska salmon pack surpassed that of the Columbia for the first time. In 1889 the British Columbia production, and in 1899, the Puget Sound output both exceeded that of the Columbia. By 1889 the number of salmon in the Columbia had begun to decrease rapidly and the number of Columbia River canneries also fell correspondingly from 39 in 1883 to 21 by 1890. In 1913 there were only 15 salmon canneries still in operation on the Columbia.

This failing supply of salmon, together with the intense competition in the industry, led to combination among the formerly independent canneries. In 1898-99 A. B. Hammond organized the Columbia River Packers Association at Astoria. This corporation, modeled after the Alaska Packers Association of San Francisco, which had been successfully formed in 1892, united eight companies into the largest and most powerful firm on the Columbia. In 1914 this "Combine" (reorganized in 1925 as the Columbia River Packers Association, Inc.) produced about 140,000 cases out of the total Columbia pack of 454,621 for that year. In 1956 the Columbia River Packers Association was again reorganized as the Bumble Bee Seafoods, Inc.

#### Condition of the Site

Samuel Elmore, who had been associated with Robert D. Hume, one of the Hume brothers, since 1875 in a San Francisco commission and canned salmon brokerage business, came to Astoria and set up the Elmore Packing Company. The first pack, in 1881, was only 7,890 cases out of a total of 549,115 cases packed by the 35 canneries then operating on the Columbia River. But the Elmore Packing Company shortly thereafter became one of the largest canneries on the Columbia. In 1898-99 Elmore was also influential, with A. B. Hammond, in organizing the "Combine" and Elmore later became vice-president and manager of this corporation. Elmore also owned cannery operations situated on Tillamook Bay, and the Nehalem, Alsea, Siuslaw, and Umpqua rivers in Oregon.

The Elmore plant is the oldest continuously operated salmon cannery in the United States. All salmon canning operations of the Columbia River pack of Bumble Bee Seafood, Inc. are done here. Tuna is also canned here, so that there are continuous operations here, even during the closed seasons on salmon.

The Elmore Cannery has been modernized, but the main canning and storage building erected in 1881 is still standing and is utilized for their original purpose. Also standing is a two-story bunkhouse that was formerly used to house the Chinese cannery employees. This building is now utilized as an office. These structures are in excellent condition.

During the summer season guided tours of the cannery are run regularly and visitors are encouraged to visit the plant. The Elmore Cannery fronts immediately on the main U. S. Highway 101 route through Astoria.

References. John S. Hittell, The Commerce and Industries of the Pacific Coast of North America (San Francisco, 1882), 379-383; Emma G. Miller, Clatsop County, Oregon (Portland, 1958); 235-250; Oregon, End of the Trail (American Guide Series) (Portland, 1940), 152-156; Hubert H. Bancroft, History of Oregon (2 vols., San Francisco, 1888) II, 708, 730; Dorothy O. Johansen and Charles M. Gates, Empire of the Columbia (New York, 1957), 475-78, 481-83.



Samuel Elmore Cannery and Former Chinese Bunk House (Right), 1881, Astoria, Oregon

N. P. S. Photo, 1965



## JACKSONVILLE, (HISTORIC DISTRICT), OREGON

Location. Jackson County, six miles west of Medford.

Ownership. Historic District, Southern Oregon Historical Society, Inc., Jacksonville, and various individual private owners.

### Significance

Jacksonville, founded in 1852, was the principal trading and financial center of southern Oregon from 1852 to 1884, and also that state's most important mining town. Its large number of surviving and unaltered commercial and residential buildings make Jacksonville, architecturally speaking, the finest existing example of a small commercial 19th century town in Oregon.

Placer gold was discovered at Rich Gulch on Jackson Creek in the Rogue River valley in 1851 or early 1852. By the summer of 1852 Jacksonville had sprung into existence in the form of a tent city with a population of about 500. An additional 1,500 to 2,000 miners were also working the placers in that vicinity. By January 1853, when Jacksonville became the county seat of Jackson County, the mining town had from 150 to 200 frame structures and its population had reached 900. Its first brick buildings were also erected in 1853 and by the end of that year Jacksonville had emerged as the principal financial and trading center of the southern Oregon mining country.

The town's early years were tempestuous; Indian attacks were experienced in 1853. The Rogue Indian War in 1855 halted all gold production as miners were enlisted in the Jacksonville militia companies to fight in this war. The southern Oregon placers yielded about \$1,000,000 a year in gold in 1852 and 1853, and reached about \$1,250,000 annually in 1856. In the 1870's hydraulic mining was then utilized to rework the placers and quartz or lode mining was also developed. These mining operations created a considerable demand for agricultural produce, and farming therefore made rapid headway in southern Oregon.

A fire destroyed a considerable portion of Jacksonville's business district in 1873, but this was at once rebuilt. In 1880, with a population of from 800 to 900, Jacksonville was still the chief town in southern Oregon. The town began to gradually decline after 1884, however, when the California and Oregon railroad by-passed Jacksonville by running four miles to the east of the town. The final blow was struck in 1927 when the county seat was removed to Medford.



Beekman Bank, 1856 (on corner, right); Sutton's Drug Store (center), Neuber's Card Room (left) Jacksonville, Oregon

N. P. S. Photo, 1960



### Present Condition of the Site

Today Jacksonville is one of the best preserved 19th century trading and financial towns to be found in the Far West. Still standing and generally in excellent condition are about 60 buildings that illustrate the entire range of architecture utilized in the Far West between 1853 and 1884. Its buildings include a hotel, drug store, bank, town hall, court house, and a number of stores, saloons, pool halls, residences, and churches. These brick and frame structures are built in the Greek Revival, Gothic Revival, and Italian Villa styles that were widely used on the Pacific Coast during the last half of the 19th century.

Most of these buildings are still being used for their original purposes. The Southern Oregon Historical Society, Inc., maintains an impressive museum composed of many historical photographs and artifacts in the former Jackson County Courthouse at Jacksonville. Visitors are encouraged to tour the town and guide leaflets are available. The Beekman Bank, built in 1856 and located at 3rd and California Streets, is also open to visitors. This is a unique example of a frontier bank, in that its original equipment has been preserved intact. The historical society is also endeavoring to preserve the entire town.<sup>1</sup>

References. Marion D. Ross, "Jacksonville, An Oregon Gold-Rush Town," Journal of the Society of Architectural Historians, Vol. XII, No. 4 (December, 1953), 19-25; Hubert H. Bancroft, History of Oregon (2 vols., San Francisco, 1888), Vol. II, 166, 186, 253-254, 299, 712; Marion D. Ross, "Architecture in Oregon, 1845-1895," Oregon Historical Quarterly, Vol. LVII, No. 1 (March, 1956), 43, 45, 46, 48, 53, 56, 57, 58; Historic Jacksonville (Booklet published by Southern Oregon Historical Society, Jacksonville, 1950), William J. Trimble, The Mining Advance into the Inland Empire (Madison, 1914), 73-74; Muriel S. Wolle, The Bonanza Trail (Bloomington, 1955), 305-311; Arthur L. Throckmorton, Oregon Argonauts (Portland, 1961), 162-168.

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<sup>1</sup>For Historic District purposes, most (about 24) of the historic structures are concentrated in an area bounded by 4th Street on the east, Main Street on the south, Oregon Street on the west, and C Street on the north.



Odd Fellows Hall, 1855, (right); Table Rock Billiard Saloon, 1856 (center); Masonic Bldg., (left); Jacksonville, Oregon  
N. P. S. Photo, 1960

## SPINDLETOP OIL FIELD (THE LUCAS GUSHER), TEXAS

Location. Jefferson County, three miles south of Beaumont, on Spindletop Ave. near its intersection with Port Arthur Rd.

Ownership. The Lucas Gusher Monument Association.  
Mr. Scott Myers, President.

### Significance.

Tapping of the famous Spindletop Field by the Lucas Gusher, which came in on January 10, 1901, not only opened the vast oil deposits of the Texas Gulf Coastal plain and Louisiana to development, but also opened the modern era of the American petroleum industry. The enormous output of the Spindletop Field led the petroleum industry into a successful search for new uses for oil, for new fields in Louisiana, Oklahoma, and Texas, and for new techniques of producing, refining, transporting and marketing oil. The unprecedented increased petroleum production after 1901 forced the industry into the fuel oil market, and within a few years stimulated wide use of fuel oil by steamships, locomotives, and factories. The increased petroleum supply, together with refining improvements, also made available a cheap fuel, gasoline, and lubricants for use in the rapidly expanding automobile industry. The Spindletop discovery was thus one of the major events in the history of one of the most important American industries.

Promotion and exploration in the Beaumont area began in 1892, but a thick formation of quicksand persistently balked efforts. In 1898 Anthony F. Lucas, a Washington, D. C. mining expert on salt dome structures, contracted with the Hamill brothers of Corsicana, Texas, to drill a well. Work began in October, 1900, and after three months of hard labor and discouraging setbacks, the drill broke through the quicksand to loose a violent gusher that, until capped eight days later, erupted 75,000 barrels of oil each day. The Lucas gusher precipitated a boom. Thousands of oilmen and would-be oilmen converged on Beaumont and that town's population increased in three months' time from 10,000 to 30,000; land values skyrocketed, and oil derricks rose everywhere.<sup>1</sup> Hundreds of companies, including the Gulf Oil Corporation and the Texas Company, were organized at Spindletop in 1901. By 1902 pipelines had been built to carry the crude oil 19 miles to Port Arthur on the coast, where several refineries were erected to process the oil and many tanks built to store the oil.

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<sup>1</sup>By the summer of 1901 there were 214 wells at Spindletop.

Output of the Spindletop Field rose from 3,593,000 barrels in 1901 to 17,421,000 in 1902.<sup>2</sup> The Spindletop field produced a total of 42,773,650 barrels from 1901 to 1910, but then declined after 1911, due principally to overproduction. In 1925, however, wells were drilled to a deeper strata and this ushered in a new era of production. Production from Spindletop and later discovered oil fields made Texas the third ranking oil producing state in the nation by 1922 and the first after 1927.<sup>3</sup>

### Condition of the Site

The Spindletop oil field is still producing oil today, although on a greatly reduced scale from its peaks of production in 1902 and 1927. The original site of the famous Lucas gusher is now marked by a tall granite monument. On one side an inscription reads: "Petroleum has revolutionized industry and transportation, it has created untold wealth, built cities, furnished employment for hundreds of thousands and contributed billions in taxes to support institutions of government. In a brief span of years, it has altered man's way of life throughout the world." \*\*

References. Carl C. Rister, Oil! Titan of the Southwest (Norman, 1949), 50-69, 181-185, 392, 412-13; W. P. Webb, ed., Texas Handbook (2 vols., Austin, 1952), II, 651.

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<sup>2</sup>Texas oil production in thousands of barrels was as follows:

1900	-	836	1905	28,136
1901	-	4,394	1910	8,899
1902	-	18,084	1916	27,645

<sup>3</sup>In 1922 the leading oil producing states, in order of rank, were as follows:

1.	Oklahoma, with	149,571,000 barrels annually.		
2.	California "	138,468,000	"	"
3.	Texas "	118,684,000	"	"
4.	Kansas "	35,376,000	"	"

\*\*The immediate locale of the site is pastureland. The fence plot, which measures some 80 by 88 yards, contains, in addition to the 58-foot monument, original 1901 wooden oil tanks, an oilwell pumper, and a replica of a wooden derrick.



The Lucas Gusher Monument, Spindletop Oil Field, Texas

N. P. S. Photo, 1965



## BINGHAM CANYON OPEN PIT COPPER MINE, UTAH

Location. Tooele County, on Utah Route 48, 16 miles southwest of Salt Lake City.

Ownership and Administration. Kennecott Copper Corporation.

### Significance

The Bingham Canyon copper mine, developed in 1904, is the first open pit copper mine in the world.

Gold, silver, lead, and copper deposits were found in Bingham Canyon by Mormon farmers as early as 1848, but the church hierarchy, fearing the inevitable mining rush, prohibited exploitation, or publication of the mineral resources of Utah. In 1863, however, the federal commander at Camp Douglas, Col. Patrick E. Connor, learned of the minerals in Bingham Canyon and promptly broadcast the news throughout the country. The first claim in Bingham Canyon and Utah was staked in September, 1863. A rush followed, the mining camp of Bingham Canyon appeared, and in December, the mining district of West Mountain was formed. Both lode and placer mining yielded considerable quantities of gold and silver bearing ore, although the expense of transportation and equipment made placer operations by far the more profitable. By 1870 the placers had given out, but completion of a railroad into the canyon made lode operations a paying proposition. In 1871 there were 35 mines active in this district. By 1882 the Bingham Canyon mines had yielded \$1,500,000 in gold, \$8,800,000 in silver, and \$5,000,000 in lead. The low-grade copper deposits in the canyon, however, were largely neglected during the period.<sup>1</sup> The fall of the price of silver in 1893 brought silver and lead mining almost to a standstill. In 1896 the Highboy Mine in Bingham Canyon made the first large shipment of copper ore since 1868, when 5,000 tons of low-grade sulphide ore were sent out.

Bingham's rise as an important copper-producing center, however, was based largely on the activities of Colonel Enos A. Wall, a mining engineer with experience in Colorado, Idaho, and Montana. In 1887 he discovered and filed a claim to the vast deposit of low-grade copper ore that was later to become the great open pit mine of the Utah Copper Company. From 1896 to 1902 Wall vainly endeavored to interest eastern capitalists in providing the funds needed to

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<sup>1</sup>The first shipment of ore from Utah was a carload of copper ore from Bingham Canyon, hauled to Uintah on the Union Pacific railroad, and forwarded to Baltimore in 1868. However, between 1870 and 1883 Utah produced only 1,000 tons of copper, which was sold in New York for about \$300,000.



develop his claim. Daniel C. Jackling, a metallurgical engineer, who had tested the ore in 1899 and predicted that the deposit could be profitably worked, was finally able to interest Colorado capitalists in the Wall claim in 1903.

On June 4, 1903, a company named the Utah Copper Company was organized under the laws of Colorado, with a capital of \$500,000. An experimental plant of 300 tons, known as the Copperton mill, was completed at Bingham in 1904, to determine the method best suited to the treatment of the ore. In April, 1904, the company was then re-organized under the laws of New Jersey and its capitalization set at \$4,500,000. Open pit mining began at Bingham on July 1, 1904. In 1906 the Guggenheims purchased a large block of stock. By 1910 the Utah Copper Company was capitalized at \$25,000,000. The immense production of copper at Bingham lifted Utah from the ranks of the minor copper-producing states in 1902, to fourth place among the leading copper states by 1919.<sup>1</sup>

From 1904 to 1930, the Utah Copper mine yielded 201,623,974 tons of ore, from which 3,601,371,703 pounds of copper were extracted. The gross value of the metals contained in the mill ore was \$839,718,009, and out of this the shareholders received \$215,477,022 in dividends.

Bingham Canyon looks like many other mountain mining towns. Crowded into narrow Bingham Canyon, the town perches on the slope of either side of the canyon. A single main street meanders up the canyon. Three miles west of the town is the great open pit mine, which is still active and is now owned by the Kennecott Copper Corporation.

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<sup>1</sup>Mining in Utah, 1902-1919

Value of Products

Year	Gold and Silver	Copper	Coal	Total
1902	\$ 8,500,904	\$ 1,459,191	---	\$ 12,378,350
1909	8,545,700	8,432,099	\$ 4,111,987	22,083,282
1919	1,043,960	27,824,207	12,632,635	41,510,802

Active capital invested in Utah mining increased from \$97,983,000 in 1909 to \$178,521,276 by 1919; and the number of people employed in Utah mining from 5,712 in 1902 to 10,758 by 1919. Of this latter figure in 1919, 5,874 worked at copper mining and 3,926 in coal mining.

PORT GAMBLE (HISTORIC DISTRICT), WASHINGTON

Location. Kitsap County, on the northwestern end of the Kitsap Peninsula, near the entrance to the Hood Canal, Puget Sound.

Ownership. Pope & Talbot, Inc. Headquarters, 1 Bush Street, San Francisco. Adolphus Andrews, Jr., President.

Significance

Port Gamble was one of the earliest and most important lumber, producing centers of the Puget Sound region. Today, Port Gamble is the finest surviving example of that region's many 19th century lumber towns.

The Puget Sound region lies in the nation's greatest reservoir of old-growth saw timber; its great forests are composed principally of Douglas fir, but also include large stands of hemlock, cedar, and spruce. Nowhere in the world is there concentrated in such a relatively small area such a large quantity of timber. This strip of heavily forested country in western Washington and western Oregon stretches south for 480 miles from the Canadian border and is from 100 to 150 miles in width, being bounded on the east by the Cascade Mountains and on the west by the Pacific Ocean.

Washington's major industry from 1851 onward has been lumbering, her chief early export being rough Douglas fir planks, boards, and scantling suitable for the frames of houses, for use in the mines, and for fencing. The center of Washington's pioneer lumber industry was located at a few points situated on Puget Sound. Here, vast quantities of timber were located immediately adjacent to good mill sites, which were situated on secure anchorage for the sailing vessels of the period, and which also provided a body of water suitable for holding the logs until they were needed for sawing. This combination of favorable factors, making possible the cheap transportation of lumber by water, made Puget Sound and the northern redwood coast of California the chief centers of the Pacific Coast lumber in the 19th century. Until 1905 water transport carried most of the lumber produced on the Pacific Coast and it was not until the first decade of the 20th century that the construction of railroads made it commercially profitable to exploit the great forests of eastern Washington, Oregon, and California on a large scale.

James Marshall's discovery of gold at Coloma, California, in 1848 was a decisive turning point in the rise of the lumber industry on the Pacific Coast. The rush to the California mines and the rapid influx of gold seekers in 1849 caused a great demand for lumber, both for flumes, sluices, and other necessities of mining in the placers and for

building the California seaport and river towns which supported the miners. By 1849 lumber prices had shot up to \$500 per thousand feet in San Francisco, and even at that, supplies were short. The cutting of timber on the northwest coast of California, along the Columbia River, and in the Puget Sound region of Washington, was at once intensified. This great lumber boom continued until May, 1853, when lumber finally caught up with demand and the day of phenomenal profits in the San Francisco lumber trade were over.

The possibility of making great profits from lumber in the period 1849-1853, however, was sufficient to induce hundreds of enterprising Americans to move into the unsettled little-known, forested areas of the Pacific Coast, thus bringing settlement to large areas that had been avoided by the farmers.

Nowhere on the Pacific Coast is the spread of this type of settlement better demonstrated than on Puget Sound. Seattle, Tacoma, Port Ludlow and Bellingham in 1852; Port Gamble and Port Madison, in 1853; and Port Orchard in 1854, were all established by lumbermen as sawmill sites and lumber-producing centers for the California market. By 1854, there were 15 sawmills, including 4 steampowered mills, in operation in the Puget Sound region. From here a regular fleet of small sailing vessels operated in the coast trade between the Sound and San Francisco and several ships loaded out cargoes for Australia, Asia, and England during the decade. By 1860, lumber production in Washington Territory had almost doubled that of Oregon.<sup>1</sup>

By 1875 Washington's 37 mills produced 130,421,927 board feet of lumber annually, making Washington the 21st ranking state in national lumber production. Of the 1875 production, 117,000,000 board feet were cut by the 12 steam sawmills located on Puget Sound. In 1880 Washington's lumber industry employed 1,687 men and produced 160,000,000 board feet. By 1900 Washington's production of lumber had increased to nearly three billion board feet, thus elevating that state to the fifth rank, and by 1909 Washington had become the number one lumber producing state in the nation.

#### PUGET MILL COMPANY (POPE & TALBOT)

In July, 1853 Captain William C. Talbot of San Francisco and East Machias, Maine, arrived in Puget Sound in the 50-ton schooner Julius Pringle, and began searching the region for a good sawmill site. About five miles south of the entrance to the Hood Canal, a small heavily forested peninsula juttied out to form a sheltered bay about two miles long and half a mile wide. On the west side of this bay he

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<sup>1</sup>For the year ending June 1, 1860, the total value of lumber production in Washington Territory was \$1,172,520; in Oregon, \$690,008; and in California, \$3,943,881. All but \$234,401 of the total value (\$1,406,921) of products produced by industry in Washington Territory in 1860 came from its 32 sawmills.

selected a level sandy spit as the site for the mill. Known first as Teekalet, from the Indian settlement by that name on the bay, the name was changed to Port Gamble in the mid-1860's.

Captain Talbot landed his men, and using eastern lumber, erected a bunkhouse, cookhouse, and store, and roofed these buildings with cedar shakes split from trees growing on the site. Leaving a crew of 10 men to lay the foundation and construct the frame of the new sawmill, Talbot returned to San Francisco. Talbot and his partners, Andrew J. Pope, Charles Foster, and Josiah P. Keller, had logged and built ships in Maine since Revolutionary times. In 1849 they had joined the gold rush to California and had come to San Francisco. In 1853 they were extending lumbering operations to the virgin forests of the Washington Territory, having incorporated the Puget Mill Company with a capital of \$30,000 for this purpose on December 20, 1852. In September, 1853, the 157-ton schooner L. P. Foster, commanded by Captain Keller, arrived at Port Gamble from Boston by way of Cape Horn, loaded with the machinery for the new steam-powered sawmill. A week later the muley saw and mill, which measured 45 by 70 feet, were in operation. The plant could saw about 2,000 feet of lumber a day. New and improved machinery was installed in January, 1854, which increased the capacity to 15,000 feet a day. Production at Port Gamble in 1854 amounted to 3,673,797 feet of sawed lumber, 64,000 shingles, 42,103 feet of piles, and 223 masts and spars, valued at \$70,999.60. In 1856, 52 vessels loaded at Port Gamble, and in 1857 almost 8 million feet were cut, the daily output of mill then being 25,000 feet. Port Gamble was then comprised of the company-owned mill, wharves, dwellings, stores, and shops. In 1858 a second mill, measuring 55 by 250 feet, with a daily capacity of 60,000 feet, was erected. A new mill dock, with an average depth of 90 feet and a frontage of 388 feet, and a merchandise wharf, 33 feet wide and 850 feet long, terminating by a pier 93 by 176 feet, were also constructed. In 1860 the two Port Gamble mills had a combined capacity of 70,000 feet for a 12-hour day, or 21,000,000 feet annually. Actual production was about 18,000,000 feet annually. About 175 men were then employed at Port Gamble. By 1861 the Puget Mill Company also owned and operated a fleet of 10 sailing vessels that had a combined carrying capacity of between 3,000,000 and 4,000,000 feet of lumber. The company had also acquired 32,658 acres of timberland by 1864.

In 1868-69 the 1853 mill was torn down and a new mill, measuring 60 by 200 feet, with a daily capacity of 100,000 feet, was erected. The daily capacity of the two Port Gamble mills was increased to 160,000 feet and 43 million feet of lumber was shipped from Port Gamble in 1875.

In 1874 the Puget Mill Company was reorganized and its capitalization increased to \$2,000,000 in order to finance expansion of the Pope & Talbot empire. In March, 1877, the Puget Mill Company purchased the Utsaladdy sawmill on Camano Island, together with timber, for \$32,000. This plant was rebuilt in 1877-78 and when reopened in

1879, had a capacity of 75,000 feet per 12-hour day. In 1878 the Puget Sound Mill Company next acquired the Port Ludlow sawmill for \$64,000. This plant was also rebuilt, and when opened in 1883, had a daily capacity of 100,000 feet. By 1875 the company was the largest holder of timberlands in the Territory of Washington.

In 1881 the Puget Mill Company operated a fleet of 16 sailing vessels totaling 14,500 tons; the company also owned approximately 150,000 acres of timberland,<sup>1</sup> and their four mills at Port Gamble, Port Ludlow, and Utsalady, were able to produce 99,000,000 feet of lumber annually. As late as 1905 only three milling companies on the Sound--namely, the St. Paul & Tacoma Lumber Company, the Port Blakely Mill Company, and the Puget Mill Company, had a capacity of 100,000,000 feet a year. Production at Port Gamble in 1887 was 43,000,000 feet; this was shipped out in 70 vessels that year. Lumber production reached 67,436,000 feet in 1905.

In the 1890's and early 1900's, when the Middle West lumber barons appeared on the Pacific Coast, the Puget Mill Company was able to maintain its position as a great lumber company.

In 1925 the Chas. R. McCormick Co. of Delaware acquired the Puget Mill Company, and in 1926 the old 1869 sawmill at Port Gamble was demolished and replaced by a mill with a capacity of 300,000 feet per 8-hour day. The old docks were also completely rebuilt.

In April, 1938, the Pope & Talbot Lumber Company was incorporated to take over the former McCormick properties. In 1940 the new firm was again reorganized under the name of Pope & Talbot, Inc.

Because of the limited amount of timber left at Port Gamble, the 1926 mill was reduced in capacity from 600,000 feet a day to 370,000 in 1940, but the Port Gamble sawmill is still active, although operating now on this reduced scale.

#### Present Condition of the Site

Port Gamble is still a company-owned, lumber-producing town, as it has been for over 110 years. A portion of the original village has been demolished, as the population has gradually declined from about 550 in 1900 to 300 in 1961. Still standing, however, are 15 small New England style cottages with steep-pitched roofs that were erected in

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<sup>1</sup>Holdings of the Puget Mill Company extended from Camano and Whidbey Islands and the vicinity of the Stillaguamish River to the lower end of Puget Sound and the Hood Canal in Kitsap, Madison, and Pierce Counties. The only lands removed from the Sound were those near Chelalis and those on the Cowlitz River. Their holdings eventually totaled 186,000 acres.





Employee Residences (1860s) of the Pope and Talbot Lumber Company, Port Gamble, Washington

N. P. S. Photo, 1961



the 1850's; other historic structures include five larger New England box-type residences, several Victorian houses, a church, Masonic Hall, community center, and a company store. A large hotel, erected in 1903, has recently been demolished. The sawmill, erected in 1926 and rebuilt in 1940, is modern and the present docks were also completely rebuilt in 1926.

The buildings and general forested setting of this little town, however, are little changed from their 19th century appearance, and these present a remarkable picture of an important early lumbering community.

References. Stewart H. Holbrook, Holy Old Mackinaw (New York, 1938), 169, 158; Frederic J. Grant, History of Seattle, Washington (New York, 1891), 74-75; Archie Binns, The Roaring Land (New York, 1942), 52-71; Stanley F. Horn, This Fascinating Lumber Business, 69-70, 72, 30-31; Dorothy O. Johansen and Charles M. Gates, Empire of the Columbia (New York, 1957), 346, 389, 390, 462, 464; Oscar O. Winther, The Great Northwest (New York, 1947), 294; The New Washington - A Guide to the Evergreen State (Portland, Oregon, 1950), 71-74, 572-573; Hubert H. Bancroft, History of Washington, Idaho, and Montana (San Francisco, 1890), 9, 24, 32-33, 337-338, 329; William B. Greeley, Forests and Men (New York, 1951), 43-44, 48; John S. Hittell, The Commerce and Industries of the Pacific Coast of North America (San Francisco, 1882), 592; Edward T. Coman, Jr. and Helen M. Gibbs, Time, Tide, and Timber: A Century of Pope & Talbot (Stanford, 1949).



Pope and Talbot Residences and Masonic Temple, Port Gamble, Washington

N. P. S. Photo, 1961

## PORT TOWNSEND (HISTORIC DISTRICT), WASHINGTON

Location. Jefferson County, on the northeastern tip of the Olympic Peninsula, Puget Sound.

Ownership. City Council and various private owners.

### Significance

Strategically located on the eastern end of the Strait of Juan de Fuca, the main entrance to Puget Sound, Port Townsend was Washington's chief port and most important commercial town until the 1890's, when Seattle and Tacoma finally emerged as the great ports and industrial centers of this inland sea. Architecturally speaking, Port Townsend's many fine historic structures make this city the best surviving example of a 19th century Pacific Coast commercial port.

Founded in 1851, Port Townsend became the seat of Jefferson County in 1852 and the port of entry for the customs district of Puget Sound in 1854.<sup>1</sup> In its harbor anchored hundreds of vessels each year while their captains negotiated for cargoes of lumber or wheat in the Puget Sound region. By 1878 Port Townsend had achieved a place among the ranking ports of the United States, and her foreign trade was only exceeded by that of such great ports as New York, Boston, San Francisco, Charleston, and Detroit.<sup>2</sup> In 1889 the number of ships engaged in foreign and coastal commerce clearing and entering Port Townsend made that port second only to New York in the number of ships involved.

Port Townsend's population increased from 264 in 1860 to 593 by 1870 and reached its peak of 7,000 in 1890. By this latter date, however, Seattle and Tacoma, both located on the eastern shore of Puget Sound, had become the chief cities on the Sound. These cities had developed considerable manufacturing plants and were also linked by the Northern Pacific railway with the East. In spite of Port Townsend's efforts to construct a railroad to link up with the transcontinental railroads, the port remained isolated, except by water, and Port Townsend's population declined to 2,000 by 1900. A final blow to Port Townsend's prosperity occurred in 1913 when the customs house was permanently transferred to Seattle.

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<sup>1</sup>Port Townsend was the port of entry for Puget Sound from 1854 to 1913, except for the brief period 1862-1866, when the customs house was located at Port Angeles. In 1913 the customs house was finally removed from Port Townsend to the port of Seattle.

<sup>2</sup>In the year ending June 30, 1878, 309 ships engaged in the foreign trade, totaling 172,743 tons, entered Port Townsend, while 345 such ships, totaling 197,574 tons, cleared Port Townsend. Exports included lumber, wheat, coal, and hops.

Port Townsend's industrial development was considerably less successful than her commercial progress. In 1852 her pioneers organized a joint stock company to engage in fishing and logging. Piles and timbers were cut and shipped to the San Francisco market in 1852-1854. The town's first saw and grist mills, both water-powered, were erected in 1859, but the major commercial sawmill of the area was located at nearby Port Discovery. In 1881 a large sawmill was built at Point Hudson in Port Townsend, but this venture did not prove to be commercially successful. Not until 1927, when the Crown Zellerbach Corporation erected a large kraft paper mill, did Port Townsend become an important industrial center.

#### Present Condition of the Site

Although there are a few structures illustrating the earlier period, the majority of the historic buildings in Port Townsend date from the 1880 and 1890 periods when the city still hoped to maintain its position as the "Key City of Puget Sound." Striving to make this dream come true, its citizens spent \$679,000 in 1889-1890 erecting nearly two-dozen large brick and stone, commercial and public buildings. Most of these 3 and 4-story Victorian structures are still standing, as are the homes of many of their merchant-capitalist builders.

Fronting on Port Townsend Bay are approximately 15 such buildings that are closely related to the commercial history of this port.<sup>1</sup> Among the most important are the following structures:

1. Customs House and Post Office, a four-story stone building erected in 1889-93 at a cost of \$240,000.
2. Jefferson County Court House, a three-story brick and stone structure erected in 1889-1890 at a cost of \$125,000.
3. The City Hall, a three-story (now two-story) stone building erected in 1890.
4. The three-story stone Hasting Building. This was erected in 1890 at a cost of \$45,000 for use as stores and offices.
5. Mount Baker Building, a stone four-story building erected in 1890 for use as stores and offices.
6. The three-story stone Hill Building, erected in 1889, for use as stores and offices.
7. The Bartlett Building, a two-story stone building erected in 1881 for merchant and stevedore purposes.
8. The Leader Building, a two-story, stone structure erected in 1874 as the Jefferson County Courthouse and later used as a newspaper office.

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<sup>1</sup>Boundaries of the historic district: most of the historic structures lie within an area bounded by Water, Monroe, Lincoln, Clay and Walker Streets and include both sides of the enumerated streets. A separate area bounded by Sheridan Street, Seventh Street, back to State Highway 113 and to its intersection with Sheridan Street should also be considered a part of the historic district. The latter area includes Manresa Hall and one residence.





Hastings Estate Building, 1889-90, Port Townsend, Washington

Impressive Victorian residences erected by merchant capitalists included: The F. W. Hastings Residence (or old German Consulate) built in 1890; The Charles Bartlett House, 1883; the DeVoe House, 1890; The Saunders House, 1890s; The Starrett House, 1889; and the huge Manresa Hall (formerly the Eisenbeis House), built in 1890. These buildings are generally in good condition and are used for their original purposes.

References. The New Washington: A Guide to the Evergreen State (American Guide Series) (Portland, 1950), 546-47; Hubert H. Bancroft, History of Washington, Idaho, and Montana (San Francisco, 1890), 20, 59, 96, 220-22, 225, 229, 332-333, 366; William D. Welsh, A Brief Historical Sketch of Port Townsend, Washington (Port Townsend Chamber of Commerce, 1951); Jerry Simpson, Victorian Port Townsend (Port Townsend, Washington, 1961); James G. McCurdy, By Juan de Fuca's Strait (Portland, Oregon, 1937). Historic American Building Survey Catalog (Washington, D. C., 1941), 410-412.





The Pioneer and Tibbal Buildings, 1889, Port Townsend, Washington

N. P. S. Photo, 1965

EVERETT (WEYERHAEUSER TIMBER COMPANY PLANT), WASHINGTON

Location. Snohomish County, west of Vernon and Grand Avenues,  
on the waterfront of Snohomish River, City of Everett

Ownership and Administration. Weyerhaeuser Company, Mr. Norton  
Clapp, President, St. Paul, Minnesota.

Significance

Frederick Weyerhaeuser's acquisition of 900,000 acres of Washington timberland in 1900 touched off the nation's greatest lumber stampede, thereby greatly speeding up the migration of Midwest lumber barons from the Great Lakes region to the forests of the Pacific Northwest. The Everett sawmill was the pilot and major lumber-producing plant of the Weyerhaeuser Timber Company on the Pacific Coast from 1902 to 1908. The Everett plant also illustrates the important roles played by the transcontinental railroads and Midwest timber barons in the development of the Pacific Northwest lumber industry. The availability of cheap rail transportation and the arrival of Midwest lumbermen assisted in elevating Washington from the 5th rank in 1900 to first place in 1905 among the lumber-producing states of the nation.

On January 5, 1893, James J. Hill's transcontinental railroad, the Great Northern, reached the Pacific Coast at Everett, Washington. Two years later Hill also acquired control of the Northern Pacific, the other transcontinental railroad serving the same region. Federal acreage granted to railroad corporations in Washington totaled 9,593,149.20 acres and most of this land was held by the Northern Pacific. By 1890 it was also evident that the forests of the Great Lakes states, then the major lumber-producing region of the United States, were rapidly nearing exhaustion. Thus, in 1895, when Hill set out to stimulate the lumber industry of the Pacific Northwest, the situation was favorable. Hill vigorously advertised his holdings in the Northwest as against the pinelands of the South, and he also greatly reduced railroad freight rates on lumber shipped from Puget Sound to Minneapolis.

At the same time, Hill gathered up every acre of trees on which he could lay his hands. The U. S. Forest Management Act of 1897 offered the railroad magnate a great opportunity. When a National Forest Reserve was created, it included all lands situated within its boundaries, regardless of public or private ownership. National Forest Reserves, therefore, often included many acres of privately owned land. In order to deal with this situation, the Forest Management Act of 1897 provided that owners of land situated within a Forest Reserve might, if they so desired, exchange such lands for a tract of vacant public land open to settlement and not exceeding in area the tract covered by their claim or patent. A forest-lieu scrip was issued to authorize such an exchange, and the law did not stipulate that public land selected should compare in value with that relinquished in the exchange.

Thousands of acres of Northern Pacific grant land lay above the timberline on the rocky, bald peaks of the Cascades. These peaks were located inside Forest Reserves and Hill proceeded to exchange the glacier-covered railroad lands for thick stands of giant Douglas fir situated on public lands on the coast.

In the Act of March 2, 1899 creating Mount Rainier National Park in Washington, a special lieu selection of the law also provided for the relinquishment of the Northern Pacific lands located within the National Park and the Pacific Forest Reserve (now Rainier National Forest) and authorized lieu selection of any non-mineral lands in any state into which the railroad extended. Under this law the railroad was able to legally exchange about 450,000 acres of comparatively worthless mountain land in the Forest Reserve for some of the most valuable timberlands in Washington and Idaho.

As early as 1885 the Northern Pacific Railroad had offered Frederick Weyerhaeuser of St. Paul, Minnesota,--chief of the American lumber barons, valuable timberlands and a mill site at Tacoma, Washington, but he turned down the offer. In 1898 Weyerhaeuser did enter the Coast Lumber Company (1898-1903), which specialized in shipping shingles from Puget Sound to St. Paul. In 1899 Weyerhaeuser & Denkman next joined with Lindsay & Phelps and took half of a \$600,000 stock issue in the newly organized Sound Timber Company, which held an excellent body of timber located in Skagit and Sauk River district of northwestern Washington.

But the news that startled the nation and marked the beginning of a new era in the history of the American lumber industry came on January 3, 1900, when Frederick Weyerhaeuser announced that he had purchased 900,000 acres of timberland in western Washington, with some 40 billion board feet, from Hill's Northern Pacific Railroad for a price of \$6.00 an acre. This action launched a stampede of Great Lakes lumbermen to the Pacific Northwest and led to a wave of speculative buying of forest lands in the Far West that had no parallel elsewhere in the nation. Tracts of land purchased for \$800 in 1891 sold for \$18,500 in 1909; land bought for \$10,000 in 1899 was resold for \$110,000 in 1909.

The Weyerhaeuser Timber Company, capitalized at \$6,000,000, was formed with Frederick Weyerhaeuser as president and W. H. Laird, vice-president, in 1900 to manage this new empire.<sup>1</sup>

The first offices of the Weyerhaeuser Timber Company were established in the Northern Pacific Building at Tacoma in 1900. In 1910, in cooperation with the Tacoma Commercial Club, the Weyerhaeuser Timber Company erected its own \$600,000 office building in Tacoma.

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<sup>1</sup>The company consisted of Weyerhaeuser & Denkmann, the Laird, Norton group, R. L. McCormick, S. T. McKnight, O. H. Ingram, and 9 other men. The company paid \$3,000,000 of the total of \$5,400,000 for the 900,000 acres of timberland immediately.

Because there was already a surplus of lumber being manufactured in Washington and Oregon, the Weyerhaeuser Timber Company concentrated its chief efforts until 1915 on the acquisition of additional timberland. Vast land purchases were continued in Washington and by January, 1905, the company owned 1,500,000 acres in that state that had been acquired at a cost of nearly \$9,500,000. In Oregon, 174,492 acres were acquired from the Northern Pacific in 1902 for \$5.00 an acre; and between 1900 and 1905 hundreds of thousands of acres of timberland were also acquired from the Northern Pacific in Idaho. By June, 1914, the company's holdings in the Pacific Northwest<sup>1</sup> reached 1,982,000 acres, purchased at a cost of about \$17,500,000.

These timberlands were distributed as follows: 1,515,932 acres in Washington, 393,000 acres in Oregon, and 50,000 acres in California. In addition to the above lands, Weyerhaeuser, in partnership with various subsidiary companies, owned some 916,500 acres of timberland located in Idaho, thus making a grand total of approximately 2,898,000 acres of timberland under Weyerhaeuser control in the Pacific Northwest. To finance this expanding empire, capitalization of the Weyerhaeuser Timber Company was increased to \$8,000,000 in 1902, to \$10,000,000 in 1903, and to \$12,500,000 in 1907. The purchasing activities of the Weyerhaeuser Timber Company in the Pacific Northwest made Frederick Weyerhaeuser the largest incorporated lumber holder in the United States.

#### Everett

Everett was platted as a town site in 1890 in the hope that it would become the western terminus of the Great Northern Railway. By 1891 it had a population of 3,000. Its first large sawmill was built by the Everett Pulp and Paper Company in 1892. The town was incorporated in 1893, shortly after the arrival of the Great Northern. In 1895 another large sawmill was erected by the Bell-Nelson Mill Company. In 1900 the Clark-Nickerson Company of Michigan and Minnesota also constructed a large mill. By 1900 Everett had a population of 7,838 and there were 8 sawmills and 10 shingle mills in operation.

In 1902 the Weyerhaeuser Timber Company opened its first sawmill on the Pacific Coast at Everett, when it acquired the Bell-Nelson sawmill for \$243,000. The machinery of the mill was modernized in early 1903, giving the plant an annual capacity of 50,000,000 board feet of lumber. The mill, known as "Mill A," was further enlarged and improved in

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<sup>1</sup>By the end of 1916 the holdings of the Weyerhaeuser Timber Company proper amounted to a total of 2,013,404 acres located in Washington, Oregon, and California, that had cost \$28,896,689 to acquire.

<sup>2</sup>Actual production figures were 27,000,000 feet in 1902; 37,000,000 feet in 1905, 40,000,000 in 1906, and 48,000,000 in 1909.

1907 and by 1913 was cutting 76,000,000 board feet a year.<sup>1</sup>

Because of the prevailing depressed prices for lumber, the Weyerhaeuser Timber Company carried on only modest manufacturing efforts on the Pacific Coast, prior to 1915, but until 1908 the Everett plant was the chief Weyerhaeuser mill on the Pacific Coast.<sup>2</sup>

By 1914, however, price conditions had changed in the lumber industry and the Weyerhaeuser Timber Company decided to launch a large-scale production program in the Pacific Northwest. In May, 1914, work began on a second mill, known as "Mill B", at Everett. Located on an 80-acre tract situated on the Snohomish River, the huge electric sawmill measuring 400 feet in length was completed in 1915. Mill B had a capacity of 400,000 feet of lumber per 8-hour day. The plant also included dry kilns, a planing mill, a remanufacturing plant, a dry lumber shed and a big yard with 20 miles of railroad track.

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<sup>1</sup>Mill A chiefly turned out dimensions, timber, and flooring lumber up to 1914. 80% of this product was shipped East by railroad, and 10% was exported by water, chiefly to California, and 10% was used locally.

<sup>2</sup>Other Weyerhaeuser mills active in the period 1902-1915, in the Pacific Northwest, were as follows:

- ( 1 ) Sandpoint, Idaho, opened 1902, cut 17,000,000 feet in 1902.
- ( 2 ) Bonner Ferry, Idaho, opened 1904, cut 4,000,000 feet in 1904.
- ( 3 ) Potlatch, Idaho, opened in 1906, in 1908 its annual cut of 75,000,000 feet, surpassed that of the Everett plant for the first time.
- ( 4 ) In 1906 Weyerhaeuser also acquired an interest in a mill that began operations in the same year at Barber, Idaho.

Weyerhaeuser Mills opened 1916 to 1960, are as follows:

- ( 5 ) Coeur d'Alene, Idaho, began operations in 1916.
- ( 6 ) Emmett, Idaho, opened in 1917.
- ( 7 ) Snoqualmie Falls, Washington, 1918.
- ( 8 ) Longview, Washington, 1929.
- ( 9 ) Klamath Falls, Oregon, 1929.
- (10) Enumclaw, Washington, 1930.
- (11) Raymond, Washington, 1931.
- (12) Aberdeen.
- (13) Coos Bay (North Bend) 1951.
- (14) Springfield, Oregon, 1959.
- (15) Cottage Grove, Oregon, 1959.



Production at Everett leaped from 72,000,000 board feet in 1914 to 110,000,000 feet in 1915 and reached 175,000,000 feet in 1916. These improvements reestablished the Everett plant as the chief mill of the Weyerhaeuser Company in the Pacific Northwest--and marked the beginning of major Weyerhaeuser production on the Pacific Coast.<sup>1</sup>

#### Condition of the Site

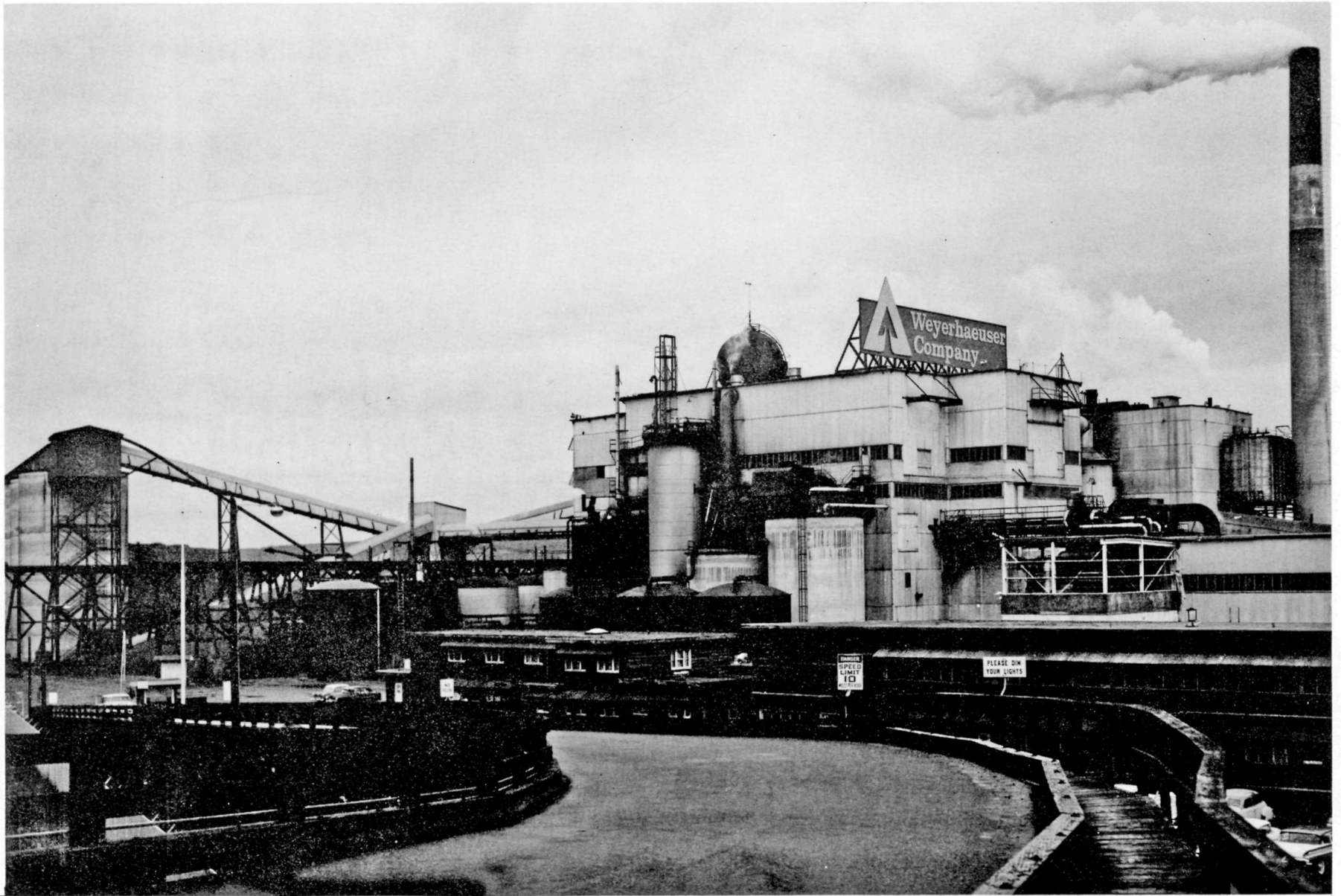
On the Everett waterfront, extending west of Vernon and Grand Avenue inland from Puget Sound along the banks of the Snohomish, are located the great mills of the lumber industry. Still standing and active are Mill B, the great electric sawmill erected in 1915, also Mill C, which was built in 1924 to saw hemlock, and the Weyerhaeuser kraft pulp mill, which was completed in 1953. Mill A, of the 1902 period, has been demolished.

References. Ralph W. Hidy, Frank E. Hill, Allan Nevins, Timber and Men: The Weyerhaeuser Story (New York, 1963), 211-247, 271-276, 398; Edwin T. Coman, Jr., and Helen M. Gibbs, Time, Tide and Timber: A Century of Pope & Talbot (Stanford, 1949), 217; Stanley H. Holbrook, Holy Old Mackinaw (New York, 1938), 156-158, 182, 213-214; Stanley F. Horn, This Fascinating Lumber Business (New York, 1943), 30-31, 67, 69-70, 72-73; Oscar O. Winther, The Great Northwest (New York, 1947), 270, 295, 296-297; Dorothy O. Johansen and Charles M. Gates, Empire of the Columbia (New York, 1957), 460, 462-463, 464, 473; The New Washington - A Guide to the Evergreen State (American Guide Series) (Portland, Oregon, 1950), 73-74, 188-190, 192, 198; David Laverley, Land of Giants (Garden City, New York, 1958), 410-411; U. S. Department of Commerce and Labor, Lumber Industry (4 Vols., Washington, D. C., 1913-14), Vol. I, 15-26, 65, 100, 109; Vol. II., 4-44. Roy E. Appleman, "Timber Empire from the Public Domain," in Mississippi Valley Historical Review, Vol. XXVI, No. 2 (Sept., 1939), pp. 193-208.

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<sup>1</sup>The name of the Weyerhaeuser Timber Company was changed to Weyerhaeuser Company in 1959. Frederick Weyerhaeuser was born in 1834 in Germany, came to the United States in 1852, and entered the lumber business in 1860; he died in 1914.





Weyerhaeuser Timber Company Kraft Mill, Everett, Washington

N. P. S. Photo, 1961

SALT CREEK OIL FIELD (SHANNON FIELD), WYOMING

Location. Natrona County, at Salt Creek on U. S. Highway 87, about 39 miles north of Casper.

Ownership. Midwest Oil Company, Casper.

Significance

Developed as Wyoming's first commercial oil field in 1890, the Salt Creek or Shannon Field went into large scale production in 1914-1917. Its output quickly elevated the Rocky Mountain petroleum fields into the ranks of the important oil producing regions in the United States.<sup>1</sup>

The Salt Creek Field was first prospected for oil in 1882. Drilling was again resumed near Casper in 1888 and in 1890, at the Salt Creek Field, the Pennsylvania Oil and Gas Company finally brought in a gusher at the depth of 1,090 feet. This well yielded a good grade of lubricating oil which was sold at \$16 a barrel. Between 1892 and 1896 five more producing wells were drilled, but large scale development of the Salt Creek field was blocked by the high costs of transportation: The oil had to be hauled nearly 50 miles to Casper in tanks mounted on horse-drawn wagons. The first small refinery was erected at Casper in 1895. By 1903 the company's holdings included 14 producing wells, the refinery, and 105,000 acres of oil land in the Salt Creek field.

<sup>1</sup>Figures from the U. S. Census records for 1919 illustrating the vital role played by Wyoming in Rocky Mountain field oil production:

ROCKY MOUNTAIN PETROLEUM FIELD

<u>State</u>	<u>Capital</u>	<u>No. of Employees</u>	<u>Value of Products</u>
Colorado and			
New Mexico	\$ 2,931,633	101	\$ 153,594
Montana	827,067	48	258,046
Wyoming	65,620,743	2,358	21,959,937
Totals:	\$ 69,379,443	2,507	\$ 22,371,577

Large scale development of the Salt Creek field took place between 1910 and 1912, when two rival companies drilled many new wells, erected large refineries at Casper, and linked the wells with the refineries by means of pipe lines.<sup>2</sup> In 1913 the Chicago, Burlington & Quincy railroad reached Casper, thus further reducing the cost of transportation to eastern markets.

In February, 1914 the two oil companies merged as the Midwest Refining Company, with a capitalization of \$20,000,000. In 1914 the Standard Oil Company of Indiana also erected a large refinery at Casper. By 1920 Midwest Refining Company's Casper refineries had a daily capacity of 46,900 barrels; 1,400 men were employed at these plants, 200 more in the offices, and between 4 and 5 hundred men at the Salt Creek Oil Field.

In 1921, through an exchange of stock, the Standard Oil Company acquired control of the Midwest refineries, the Midwest Company, however, continued to operate the producing department at the Salt Creek Field.

As a result of the Salt Creek Field boom, 1913-1917, the Rocky Mountain petroleum fields became an important producer of oil. The value of Wyoming's oil output increased from \$18,929 in 1909 to \$21,959,937 by 1919; her number of active wells also rose from 1 to 1,279, and the number of oil companies from 1 to 39. By 1919 the capital invested in Wyoming's crude petroleum industry totaled \$65,620,743 and this industry employed 2,358 men.<sup>3</sup> As a result of success at Salt Creek,

<sup>2</sup>The two companies, both formed in 1910, were the Franco-Wyoming Oil Company and the Midwest Oil Company. Franco Wyoming acquired the holdings of the Pennsylvania Oil & Gas Company, which had been inactive since 1907.

<sup>3</sup>The comparative U. S. Census figures for 1919, illustrating the relationship of Rocky Mountain output with that of other major U. S. oil fields, are as follows:

Fields	Capital	No. of Employees	Value of Products
Rocky Mountain	\$ 69,379,443	2,507	\$ 22,371,577
California	359,851,160	14,317	139,018,663
Gulf Coast <sup>(1)</sup>	59,092,639	4,327	27,942,728
Mid Continent <sup>(2)</sup>	1,296,260,821	53,795	464,045,161
Illinois and Indiana Fields	51,581,928	3,827	32,909,441
Lima, Indiana	14,308,973	2,464	6,218,317
Appalachian	570,005,698	43,866	239,244,405
Total, U. S.	\$2,446,446,795	124,603	\$ 931,793,423

(1) South Louisiana and Southwest Texas.

(2) Arkansas, Kansas, Northwest Louisiana, Oklahoma, and North and Central Texas.

other important Wyoming oil fields, such as Muddy Field, Poison Spider, Iron Creek, and Lost Soldier, were also rapidly developed during this same period.<sup>4</sup>

#### Present Condition of the Site

Entering Salt Creek from the south (by way of Casper), the great oil field comes suddenly into view, set in a natural amphitheatre surrounded by massive outcrops of Shannon sandstone. The bowl extends seven miles to the north and is four miles wide in an east-west direction. Minor hills and valleys extend over the field, but the general effect from the high entering road is one of flatness.

The oil derricks are sparsely spotted over the great area and are still producing. The oil village of Salt Creek is located about in the center of the field.

References. Alfred J. Mokler, History of Natrona County, Wyoming, 1888-1922 (Chicago, 1923), 242-263; Wyoming, A Guide to its History, Highways and People (American Guide Series) (New York, 1956), 92-94, 176, 177, 278-279, T. A. Larson, History of Wyoming (Lincoln, 1965), 338-39.

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<sup>4</sup>The effects of the Salt Creek oil boom on Casper's population were as follows:

1900	883	1920	11,447
1910	2,639	1922	24,597
1915	4,040	1927	27,309

SITES IN THE NATIONAL PARK SYSTEM RELATED TO THIS THEME

DEATH VALLEY NATIONAL MONUMENT: HARMONY BORAX WORKS, CALIFORNIA

Location. West of State Highway 190, near  
Monument Headquarters, Inyo County.

Significance

Death Valley was one of the chief centers of the American borax industry in the United States from 1882 to 1890.

Borax was first discovered in the United States in 1856 by Dr. John A. Veatch at a mineral spring a few miles east of Red Bluff, Tehama County, in northern California. Shortly thereafter, he located more ample sources at Big Borax Lake, in Lake County, California. Dr. Veatch and San Francisco businessmen organized the Borax Company of California in 1856, but the company did not begin production at Big Borax Lake until 1864, when a total of 12 tons of borax was produced. Operations were continued successfully until 1868, when a flooding of the lake made it possible to carry on work there. Operations then shifted to nearby Little Borax Lake and from this source a supply for the domestic market was produced until 1875.

In 1871 William Troup, a prospector of Virginia City, Nevada, discovered ulexite (cottonball) near Columbus Marsh and Salt Wells, Esmeralda County, Nevada. Operations began at these Nevada sites in 1872. Late that same summer, Francis Marion Smith, a 27-year-old prospector from Michigan, located the richest source of all, Teel's Marsh, which was situated about 10 miles northwest of the Columbus Marsh, in Mineral County, Nevada. In the fall of 1872 Smith, with his brother Julius and the Chicago firm of Storey Bros., formed a company and production at Teel's Marsh started in the same year. The output of borax plants at Columbus and Teel's Marshes and Little Borax Lake in California, however, broke the market and Storey Bros. sold out their interests to the Smiths, which was from then on known as Smith Bros. By 1875, out of all the numerous companies which had joined in the Nevada borax rush, only five remained. Smith Bros., however persisted in their efforts. A small refinery was built in Oakland, California, which they could turn out a more satisfactory product than was possible on the desert. In 1875 F. M. Smith went East, established a store and office in New York City, and undertook a campaign to introduce borax to the public. In 1884, Julius sold out his interests and left F. M. Smith as the sole owner of the firm of Smith Bros. and of Teel's Marsh. F. M. Smith had also acquired 16,000 acres at the Columbus Marsh and, in 1885, organized the Pacific Borax Salt & Soda Company to work the Columbus Marsh. The output from his two plants made him the largest producer of borax on the West Coast.

By 1881, however, events were taking place in Death Valley, California, that were eventually to put an end to all marsh operations. In the summer of 1875 Isadore Daunet, a French prospector from Panamint City, had discovered white crystals in Death Valley, but had failed to follow up his lead at that time.

In 1881 Aaron Winters, a rancher at Ash Meadows, just east of Death Valley, took samples in Death Valley and made tests on the ulexite (cotton-ball) gathered from the flats near the mouth of Furnace Creek Wash. A green flame from the mineral attested to the richness of the deposit. Hearing of Winter's find, Isadore Daunet returned to the Valley in 1881 and built the Eagle Borax Works. This plant was located about 22 miles south of Furnace Creek and on the west side of the Valley. Impure products, low prices, and summer heat discouraged Daunet, and after producing about 130 tons, he abandoned the Eagle Borax Works in 1882.

Meanwhile, Winters had sold his claim to William T. Coleman, a San Francisco financier and distributor of Borax products since 1864, for \$20,000. Coleman established the Harmony Borax Works at Furnace Creek in the winter of 1882 near the marsh where Winters had gathered his samples. Chinese laborers were employed to gather the ulexite (cottonball) and Indians were hired to cut the mesquite used for fuel under the boilers. The intense summer heat allowed the plant to be worked only from October through May of each year. The borax had to be extracted on the spot by boiling and crystallizing. It then had to be transported by 20 mule teams across desert country to the nearest railroad at Mojave, California, which was 165 miles distant.

The twenty-mule team outfits hauled some 1,250 tons a year out of the Death Valley region. Great wagons, built for this purpose at Mojave, were 16 feet long, 4 feet wide, with sides 6 feet high, and had a capacity of 10 tons. Their back wheels were 7 feet and their front wheels 5 feet in diameter. These vehicles were drawn by two wheel-horses and 18 mules and operated on a 20-day round trip schedule.

A complete outfit consisted of two 10-ton wagons and a 1200-gallon water tank on wheels hitched together and pulled by a 20-mule team. A driver and swaper (brake man for the second wagon) composed the crew of each train. The principle route of these trains lead south across the salt beds and then west out of Death Valley by way of Wingate Pass to Mojave.

In 1882-1883 rich deposits of borate of lime, a new mineral named "colemanite" in honor of Coleman, were found by his prospectors in the Funeral Mountains on the east side of Death Valley, additional extensive deposits of ulexite were found at White Mountain just south of the Furnace Creek Wash, and large deposits of colemanite were located in the Calico Mountains to the south of Death Valley, near Daggett, California. The discovery of colemanite had no immediate effect upon



marsh operations, for although it was richer than cottonball, it required a different and far more complex refining process than the borax industry then possessed; but the mineral was to be important in the future.

In 1882 borax was also discovered in the desert east of Death Valley at Amargosa and Coleman bought the deposit for \$15,000. A second plant was located at this new site, and when it became too hot to work the Harmony Plant in Death Valley during the summer months, operations and men were temporarily transferred to the Amargosa works. Coleman incorporated the Harmony Borax Mining Company and the Meridian Borax Company in 1884 to operate these two plants. He also acquired a soap factory in Alameda, California, and converted it into a borax refinery. He purchased the colemanite deposits in Calico Mountains, which lay only 12 miles from a railroad at Daggett, and put a man to work on the problem of developing a method of refining the ore. Development work began at Calico in 1885, but before successful production could be achieved, Coleman's San Francisco commission house failed in the spring of 1888.

In March, 1890, F. M. Smith of Nevada purchased the entire assets of the Harmony and Meridian Borax Mining Companies, including all the Death Valley and Amargosa claims, the Alameda refinery, and the Calico mine. On September 5, 1890, Smith consolidated these holdings, together with his Teel's Marsh and Columbus Marsh companies into the Pacific Coast Borax Company. This move united the principal borax operations in the West into one company. The Death Valley and Amargosa deposits were no longer actively worked, but placed in reserve. The era of marsh operations in Nevada were also nearly over (these ceased in 1910) and development was concentrated at the Calico mine, which became the company's main producing area in the 1890's. In 1898 a railroad was completed from Daggett to Borate, at the company mine.

By 1903 it became evident the Calico mine at Borate was nearing exhaustion and plans were made to develop the Lila C. Mine, to the east of Death Valley, which had been discovered in 1884 but never developed. As this site lay 120 miles from the nearest railroad, the Tonopah and Tidewater railroad was organized in 1904 by the Pacific Borax Company to provide transportation. This 169-mile narrow-gauge railroad put the last of the 20 mule teams out of business when completed in 1907. In 1914 mining operations were then transferred to deposits at Ryan, also to the east of Death Valley, that had been discovered by Coleman in 1883-84, but not developed. Six mines were opened in this area in 1914 and it remained the major producing area of the company until 1928, when operations were discontinued and the Death Valley Railroad, built to Ryan in 1914, was dismantled. Borax mining then shifted to Borax in Kern County, California.

In 1896 Smith formed a series of alliances with London capitalists, which finally emerged in 1899 as Borax Consolidated, Limited, with Smith as the largest shareholder in the new company.

In 1914, due to unsuccessful business ventures in other fields, F. M. Smith was forced to resign as president of the Pacific Coast Borax Company and also to dispose of his stock.

#### Present Condition of the Site

The ruins of 1882-1889 Harmony Borax Works plant are still to be seen. They are comprised of the boiler, two mixing vats, some piping, the walls of two adobe buildings that were used as office and also the adobe walls of the boiler and machine rooms. Out of the flats to the east can be seen piles of ulexite (cottonball) that was gathered but never brought in to the plant before it ceased operation.

These ruins have been stabilized and fenced for protective purposes; they form part of a self-guiding trail.

The site of Isadore Daunet's 1881-1882 Eagle Borax Works is marked by the ruins of a large rusted iron boiler surrounded by the last load of unused white cottonball.

SITES ALREADY CLASSIFIED UNDER THIS THEME

FIRST PACIFIC COAST SALMON CANNERY, CALIFORNIA<sup>1</sup>

Location. Yolo County, at Broderick, on the Sacramento River, opposite the foot of K Street in the City of Sacramento.

Significance

Here, between 1864 and 1866, William and George Hume and Andrew Hapgood of Maine, successfully perfected the canning techniques that led to the development of the multi-million dollar Pacific Coast salmon cannery industry.

William Hume of Maine entered the fishing business at Sacramento in 1852 and was joined by his brother, George, four years later. The business at first was limited to the sale of fresh and salted salmon.

In 1863 the brothers persuaded Andrew S. Hapgood, a former schoolmate, to come from Maine to join the enterprise. Hapgood was a fisherman and a tinsmith who had experience canning lobster and a few salmon in New England. Arriving in California on March 23, 1864, Hapgood brought with him some crude can-making equipment from the East. The partners called their new firm Hapgood, Hume & Company; they lived in a cabin located in Yolo County on the bank of the Sacramento River, opposite to the foot of K Street in Sacramento. Their cannery was situated on a large scow anchored in the river off-shore from their cabin. Canning operations began on April 1, 1864. The salmon were packed in salted water, and the cans were boiled about an hour at 230 degrees. Later a pickle was added to each can to replace the salt. The cans were painted a bright red with combination of red, lead, turpentine and linseed oil. After this, the consumer identified canned salmon by the flaming red can even when there was no label.

The new company had severe birth pangs. The equipment was crude, and every operation had to be done by hand. At least half the cans manufactured the first year burst at the seams.

Despite handicaps the company sold 2,000 cases at \$5.00 per dozen in the first year and produced another 2,000 cases in 1865. This success convinced the partners that canned salmon had a limitless market and that the business was capable of great development.

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<sup>1</sup>This site was classified as a site of exceptional value under Theme XVII-b, Commerce and Industry, in April, 1964.

The salmon run on the Sacramento River, however, was not reliable, and in the spring of 1866 the partners began to search for a better field of operation. William Hume went to the Columbia River for this purpose, and based on his favorable report, George W. Hume was sent to the Columbia in July, 1866, to prepare a cannery site at Eagle Cliff in Wahkiakum County, Washington. In October, 1866, at the close of the season's salmon run, the partners moved their equipment from the Sacramento to Eagle Cliff on the Columbia River, where they made their first pack of 4,000 cases in 1867. Their 1867 operations at Eagle Cliff marked the beginning of the great multi-million dollar salmon canning industry that soon developed on the Columbia River.

The second cannery to be opened on the Sacramento River in California began its operations in 1874. Its pack was 2,500 cases, as compared with nearly 250,000 cases produced on the Columbia River in 1874. There followed a renaissance of the canning industry on the Sacramento and a number of small canneries were established on barges, which were mostly situated between Vallejo and Collinsville. The Sacramento River pack achieved its zenith in 1882 with 20 canneries producing about 200,000 cases, but thereafter it dwindled. In 1883 it fell to 123,000 cases, and in 1892 it was only 2,291 cases.

The Sacramento River salmon also never attained the quality or enjoyed the high repute of the salmon caught on the Columbia. Less than a million and a half cases in all have been packed on the Sacramento River from 1864 to 1923, and probably not more than 300,000 additional cases were produced on all the other rivers of California. By 1923 the Pacific Coast canneries had produced a grand total of about 170,000,000 cases, or more than 8 billion pounds of canned salmon.

The approximate site of 1864-1866 Hapgood, Hume & Company cabin, located on the Yolo County banks of the Sacramento River in Broderick, has been marked. There are no remains of either the building or the cannery scow.

#### SAUGUS IRON WORKS, MASSACHUSETTS<sup>1</sup>

This was the site of the first successful iron works in the United States. A careful reconstruction of the original iron works which operated intermittently at Saugus between 1648 and 1670, the site includes a reconstructed blast furnace, casting house, forge, and rolling and slitting mill.

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<sup>1</sup>Site declared eligible by the Secretary of the Interior on January 29, 1964.

SITES ALREADY CLASSIFIED AND RELATED TO THIS THEME

LAHAINA (HISTORIC DISTRICT), HAWAII

Location. On the west coast of the Island of Maui.<sup>1</sup>

Significance

This town preserves the atmosphere of a mid-19th century seaport to a remarkable degree and commemorates the period when the great American whaling fleet used the Hawaiian Islands as a major base of supply.

From the 1830's until the outbreak of the American Civil War, the principal stimulus to Hawaiian economy and the great source of wealth was whaling, an industry almost completely dominated by Americans. During the peak of this trade, which came between 1843 and 1860, the Hawaiian Islands served as the major base for whaling operations in the Pacific. In 1819 the first American whaling ships reached the islands, and by 1822 there were 34 whalers making Hawaii a base of refreshment.

From that time the number increased rapidly. Although Honolulu was originally the port most favored by the whalers, Lahaina often surpassed it in the number of recorded visits, particularly from about 1840 to 1855. Lahaina was at the height of its prosperity as a whaling port about 1846, at which time about 400 ships a year visited the town to replenish their water supplies. In that year the population at Lahaina numbered 3,557 persons, of whom 212 were foreigners.

By 1862 the whaling industry was in a definite and permanent decline. The effect on Lahaina was marked and the town subsided to a lower level of economic importance.

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<sup>1</sup>This Historic District was declared eligible for Registered National Historic Landmark status, under Theme XXI, Special Study, Hawaii History, by the Secretary of the Interior on December 29, 1962.



### OLD SUGAR MILL AT KOLOA, KAUAI, HAWAII<sup>1</sup>

The stone ruins of this 1841 mill mark the heart of the Ladd and Company sugar plantation, established in 1835. This "first successful Hawaiian sugar plantation" is held to have marked the real foundation of Hawaii's sugar industry, which has long dominated the Hawaiian economy and also played an important role in United States economic history.

By 1919 Hawaii had 43 sugar refineries. These represented a capital investment of \$22,905,364, employed 3,421 workers, and produced products valued at \$80,236,000.

### JAMES J. HILL HOME, MINNESOTA<sup>2</sup>

Constructed in 1889, at a cost of about \$200,000, this 32-room house was the home of James J. Hill. Hill was not only one of the Nation's great railroad builders, but was a financial leader as well. From 1878 to 1912, he was an active leader in railroad construction. In 1890, all of the roads he controlled were combined as the Great Northern Railway Company. Hill died in 1916. Although the exterior features of his house remain unchanged, the interior has been remodeled. Located at 240 Summit Avenue, St. Paul, Minnesota, the house is owned by the St. Paul Diocesan Teachers College.

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<sup>1</sup>This site was declared eligible for Registered National Historic Landmark status under Theme XXI, Special Study, Hawaii History, by the Secretary of the Interior on December 29, 1962.

<sup>2</sup>This site was declared eligible for Registered National Historic Landmark status under Theme XV, subtheme Transportation and Communication, by the Secretary of the Interior on November 5, 1961.

CHECKLIST OF  
CLASSIFIED SITES RELATED TO THE  
MINING OF GOLD AND SILVER, MINING FRONTIER, THEME XV

- |                                   |                             |
|-----------------------------------|-----------------------------|
| 1. Anvil Creek Site, Alaska.      | 10. Leadville, Colorado.    |
| 2. Tombstone, Arizona.            | 11. Silverton, Colorado.    |
| 3. Bodie, California.             | 12. Telluride, Colorado.    |
| 4. Coloma, California.            | 13. Assay Office, Idaho.    |
| 5. Columbia, California.          | 14. Bannack, Montana.       |
| 6. New Almaden, California.       | 15. Butte, Montana          |
| 7. San Francisco Old Mint, Calif. | (includes copper).          |
| 8. Central City, Colorado.        | 16. Virginia City, Montana. |
| 9. Cripple Creek, Colorado.       | 17. Virginia City, Nevada.  |
|                                   | 18. Deadwood, South Dakota. |

CHECKLIST OF 17 SITES

ALREADY CLASSIFIED UNDER THE FUR TRADE, THEME XV

1. Erskine House, Kodiak, Alaska.
2. Fur Seal Rookeries, Pribilof Islands, Alaska.
3. Fort Ross, California.
4. Bent's Old Fort, Colorado.
5. Joseph Bailey Homestead, Indiana.
6. Straits of Mackinac, Michigan.
7. Mackinac Island, Michigan.
8. Jefferson National Expansion Memorial, Missouri.
9. Fort Osage, Missouri.
10. Kit Carson House, New Mexico.
11. Fort Union, North Dakota.
12. Fort Astoria, Oregon.
13. Fort Vancouver National Historic Site, Washington.
14. Prairie du Chien, Wisconsin.
15. Fort Laramie National Monument, Wyoming.
16. Grand Teton National Park, Wyoming.
17. Green River Rendezvous Site, Wyoming.

PART II

SURVEY OF HISTORIC SITES AND BUILDINGS

SECTION B

OTHER SITES CONSIDERED, SITES IN STATES LOCATED

WEST OF THE MISSISSIPPI

## OTHER SITES CONSIDERED

### ALASKA

#### Barrow,

Location. The Eskimo Village of Barrow is situated about 500 miles north of Fairbanks and 12 miles south of Point Barrow.

The only structure still standing in Alaska that can be associated with the whaling industry is the former Cape Smythe Whaling and Trading Company Store at Point Barrow. This 1-1/2 story frame structure was erected by the United States Army Signal Corps in 1881 as an observatory. In 1884-85 the building was used as an emergency shelter for use of whalers stranded in the ice in the vicinity of Point Barrow. In 1886, Charles D. Brower, an early Arctic pioneer, purchased the structure and utilized it as the trading post of his Cape Smythe Whaling and Trading Company. The house is still standing but has undergone considerable modification for use as a restaurant.

#### Old Sitka Site,

Location. On Starrigavan Bay on the west coast of Baranof Island, six miles north of the town of Sitka, in Southeastern Alaska.

The first salmon cannery in Alaska was erected at Old Sitka in 1878 by the Francis Cutting Packing Company of San Francisco. In 1879 Sisson, Wallace and Company of San Francisco built the second cannery at Klawock, on the west coast of Prince of Wales Island. The total pack of the two canneries for that year was 12,530 cases, as compared with 480,000 produced on the Columbia River.

After 1880, however, the Alaskan salmon canning industry began to develop rapidly. Additional canneries were opened at Naha Bay (1883), Nushagak on Bristol Bay (1884), Kasilof on the Cook Inlet (1882), and at Ketchikan in 1887. In 1888 Alaska emerged as the greatest salmon producing area of the Pacific, and in 1889 Alaska's 37 canneries packed 682,591 cases valued at \$2,786,929. With the decline of the fur seal in Alaskan economy, the salmon industry became second only to gold mining and soon after 1908 surpassed even that industry in the value of its annual output.

There are no traces left of any of Alaska's early salmon canneries.



Cape Smythe Whaling and Trading Company Bldg., Barrow, Alaska

N. P. S. Photo, 1961

Tyee.

Location. Tyee is a tiny village located on the lower end of Admiralty Island in Southeastern Alaska.

The first American whaler reached Sitka in 1833; others arrived in Kodiak grounds as early as 1835, and in 1854 they sailed east of Point Barrow, much to the resentment of the Russian-American Company. The Russians, however, failed in their own efforts at whaling and were also unable to bar foreign ships from Alaska waters. Hence, the whaling grounds of the North Pacific remained open to all nations, but the Americans soon had a virtual monopoly in this industry. From 1835 to the early nineties, the Pacific whaling grounds north of 50° latitude were the richest in the world and produced 60% of the oil obtained by American whalers. At the height of the industry's prosperity in 1849, 299 vessels sailed north of 50°, manned by 8,970 seamen and returned with oil valued at \$6,367,000 and \$2,075,000 worth of whalebone. By 1862, however, the value of the catch had dropped to only \$800,000. The Confederate raider, Shenandoah, destroyed or captured 29 American whalers in Pacific Ocean and Bering Sea waters in 1865. In 1871 another great disaster occurred when 34 vessels were crushed by ice near Point Belcher on the Arctic coast. Twelve more ships were similarly destroyed in 1876; and in 1888 a heavy gale sank 5 craft off Point Barrow.

These disasters, together with the rapid decline in the number of whales, and the introduction of improved petroleum products, which successfully replaced whale oil, all led to a swift decline of the whaling industry after 1870.

The first decade of the twentieth century witnessed only slight activity in the American whaling industry. By 1906 there were only 42 whalers left afloat. The Tyee Company, owned largely by San Francisco and Seattle capital, however, still engaged in whaling in the waters of Chatham Straits, Frederick Sound, and Stephen Pass; by 1908 the Company's whaling station and reduction plant located at Tyee, Admiralty Island, was the only one left in the United States along the Pacific Coast.

The plant no longer exists and there are no remains of the station.



Cordova.

Location. Cordova is located in South Central Alaska, on Cordova Bay in Prince William Sound.

Cordova, from 1908 to 1936, was the center of Alaska's copper industry.

In 1898 a group of seven prospectors filed claim to the Bonanza copper mine, located about 4 miles from the future site of Kennicott, in the Chitina River Valley. The remoteness of the area and the lack of transportation facilities, however, prevented any development of the vein.

In 1900, Stephen Birch, a young mining engineer, purchased these claims for approximately \$175,000, and set out to raise the great amount of capital that would be necessary to exploit the mines. He was one of the organizers and president of the Kennecott Copper Company, in which Simon Guggenheim and J. P. Morgan soon became the principal shareholders. The company acquired two rights of way for a railroad to their Copper River holdings, one leading from Valdez through Keystone Canyon to the interior, and the other from Katalla on Controller Bay. Their attempt to build a seawall for a harbor at Katalla failed, and after completing some preliminary work on the railroad along the Valdez route, the Kennecott Company also abandoned that right-of-way. In 1908 the corporation finally selected Cordova as the terminal for their railroad to Chitina and Kennicott in the Copper River Valley. Cordova, founded in 1904, became a boom town in 1908, when construction on the Copper River and Northwestern Railroad began, and by 1910, Cordova had a population of 1,152. The 196-mile railroad, built at a cost of \$23,500,000 was completed in 1911 and copper production began in the same year. Alaska's annual copper production leaped from \$469,225 in 1910 to \$29,484,291, or 119,602,028 tons in 1916, the peak year. By 1925 it has been estimated that the Kennecott Company had extricated a total of \$175,000,000 in copper from its Alaska mines. In 1927, however, production began to decline and in 1936 the rich lode mines were exhausted and closed down. In 1938 the Copper River and Northwestern Railway was also abandoned.

In 1961 from 50% to 75% of the buildings standing in Cordova were erected in the 1908-1911 period. On May 3, 1963, however, a large fire destroyed 13 buildings, or about 70%, of the business section of Cordova. The town, fortunately, suffered only slight damage in the great Alaskan earthquake of March 27, 1964.

On the southeast side of the village are located the office and warehouse of the Copper River and Northwestern Railroad and also a number of former residences of officials of Kennecott Copper Company. These buildings were all standing and in good condition in 1961.

The docks and tracks of the railroad have been torn up. A portion of the abandoned roadbed, the section from Cordova to the Copper River Delta, has been converted into a modern automobile highway. The railroad bridge constructed across the moving face of Child's Glacier at a cost of \$1,000,000--the difficult feat of engineering described in Rex Beach's novel, The Iron Trail, still stands and is now used as a highway bridge.

The abandoned mill, power plant, warehouse, offices and homes, together with about 40 miles of underground workings at the Bonanza, Jumbo, Mother Lode and Erie mines, still stand at or near Kennicott. This former mining town can only be reached by trail or chartered plane.



Main Street, Cordova, Alaska

N. P. S. Photo, 1961

## OTHER SITES CONSIDERED

### ARIZONA

Bisbee (Copper Queen Mine), Arizona.

Location. Cochise County, Bisbee.

By 1907, as the result of the huge production of high grade ores at the Copper Queen, the Calumet and Arizona, and the Shattuck Dunn mines, Bisbee became the most important mining city in Arizona and one of the greatest copper-producing centers in the world.

The first mining of copper by Americans in Arizona is reputed to have been done at Ajo, near the Mexican border, in 1854. In the 1870s additional discoveries of copper ore were made at the future sites of Bisbee, Clifton, Globe, and Jerome. But the real large-scale development of these copper mines was delayed until the 1880s, when the completion of two transcontinental railroads reduced the previously extremely high cost of transportation, and made possible the working of the mines on a profitable basis.<sup>1</sup>

The first discovery of "copper stains" near the future site of Bisbee was made by Hugh Jones in 1875 in the Mule Mountains. As Jones was prospecting for silver, however, he did not stake a claim. An army scout, Jack Dunn, located a claim in 1877 and called it the Rucker, after Lt. John A. Rucker. The Copper Queen deposit was also discovered in 1877. Title to this claim was purchased by John Ballard and William Martin, San Francisco railroad contractors, and active mining operations began at the Copper Queen in June, 1880. The mining town of Bisbee, with nearly 500 inhabitants, appeared at that time and was comprised of one small smelter with a capacity of 500,000 pounds of copper a month, a brick house, a frame post office, two saloons, a brewery, 3 boarding houses, and a general store.

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<sup>1</sup>The Southern Pacific railroad, built east from California, extended its line across southern Arizona to Deming, New Mexico, in 1881, and in 1882-1883, completed its transcontinental line, which gave it a through route from San Francisco to New Orleans. In 1883 the Atchison, Topeka, and Santa Fe railroad completed its line (the Atlantic and Pacific) across northern Arizona to Needles on the Arizona-California border, and in 1885, reached the Pacific Ocean at San Diego, California.

In 1881 Dr. James Douglas, acting on behalf of the Phelps Dodge partnership of New York City, purchased the Atlanta mining property at Bisbee. In 1885, as the result of mergers and litigation, the Copper Queen Consolidated Co., controlled by Phelps Dodge, emerged as the dominant enterprise at Bisbee and large-scale mining operations finally got underway.<sup>2</sup> In 1886 Phelps Dodge erected a large new smelter with a 4,000,000 pound-per-month capacity at Bisbee.

In 1889, at a cost of \$400,000, Phelps Dodge next built a 30-mile railroad, the Arizona and Southeastern, from Bisbee to Fairbanks, to carry its copper to the Santa Fe railroad; later the line was extended to Benson in order to effect a junction with the Southern Pacific railroad.

In 1901, the company laid out the town of Douglas, located 23 miles southeast of Bisbee, and there erected an immense smelter with an annual production capacity of more than a hundred million pounds. This plant served the company's copper mines, which were located at Bisbee and also at Nacozari, in Mexico.

Between 1885 and 1908 the Copper Queen Mine produced more than 730,000,000 pounds of copper and paid over \$30,000,000 in dividends.<sup>3</sup>

In 1900 the rich Calumet and Arizona mine at Bisbee, operating independently of Phelps Dodge, went into large scale production.<sup>4</sup> By 1905 Bisbee had a population of between 12,000 and 15,000 people. In 1906 the smaller Shattuck-Dunn mine, also independently owned, went into operation.<sup>5</sup> The important copper production at the Bisbee mines helped make Arizona the No. 1 copper-producing state in the United States by 1907, and in 1919 Arizona was still in first place with 46.5% of the total national production.<sup>6</sup>

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<sup>2</sup>From 1880 to April, 1885, the Copper Queen, the most important 19th century copper mine in Arizona, produced 15,929 tons of copper valued at \$5,000,000.

<sup>3</sup>Between 1885 and 1930, the Copper Queen mine yielded 29,166,780 tons of ore, from which there were extracted 2,740,752,128 pounds of copper, 99,158,282 pounds of lead, together with 20,451,071 ounces of silver and 486,690 ounces of gold.

<sup>4</sup>The Calumet and Arizona mine paid out over \$47,000,000 in dividends between 1900 and 1925. Phelps Dodge and Co., which became a corporation in 1908, acquired this mine in 1931.

<sup>5</sup>In 1917 these three mines were producing more than 15,000,000 pounds of copper a month and employed a total of about 4,700 miners, plus an additional 1,250 men at the smelter at Douglas.

### Condition of the Site

From 1880 to 1885 Bisbee was a typical western mining camp, with frame shacks perched on the sides of steep hills, and saloons, dance halls, and other pleasure houses crowded into its narrow gulches. Like nearby Tombstone and other frontier mining centers, Bisbee's early years were marked by rapid growth, brawls, riots, and killings. After 1885 however, when Phelps Dodge became the dominant enterprise, Bisbee became a company town.

Bisbee today is still a company town much like other and later Phelps Dodge mining centers that have been founded in Arizona. Abandoned mines recall Bisbee's early history and producing mines, including the Copper Queen, illustrate the foundations of its present economy. Set amid deep gulches with steep sides, Bisbee and its population nonetheless retain some of the flavor and traditions of early days.

References. Robert G. Cleland, A History of Phelps Dodge, 1834-1950 (New York, 1952); Thomas A. Rickard, A History of American Mining (New York, 1932) 282-285; Rufus K. Wyllys, Arizona, The History of a Frontier State (Phoenix, Ariz., 1950), 220, 286; Hubert H. Bancroft, History of Arizona and New Mexico (San Francisco, 1889), 589-91, 621.

<sup>6</sup>The following figures from the U. S. Census records illustrate the dramatic rise of copper mining industry in Arizona, in the period 1900-1919:

Year	No. of Miners*	Active Capital*	Value of Copper Ore
1902	5,323	---	\$ 8,279,224
1909	7,052	\$ 119,772,781	31,749,840
1919	16,831	402,419,671	86,000,000

\*Includes figures for gold and silver mining as well as copper, but the annual value of gold and silver produced during this period only ranged from \$2,100,000 to \$2,764,000 a year.

#### COPPER SMELTERS IN ARIZONA

Year	No. of Establishments	Capital	No. of Workers	Value of Products
1900	9	\$ 7,265,659	1,728	\$ 17,286,517
1910	8	21,487,000	3,268	41,059,000
1919	10	83,013,194	3,620	94,184,000



## OTHER SITES CONSIDERED

### ARIZONA

#### Clifton (Morenci-Longfellow Mines).

Location. Greenlee County, on U. S. 666, at Clifton and Morenci.

The Clifton-Morenci district, first developed in 1871, became a major high-grade copper-producing center in the first decade of the 20th century.

Robert Metcalf, an army scout, found rich copper outcroppings on what is now known as Chase Creek in 1870 and located the claim to the Longfellow mine. Work on this deposit began in 1871. Title to the Longfellow mine was purchased by the Lezinsky Brothers, who operated a store in Las Cruces, New Mexico, and in 1873 they erected a small copper smelter, the first in Arizona, at Clifton. In 1875 the first bars of cast copper produced in Arizona were exported from Clifton and carried by wagon to La Junta, Colorado, the nearest railhead, which was 700 miles distant. In 1875 William Church, a mining engineer, and Captain E. D. Ward, a steamship owner, both of Detroit, organized the Detroit Copper Company, and acquired a group of claims near the Longfellow mine, which they called the Morenci, after a mining camp in Michigan. In 1880 Church erected a small smelter 3 miles from Clifton. In spite of high costs and many difficulties, the two pioneer companies had succeeded in producing a total of 20,000,000 pounds of copper by 1882.<sup>1</sup>

Both companies, however, needed further capital to exploit the deposits. In 1882 the Lezinsky Brothers sold their holdings in the Longfellow mine to a Scottish corporation, the Arizona Copper Company, for \$2,000,000. In 1882-83 this company built a 71-mile narrow gauge railroad, the Arizona and New Mexico, from Clifton to Lordsburg, New Mexico, thus effecting a junction with the Southern Pacific railroad, and also erected a large smelter at Clifton.

Church also required additional capital, and in 1881 succeeded in inducing Phelps Dodge, then a New York City mercantile partnership, to purchase a half-interest in the Detroit Copper Company for \$30,000. Between 1881 and 1895 annual production at the Morenci mine ran from about 1,500,000 to 7,000,000 pounds of copper, but because of low copper prices and high costs of operation, the company paid no dividends.

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<sup>1</sup>In 1883 the Arizona Copper Company produced 4,106,000 pounds, and the Detroit Copper Company, 4,035,000 pounds of copper.

<sup>2</sup>Clifton at this date had nearly 1,000 inhabitants and was comprised of the Arizona Copper Company smelter, a newspaper, a school, 2 hotels, 8 stores, and "saloons more than sufficient for its needs."

In 1897 Phelps Dodge acquired the remainder of the stock in the Detroit Copper Company. In 1901 they completed the short but costly railhead from the town of Morenci to the Arizona Copper Company's Arizona and New Mexico Railroad at Guthrie. Production at the Morenci mine then rose from about 7,000,000 pounds of copper in 1897 to over 18,000,000 pounds in 1902 and to 24,000,000 pounds in 1908. The Detroit Copper Company paid its first small dividend in 1897 and by 1902 dividends henceforth averaged \$500,000 a year and sometimes reached twice that amount.

Confronted with similar difficulties, the Arizona Copper Company was not able to pay its first small dividend until 1895. The erection in 1906 of an efficient concentrator and the later construction of a large reverberatory smelting plant then made possible the profitable mining of second grade ores on a large scale. In 1921 the Arizona Copper Company, together with its Longfellow mine, were acquired by the Phelps Dodge Corporation; this gave the latter company control of the entire Morenci-Clifton district, including the immense deposit of low grade copper ore known as the Clay Orebody. The open pit method of mining was first applied to this great deposit in 1937. Today this great pit mine is more than one mile in perimeter and about 1800 feet in depth.<sup>3</sup>

#### Globe (Old Dominion Mine).

Location. Gila County, one mile north of Globe, on U. S. Highway 70.

The Old Dominion Mine near Globe, a high grade copper deposit-- became a major copper producing mine in the last decade of the 19th century.

Mining development began in the Globe area in 1875 with the discovery of the famous Silver King mine. In 1878 copper mining also started in the Globe district, but its growth was restricted by the high cost of transportation.

Globe sprang up in 1876 as a distribution center for the silver and copper mines of the area, and in 1880 had a population of 704. Its brick and frame buildings included 2 churches, a school, hotel, 2 newspapers, a bank, brewery, 12 stores, and numerous saloons. The first copper smelter was erected by John Williams in 1881 and by 1884 the Old Dominion Mine had yielded a total of 14,500 tons of 98 percent copper bullion. By 1886 there were six copper smelters operating in the Globe district, but in 1887 the low price of copper put an end to copper operations. The Old Dominion company was reorganized in 1888 and in 1892 the partners

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<sup>3</sup>The first open pit method of mining for copper in Arizona was applied at the New Cornelia mine at Ajo in 1913. Large scale mining of low-grade copper ore began at Ajo in 1917.

of Phelps Dodge, acting as individuals, purchased the Old Dominion Copper Mining and Smelting Company.

In 1889 the Arizona Narrow Gauge Railroad was completed from Tucson to Globe and Globe then became a major copper producing area. In 1907-08 major new rich copper ore deposits were developed in the Miami-Inspiration district, about 7 miles west of Globe.

The Old Dominion Mine, producer of millions of dollars in copper, is abandoned and nothing is left but a huge tailing dump. Active copper mining operations are now centered at Miami.

## OTHER SITES CONSIDERED

### CALIFORNIA

#### Big and Little Borax Lakes,

Location. Near Lower Lake, State Highway 53, Lake County.

Borax was first discovered in the United States on January 6, 1856 by Dr. John A. Veatch at a mineral springs located a few miles east of Red Bluff, Tehama County, California. A few months later, Dr. Veatch located more ample sources at Big Borax Lake in Lake County. With San Francisco businessmen, he organized the Borax Company of California in 1856 but production was not begun until 1864, when a total of 12 tons was produced. Operations continued successfully until 1868, when Big Borax Lake became so flooded due to the driving of an artesian well that it was no longer possible to carry on work there.

Operations were then shifted to nearby Little Borax Lake, from which source a supply for the domestic market was produced until 1873.

Borax was discovered in 1871 at Columbus Marsh, Esmeralda County, Nevada, and in September, 1872 the Borax Company of California began operations at Columbus and Salt Wells in Nevada. Carloads of ulexite (cottonball) were brought across the Sierra and combined in tanks and lake water. The production of borax in California amounted to 280,000 pounds in 1872. By 1875, due to intense competition from the Nevada companies and low prices, the Borax Company of California gave up its operations at Little Borax Lake.

There are no remains of the Borax Company plants at Big or Little Borax Lakes.

#### Buena Vista Refinery,

Location. Kern County, 10 miles north of McKittrick (8 miles West of the junction of State Highway 33 and Lokern Road).

This was the site of one of California's first commercial oil refineries and the first in San Joaquin Valley. It was associated with the first oil boom that swept California between 1861 and 1867. The Buena Vista Petroleum Company was organized in February, 1864, with a capital stock of \$8,500. Two adobe buildings, one a refinery and the other a housing for the workmen, were erected with necessary machinery. The first run was made in August, 1866 and

produced 800 gallons of burning and lubricating oil; the oil was taken from shallow pits and open cuts. The plant operated until April, 1867 and produced about 4,000 gallons of refined illuminating oil. The high costs of transporting this product to the San Francisco market, however, were prohibitive and resulted in the abandonment of the plant.

There are no remains of the refinery. The site is marked as California State Historical Landmark No. 504.

### California's First Drilled Oil Well

Location. On the north fork of the Mattole River, 3 miles northeast of the town of Petrolia, near Cape Mendocino, Humboldt County.

As early as 1853 geologists began reporting that bituminous (asphalt) springs or seepages abounded along the coast of California. By 1855 asphalt from these sources was being utilized to pave the streets of San Francisco.

In 1861 a little illuminating oil may have been distilled from coastal deposits at Carpenteria, near Santa Barbara. In 1860 and 1861 similar efforts were made to distill liquid asphaltum, first at Westlake Park in Los Angeles and then on the Ojai Rancho near Ventura, but all three ventures were commercial failures.

The successful completion of the Drake Oil Well near Titusville, Pennsylvania, in August, 1859, however, sent a wave of excitement across the continent, and by 1861 California was experiencing the first of its numerous oil booms and wildcatting was underway in a dozen widely separated regions of the state.

It was a natural spring from which oil oozed that gave the first evidence that there were petroleum deposits along the Mattole River in Humboldt County. In 1865 three San Francisco businessmen--Thomas Richards, William Ede, and Edward Bosqui--organized the Union Mattole Oil Company to develop these seepages for the San Francisco market. In May, 1865, after boring to a depth of 85 feet, the company struck a flow of oil which filled the well to a depth of 20 feet within 24 hours. The first shipment of oil, amounting to some 100 gallons, was made to San Francisco in June, 1865, where it was distilled and sold. Nearly 40 other wells were drilled in this area making this region the greatest center of California oil excitement, but they never became good producers.

Between 1865 and 1867, when the first California oil boom collapsed, some 75 companies capitalized at about 50 million dollars, drilled 60 wells. At a cost of one million dollars they succeeded in producing 28,000 barrels of oil worth about \$60,000. By 1867, however,

Eastern "coal oil" was selling in San Francisco at less per gallon than the cost of refining and marketing the inferior kerosene made from the California products; the Pacific coast oil boom was over. In addition to these economic ills, titles to the land in the Mattole River field also became inextricably tangled in 1867, when the United States Government ordered all oil lands in the county withheld from prospecting. This combination of troubles resulted in the abandonment of the Mattole River field in 1867. There are no physical remains left of this early oil field. This site is marked as California State Historical Landmark No. 543.

#### California Standard Oil Well #1

Location. In McKittrick Field, 775 feet north and 2340 feet east of the southwest corner on Section 20, Township 30 South, Range 22 East, Mount Diablo Base and Meridian, Kern County.

This was the discovery well of the new McKittrick Oil Field in Kern County. Drilled by the California Standard Oil Company, it was completed about October, 1899, and produced about 150 barrels per day for the first six months after completion. Its depth was 465 feet. Last production from the well was in 1929. The opening of new fields, such as those in Kern County, Los Angeles, Fresno, Ventura, Orange, and Santa Barbara at the beginning of the 20th century helped boost California's annual production of oil from some 600,000 barrels in 1895 to over 4,320,100 in 1900, or about 6% of the nation's oil produced. By 1925 total production was to have reached 232,000,000 barrels, ranking California second in the petroleum industry.

The former site of this well is marked as California Registered State Historical Landmark No. 376.

#### William Carson House.

Location. Humboldt County, Second and M Streets, Eureka.

Eureka, founded in 1850, is located in the heart of the redwood country. The new community at once became the center of the redwood lumber trade with San Francisco and the California gold mines. In 1877, 329 vessels entered its port and carried away 58,700,000 feet of lumber. By 1880 Eureka had a population of 2,639 and seven sawmills.

Among the important pioneers of the Humboldt County redwood industry were William Carson and John Dolbeer of Eureka, who formed the Dolbeer & Carson Lumber Company in 1864. Dolbeer was to be particularly important in the development of the lumber industry.





William Carson House, 1885-86, Eureka, California

N. P. S. Photo, 1960

In the 60's and 70's he made many new mechanical gadgets to improve their sawmill; he then turned his attention to the problem of transporting huge redwood logs to the mills, then a very slow process requiring the use of many ox teams. He developed a steam donkey engine consisting of a vertical boiler, a single cylinder, and a horizontal engine with a drum. In August, 1881, Dolbeer experimented with the new machine on Salmon Creek near Eureka. The engine was fastened to a sled made of timber and a line was run from the drum to a redwood log. The donkey engine then quickly proved its worth by moving the huge log. He patented his Dolbeer Steam Logging Donkey in 1882 and the device was rapidly adopted by the lumber industry on the Pacific Coast. This engine soon replaced the logging oxen teams, and in fact, it revolutionized logging in the entire United States, enabling crews to get logs to the railroads and mills in a much shorter time. In 1883 Dolbeer patented his "Improved Logging Engine". Both machines were used in the redwood region for the next 30 years or more.

In 1885, William Carson had become a wealthy lumber magnate and he set about laying plans for the construction of a residence in keeping with his new wealth. Samuel and Joseph Newsom, architects of San Francisco, were employed to design an elaborate and ornate building. Completed in October 1886, the three-story structure with a fantastic tower and smaller turrets was built of native redwood and imported mahoganies, teak, and oak. Its lavish and detailed exterior and interior decorations were executed with great craftsmanship and precision by Carson's own lumber crews. Carson resided in the house until his death in 1912. The Pacific Lumber Company of Scotia acquired the redwood holdings and plant of the Dolbeer & Carson Lumber Company in 1950.

The Carson house has been called the best surviving example of Victorian architecture in California.

The unaltered building and grounds are now carefully maintained in an excellent state by the Ingomar Club, a civic organization of Eureka.

#### Discovery Well of Kern River Oil Field,

Location. Seven miles northeast of Bakersfield, on Round Mountain Road, Kern County.

This is the site of the first commercial oil well of Kern County. It is dug by hand by Milton McWorther. Completed on June 1, 1899, the well, 70 feet deep, produced about two barrels of oil daily. The first drilled well was then sunk about 400 feet upstream above the hand dug well. The drilled well, 256 feet deep, produced about 15 barrels a day in July, 1899.

The lack of market made the immediate commercial significance of these wells very modest, but the site does mark the starting point of the great oil industry of Kern County that was to become important in the nation's economy in the first two decades of the 20th Century; by 1925 California ranked second in oil production in the United States.

The discovery well is capped, surrounded by an iron fence and is marked as California Registered State Historical Landmark No. 290.

### Flood Mansion.

Location. San Francisco County at the northwest corner of California and Mason Streets, City of San Francisco.

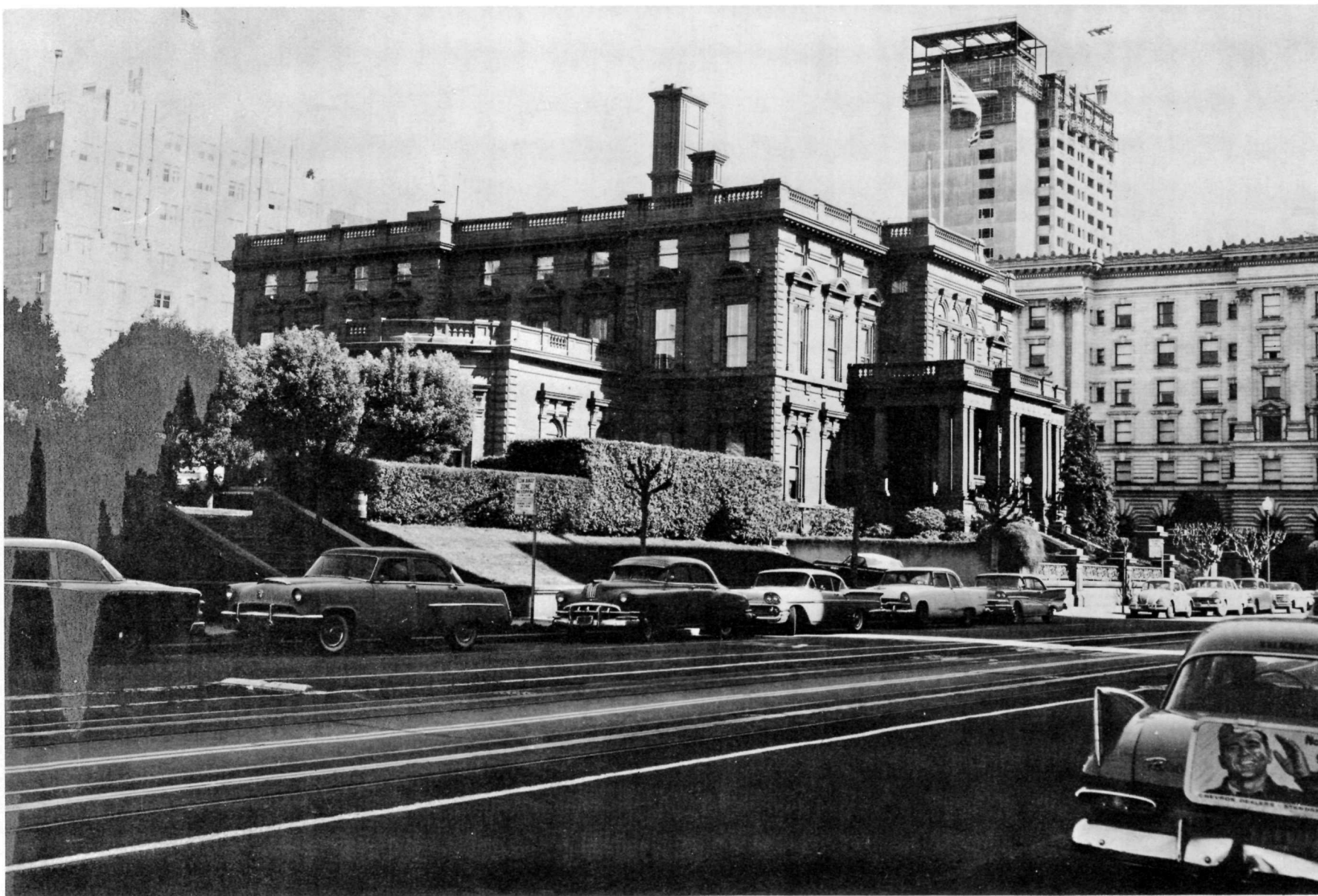
This was the former home of James C. Flood, bonanza king of the Comstock Lode in Nevada. His brownstone mansion, erected in 1886, is the only one of the 19th century Nob Hill plutocratic showplaces to survive the 1906 fire and earthquake.

James Clair Flood, (1825-1889) born on Staten Island, New York, arrived in San Francisco in 1849, where he opened the Auction Lunch Saloon on Washington Street. In 1868 Flood entered a syndicate with John W. Mackay, James G. Fair, and William S. O'Brien, to wrest control of the Hale & Norcross silver mine on the Comstock Lode from the hands of William Ralston, the California banker. By manipulations on the San Francisco stock exchange they succeeded in their plan in the spring of 1870. Moderate riches from the Hale & Norcross mine enabled the partners to pursue their efforts in the Comstock.

In 1873 Fair located a rich silver lode in the Consolidated Virginia Mine and the partners were again able to obtain control of this mine from Ralston. The partners then brought in their big Bonanza of 1873--probably the richest body of gold and silver ore ever found on earth. Total stock exchange value of their mines jumped from a \$100,000 in 1870 to \$159,000,000 by 1874, and MacKay, Fair, Flood and O'Brien succeeded Ralston as the Bonanza Kings of the Comstock.

MacKay and Fair, miners of considerable ability and talent, were the leading figures in this syndicate. Of Flood and O'Brien, Bancroft remarked: "Neither of these men possessed any other talent than money."

Armed with his speculative millions, Flood erected a pretentious white mansion, called "Linden Towers," on Middlefield Road, at Atherton, in San Mateo County, California, in 1878. This house was torn down in 1934.



James C. Flood Mansion, 1886, San Francisco, California

N. P. S. Photo, 1961



In the 1880's the millionaires of the West Coast, including Leland Stanford, Mark Hopkins, and Charles Crocker of the Central Pacific Railroad, as well as Fair and Flood of the Comstock, built their great town houses on Nob Hill in San Francisco. These ornate palaces were devastated by the earthquake and fire in 1906. The former Flood residence, erected in 1886, is the only one of these great houses remaining today. The brownstone structure is now the home of the Pacific Union Club.

#### Lakeview Oil Gusher #1.

Location. 1.5 miles north of Maricopa, off U. S. Highway 399, Kern County.

Lakeview Gusher No. 1, the greatest gusher the world has ever known, roared into existence at 8:00 pm on March 14, 1910. The gusher, located in the Midway Field, produced the unprecedented flow of 18,000 barrels during the first 24 hours and the output became so great that the nearby camp, which had been recently established by the Union Oil Company of California, was soon covered with black gold and residents were forced to flee - not only on account of the oil itself but from the danger of the tremendous gas pressure which they feared might catch fire.

For the next several months the greatest problem was one of finding a successful way to control the output. By September 1910, 5,000,000 barrels of crude oil were stored in make-shift reservoirs in the flats. During this period the production had averaged 48,000 barrels a day. At its peak production the output reached the colossal figure of 68,000 barrels a day. The total volume of its output was 9,000,000 barrels for a flowing period of 18 months.

In efforts to harness the monster, a cone of sand was gradually built up around the crater to a height of 20 feet. The pool of oil smothered the uprising column of oil, reducing the output to between 8,000 and 10,000 barrels a day. On September 9, 1911, however, the hole caved in and Lakeview stopped gushing altogether.

In 1913 when Union Oil Company redrilled the well, it produced only 35 barrels of oil a day. Efforts to revive the well were made in 1938 without success and Lakeview was abandoned.

The site, marked as California Registered State Historical Landmark No. 485, includes the abandoned well shaft and remnants of the large crater.

## Darius Ogden Mills Bank Buildings<sup>1</sup>

Location. 1852 Bank Building - 226 J Street;  
1865 Bank Building - 200 J Street, Sacramento,  
Sacramento County.

Darius Ogden Mills (1825-1910) was born at North Salem, Westchester County, New York, the son of a hotel-keeper. He arrived in Sacramento, California, in the summer of 1849 and opened a small merchandise store on lower J Street, near the river landings. In October he also opened a banking and exchange office and began dealing in gold dust. The following year Darius and his brothers established a regular bank in connection with their store.

In 1861 Ogden Mills moved to San Francisco where he became an important financial figure in the states of California and Nevada, becoming the president of newly incorporated Bank of California, with a paid up capital of \$2,000,000 in 1864. With William C. Ralston serving as cashier, the Bank of California was the most powerful financial institution in the Far West from 1864 to 1875.

Meanwhile, Ogden Mills' brother, Edgar, remained in Sacramento and became president of their bank in that city. In 1883 D. Ogden Mills moved to New York City with the millions he had made in the Comstock and became a national banking figure, associated with the Bank of New York. He died in his 85th year, January 3, 1910, at his winter estate at Millbrae, San Mateo County, California.

There are two buildings in Sacramento associated with the pioneer banking firms of D. O. Mills & Co. The oldest structure, and the only one Darius Ogden Mills built himself, is a two-story brick building located at No. 226 J Street. This bank was built after the fire of November 2, 1852, which destroyed their original bank building, and it served as Mills' Bank from 1852 to 1865. Mills left Sacramento for San Francisco in 1861. The building, which has been considerably altered, is marked as California Registered State Historical Landmark No. 609. Under the urban renewal plan for Old Sacramento, the 1852-62 bank will be removed from its original site and be reconstructed in the historic district of Old Sacramento.

The second surviving Mills' bank, erected in 1857, is a well-preserved two-story brick building located at 220 J Street, on the southeast corner of J and Second Streets. This structure, built by Joseph Heywood, afforded the new and enlarged quarters required by the D. O. Mills & Co. in 1865, when the company was in process of greatly expanding its business. The bank remained at this location until 1912. This

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<sup>1</sup>These two buildings are, or will be, located in the Historic district of Old Sacramento, California, which was classified as a site of Exceptional Value, under Theme XVIII, Travel and Communication, in October 1964.



structure still presents a striking appearance in spite of the covering over of its former granite columns. D. O. Mills, however, had little personal association with this second structure. This structure is now located in the historic district of Old Sacramento and will be preserved under the urban renewal plans for that district.

#### D. O. Mills Mansion.

Location. Millbrae, San Mateo County.

Darius Ogden Mills (1825-1910) was born at North Salem, Westchester County, New York, the son of a hotel-keeper. He arrived in Sacramento, California, in the summer of 1849 and opened a small merchandise store. In 1850 he and his brothers established one of the first regular banks in the state, which was operated in connection with the Sacramento store.

In 1861 Mills moved to San Francisco where he became an important financial figure in the states of California and Nevada. He became the president of the newly incorporated Bank of California with a paid-up capital of \$2,000,000 in 1864. With William C. Ralston serving as cashier, the Bank of California was the most powerful financial institution in the Far West from 1864 to 1875.

In 1866 Mills erected a magnificent mansion on his large estate located on the Peninsula south of San Francisco. The small town there took the name of Millbrae in honor of his fine estate. Mills resided there from 1866 to 1883, when he went east to New York City to become a national banking figure, associated with the Bank of New York. Thereafter he used his Millbrae estate as a winter house. He died at Millbrae on January 3, 1910.

The great estate, with its fine house, gardens, lakes, and farm, were sub-divided for real estate development purposes in 1956 and the mansion was then demolished.

#### Oil Well No. 2-6, Midway Field.

Location. 1/4 mile west of Fellows, on Broadway Road, Kern County.

Near an area of small wells that had been producing only 40 or 50 barrels of oil, Well 2-6 blew in over the derrick top on November 27, 1909, with a production of 2,000 barrels a day, and touched-off one of the greatest oil booms California ever experienced. Well 2-6 was located as a wildcat on June 1, 1909, by Fred C. Ripley, Assistant Manager of oil properties of the Santa Fe Railway Coast Lines.

The former site of the Midway Field's gusher is fenced and marked as California's Registered State Historical Landmark No. 581. There are no remains of the well.

Oil Well No. "Hill 4"

Location. In the Lompoc Oil Field between the cities of Santa Maria and Lompoc, Santa Barbara County.

Here in the Lompoc Field, first developed in 1902, Hill No. 4 was completed on April 30, 1906. This was the first oil well in which a water shut-off was attained by pumping cement through the tubing and back of the casing--forerunner of the modern cementing technique. Hill No. 4 was drilled by the Union Oil Company of California to a total depth of 2,507 feet, and 1,872 feet of 10-inch casing and 2,237 feet of .8-inch casing were so securely cemented off that the well subsequently produced for over 45 years. The development of oil well cementing was one of the most significant events in the history of petroleum technology. It has increased the productive life of thousands of oil wells and has thereby made available millions of barrels of oil that might otherwise have remained in subterranean storage.

The former site of this well is marked as California Registered State Historical Landmark No. 582.

Old Baird U. S. Fish Hatchery Site,

Location. Shasta County, at the Shasta Reservoir on U. S. Highway 99.

This was the site of the United States Fish Commission Hatchery established in 1873. It was here that Dr. Livingston Stone first carried on Chinook salmon cultural work in 1873. By 1888 this hatchery on the McCloud River was the most extensive institution of its kind in the world and yielded from 600,000 to 10,000,000 fish annually. The 1873 site is now covered by the waters of the Shasta Reservoir.

Old Bale Grist Mill.

Location. Napa County, 3.8 miles north of St. Helena on State Route 128.

The principle industry of California from 1850 to 1890, after mining, was the manufacture of flour. The old Bale Grist Mill is the only surviving example of an early flour mill in the Far West.



Old Bale Grist Mill, 1847, St. Helena, California

N. P. S. Photo, 1960

By 1854 California had 54 flour mills in operation with a capacity of 1,250,000 barrels. The number of mills increased to 91 in 1860 and reached 115 by 1870. In 1880 there were 150 mills, with \$4,360,000 capital, 455 runs of stone turned by 7,440 horsepower; these mills had a daily capacity of 58,600 bushels and employed a total of 190 men.<sup>1</sup> California's flour mills utilized 8,200,000 bushels of wheat and 3,470,000 of other grain annually and yielded \$12,700,000 of the total value of \$116,200,000 produced by California's industries in 1880.

In 1846-1847, Edward Turner Bale, an English surgeon who had married a niece of General Vallejo, constructed a grist mill on his Rancho Carne Humana in Napa County. The grist mill, ultimately a three-story frame building with a false store front, was built for Dr. Bale by Irwin Kellogg. The great 40-foot, waterpowered, wooden cog wheel ground the wheat of the upper Napa Valley for settlers and miners until 1879. Water to turn the wheel was brought through redwood logs 15 to 20 feet long and two feet in diameter, split in two and dug out to make a trough. The millstones were made of local rocks.

In 1923 the weather-beaten mill was donated to the Native Sons of the Golden West, who restored the building in 1925. Old Bale Mill is owned by Napa County and is located in a county park. Now a museum, the structure is in good condition and is open to the public. The site is marked as California Registered State Historical Landmark No. 359.

#### Old Whaling Station, Monterey.

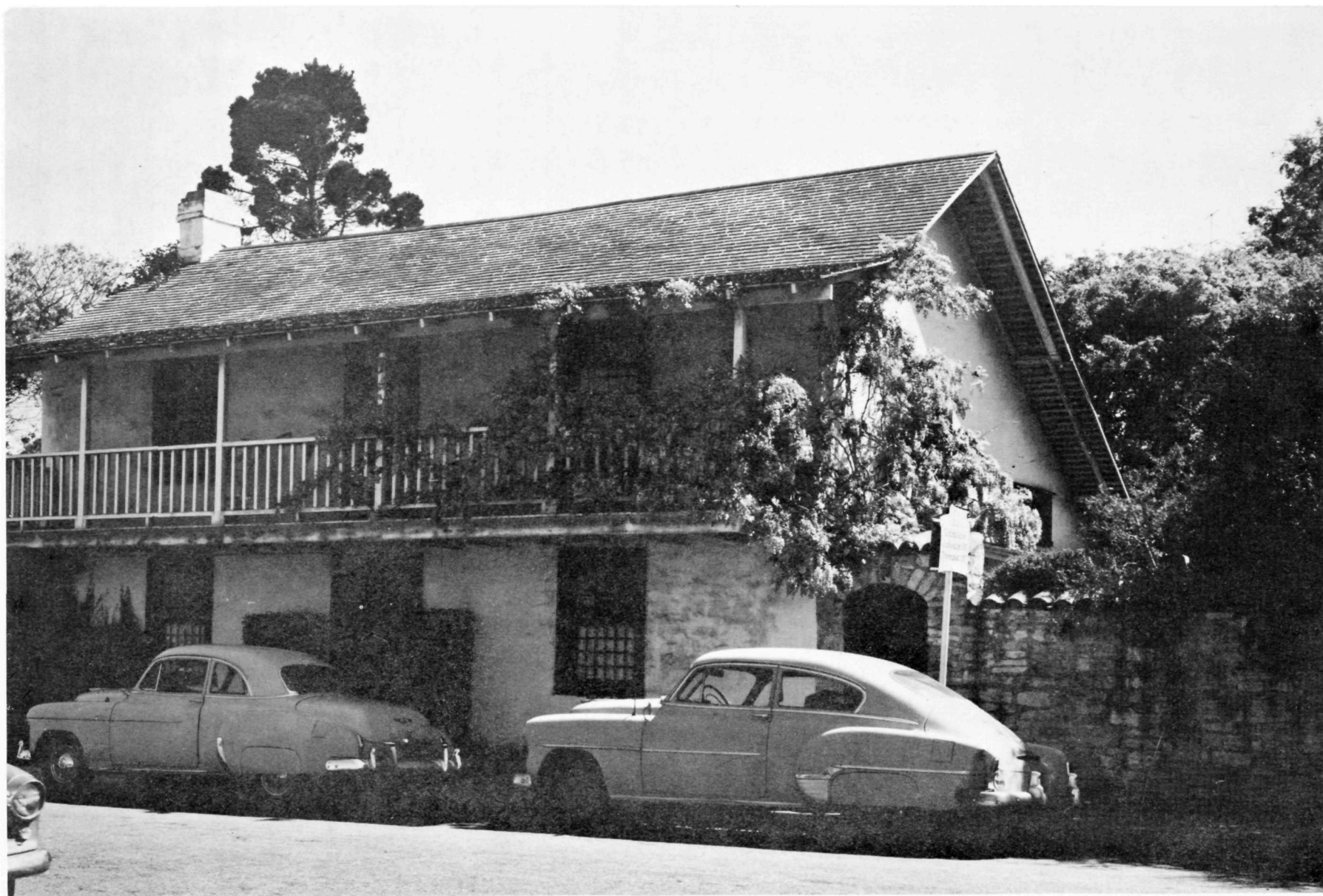
Location. 391 Decatur Street in Monterey, Monterey County.

This is the one structure surviving on the Pacific Coast that is in any way associated with the whaling industry, although it was linked closely only to local coastal whaling.

In 1854 Captain J. P. Davenport, an old whaling master, organized the Monterey Whaling Company comprised of 12 men and two rowboats. In the fall of that year they caught humpback and the California gray whale in the bay from their small craft.

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<sup>1</sup>97 of the 150 mills in 1880 were operated by steam power and had 5,770 horsepower out of the total of 7,440 horsepower available to the industry.



Old Whaling Station, 1855, Monterey, California

N. P. S. Photo, 1961



In 1855 a company of Portuguese known as the Old Company, with 17 men and 2 small craft, was also organized and the Old Whaling Station was erected in the same year as a boarding home for these men. During the next three years they succeeded in taking about 800 barrels of oil a year.

Similar small coastal companies were organized at Carmel, Moss Landing, San Diego, Los Angeles and other points along the California coast. By 1888, however, this local industry had nearly disappeared, partly as a result of the near extinction of the gray whale and also because of the low price of oil; petroleum products were beginning to displace whale oil.

The Old Whaling Station is a two-story adobe and is in excellent condition. Its second floor porch was added in 1903 when the building was restored. The structure now serves as a private residence.

Old Whaling Station Site, near Point San Vicente.

Location. Portuguese Bend, 2-1/2 miles east of Point San Vicente, in Los Angeles County.

Here Captain Frank Peterson, a Portuguese, built his try-vats in 1864. Using small craft, the whalers caught the California gray whale off shore and towed their catch to the site. The station was used from 1864 to about 1885 for this purpose. There are no remains of the try-vats. The site is marked as California Registered State Historical Landmark No. 381.

Pacific Lumber Company, Scotia.

Location. Humboldt County, Scotia is a company-owned lumber town, located about 22 miles south of Eureka.

Scotia has been the redwood lumber-producing center of the important Pacific Lumber Company since 1886.

Scotia is situated in the great redwood coastal timber belt north of San Francisco which includes 94% of the nation's total redwood supply. This redwood belt runs along the northern coast of California through Del Norte, Humboldt, Mendocino, and a part of Sonoma Counties in a narrow strip varying from 10 to 30 miles in width.



The California gold rush of 1849 created a great demand for sawmill products: the placer miners required vast quantities of planks for their sluices, flumes, and wing dams; quartz miners also needed lumber and planks to brace their shafts and tunnels; and thousands of feet of lumber were utilized to construct the expanding city of San Francisco.

By 1860 Mendocino and Humboldt Counties had the largest sawmills and produced the most lumber, 35 and 30 million feet of redwood respectively. Third was Santa Cruz County, then producing 10 million feet of redwood a year.

In 1863 John A. Paxton of Eureka and Allen E. Curtis of Sacramento purchased 6000 acres of timber land lying along the banks of the Eel River in Humboldt County from the State of California. In 1868 Paxton and Curtis, now owners of a rich silver mine at Austin, Nevada, and further supported by the Anglo-California Bank, formed a company, which was incorporated a year later as the Pacific Lumber Company, to harvest the timber on their extensive virgin redwood grove at what is now Scotia. Their holding company began active lumbering operations at Scotia (or Forestville as it was known until 1888) in 1886. A complete company-owned town was erected, together with sawmills, a railroad, and a fleet of lumber ships. Additional acres of redwood trees were also acquired.

The Pacific Lumber Company then became involved in the struggles of two powerful transcontinental railroads. After many years of warfare, the Santa Fe Railroad had finally succeeded in entering Southern California over its own tracks in 1884, thus for the first time partly breaching the Southern Pacific-Central Pacific monopoly of railroads in California. However, it was not until 1900, that the first Santa Fe train succeeded in reaching San Francisco over the company's own line. By 1903, through the purchase of the Valley Road and the California and Nevada, the Santa Fe reached Oakland. Edward P. Ripley, the president of the Santa Fe, had ambitious plans for the extension of his lines into Northern California. As a part of these plans the Santa Fe had acquired control of the Pacific Lumber Company and also of additional large virgin tracts of redwood timber in northern California.

These plans, however, threatened the sovereignty of the Southern Pacific, which had previously held a complete monopoly of railroads in Northern California. By 1903, moreover, the Southern Pacific was under the firm control of Edward H. Harriman, who was then probably the most powerful railroad magnate in the United States. The two great railroad companies now waged war for control of the northern California empire, where the Southern Pacific already owned 1,934,580 acres with 35.1 billion board feet of timber, or 14.1% of the total of privately owned timber in California.<sup>1</sup> This great holding

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<sup>1</sup>The Albion Lumber Company of Mendocino County, owned by the Southern Pacific, also had large redwood holdings.

had been acquired under Federal grants to build the Oregon and California railroad.

In a series of battles waged between 1903 and 1904, Harriman convinced the Santa Fe that it should operate its lines in harmony with his. In 1905 two directors of the Union Pacific (also a Harriman line) were elected to the board of directors of the Santa Fe, and Harriman and his associates purchased about 14% of the Santa Fe capital stock to insure their victory.

This settled, Harriman and Ripley, on November 24, 1906, formed the Northwestern Pacific Railway Company as an instrument of compromise to build into the redwood empire on the northern coast of California. Their railroad was completed from Mill Valley, on the north side of San Francisco Bay, to Eureka and Arcata in Humboldt County on October 23, 1914, thus providing the first direct railroad transportation from the redwood empire to eastern markets.

The Santa Fe then sold its control of the Pacific Lumber Company to the Murphy interests, a family whose lumber operations originally began in Maine in 1833 and then extended through Michigan and Wisconsin, finally to Humboldt County, in California. The Murphy family still owns the Pacific Lumber Company.

By 1909 the Pacific Lumber Company was the second largest holder in a group of the six that together owned 384,291 acres with 43.6 billion board feet or 41.1% of the Nation's total redwood supply. The Pacific Lumber Company was and still is one of the giants of redwood lumber industry. Today, it holds about 163,500 acres of timberland in California.

Scotia, occupying 307 acres, is still a company-owned lumber town. Unfortunately, however, nothing is left of the 19th century town and lumber plant. The oldest surviving building, originally a horse barn and now utilized as the town's carpenter shop, was erected in 1900.

The site, however, is well worth a visit, for at Scotia the Pacific Lumber Company offers visitors the finest interpretive facilities on the Pacific Coast relating to the history and development of the lumber industry. In what was formerly a bank, built of redwood and erected in 1920, the company maintains an excellent museum devoted to the history of the lumber industry. Early photographs, tools, machines and artifacts are on exhibit and visitors are also invited to make a tour of the great mills, where the production of lumber can be seen at first hand.

### Pioneer Oil Refinery Site.

Location. Los Angeles County, .5 miles southeast of Newhall, on Pine Street.

In 1873 the oil promoters of Los Angeles again began to "puff" the merits of the potential oil field at Pico Canyon, located 7 miles west of Newhall. In 1873-74, a small oil refinery was erected at Lyons Station, about a mile and a half south of Newhall. This modest establishment, built at a cost of \$3,000, included a single 15-barrel still with wooden flumes for running the crude oil from storage tanks, and a pipeline to supply water from a nearby spring. It was hoped that oil would be found in sufficient quantities to keep the refinery operating. Drilling began in Pico Canyon in 1874 and early in 1875 one well succeeded in producing a little oil, but not enough to keep the refinery in operation.

In early 1875 three migrants from the Pennsylvania oil fields, Denton Cyrus Scott, Robert C. McPherson, and John G. Baker arrived in Los Angeles, decided to lease the shut-down refinery at Lyons Station, and to try their luck in the Pico Area, organizing the Star Oil Works for this purpose.

By the end of 1875 the partners succeeded in bringing in three wells that each yielded some oil. In early 1876, employing the service of John A. Scott, a Titusville refiner, they succeeded in turning out better oil than any thus far produced in California. That summer the Southern Pacific Railroad also laid the last of its track between Los Angeles and San Francisco, thereby opening the Pico region to rail transportation, although the track by-passed the Lyons Station refinery.

These signs were enough to induce the partners to continue their efforts: the Company was reorganized as the California Star Works Company in 1876, the refinery was purchased, additional wells were successfully sunk, and it became evident that the Lyons Station refinery would soon be inadequate.

In 1877 a new 5-acre site was selected on the Southern Pacific railroad at Andrews Station (which became Newhall in 1878), nearly a mile northwest of Lyons Station. Construction on the new refinery, now known as the "Pioneer Oil Refinery," carefully supervised by J. A. Scott, began in May and was completed about July, 1877. Storage tanks of 20 to 100 barrels capacity were scattered about the hillside, from which crude oil flowed by gravity into the three stills below. Two of the stills, 15 and 20 barrels in size, were removed from the Lyons Station refinery. A new 120 barrel still, of the cheesebox type, was also built. All three were set on brick foundations and were direct fired. The heavy residual oil from early refining runs was used

as fuel, with steam being injected into the oil to atomize it and to intensify the heat. Petroleum gases from the hot stills passed into a condenser 5 x 5 x 125 feet, consisting of 1,400 feet of two-inch and three-inch pipe submerged in water, from which the illuminating oils traveled to a lead-lined agitator, where they were treated with chemicals and agitated with air to improve their burning quality.

At Andrews Station (Newhall), the Company manufactured a light lubricating oil (24° gravity) for machinery and a heavy lubricant (19° gravity) for sawmills, quarts mills, and railroad journal boxes. Kerosene in two grades, Lustre and Prime White, however, were the chief sale items. Kerosene refining was still a difficult task in 1877, for the oil had to be run and re-run several times in order to turn out a salable product. Small quantities of benzine and a 300° F. fire test safely illuminating oil for use on ships and railroads and in factories and mines was also produced. The refinery capacity was about 750 gallons of kerosene a day.

In 1879 the Andrews Station was connected with the 7-mile distant Pico Canyon oil wells by a two-inch cast iron gravity feed pipeline, the first pipeline to be used in California. In 1880, the capacity of the Andrews Station Refinery was almost doubled in size by the addition of a 150-barrel still and a second agitator.

But the importance of the refinery began to decline rapidly after 1885, when a four-inch pipeline was completed from Pico Canyon to the tidewater at Ventura; thereafter most of the oil was diverted to the coast where it could be transported more cheaply by steamer than was possible under the terms of the Southern Pacific Railroad monopoly. In March, 1890, the Newhall refinery was finally abandoned. The refinery passed into the hands of the Pacific Coast Oil Company in 1879, when that firm absorbed the California Star Oil Works Company, and then into the hands of Standard Oil Company of California when that company absorbed Pacific Coast Oil Company in 1906. The stills of the oil Newhall refinery were cannibalized to meet the shortage of steel in 1918, during World War I, but in 1930 the Standard Oil Company restored the ruins of the Newhall refinery to an exact reproduction of its early appearance. Unfortunately, the integrity of this otherwise prime site was destroyed in 1962, when the Standard Oil Company of California moved the refinery for exhibit purposes to its new museum, the Richmond Refinery Historical Museum, at Richmond, on San Francisco Bay. The former site at Newhall is marked as California Registered State Historical Landmark No. 172.



Pioneer Oil Refinery, 1876, In its original location at Newhall, California

N. P. S. Photo, 1961



### Pomona Water Power Plant.

Location. San Antonio Canyon, 13-3/4 miles northeast of Pomona, along Camp Baldy road near Claremont, Los Angeles County.

The first hydroelectric installation in California for long-distance transmission of alternating current at high voltage was the Pomona hydro-plant situated on San Antonio Creek, in Southern California. The San Antonio Light and Power Company, organized in 1890 by Dr. Cyrus Grandison Baldwin, first president of Pomona College, built a plant at the waterfall with a capacity of 150 horsepower. The first high voltage transformer for this installation, designated by William Stanley and Almerican Deckor, provided for 10,000 volt, single phase, transmission. Service to Pomona, 13-3/4 miles distant, began on November 28, 1892 and on December 31, 1892 to San Bernardino, 28-3/4 miles away.

There are no remains of the 1892 plant; these have been destroyed by the construction of the more recent and larger San Antonio Dam. The former site is marked as California Registered State Historical Landmark 514.

### San Diego Whaling Station.

Location. Point Loma, at the base of Ballast Point, San Diego.

This was the site of trying-out works maintained by middle 19th Century coastal whaling companies. A few remnants of try-pot foundations, built by the Packard Brothers and Johnson Brothers of New England, are still to be seen. Here they towed their catch, the grey whales usually taken in the kep beds off Point Loma, and here they cut up the whales, dried out the blubber, and coopered the oil.

The site is marked as California Registered State Historical Landmark No. 50.

### San Francisco Whaling Sites.

The last stand of the declining Pacific whaling industry was made in San Francisco Bay. In the years following the Civil War, the center of the whale fishery shifted from the Atlantic to the Pacific. For a time, the Hawaiian Islands were able to retain their long supremacy as a port for recruiting and refitting, but after 1880, San Francisco became the major whaling port in the United States. For some time the Golden Gate had been a convenient base for operations in the Northern Pacific and in the Arctic waters north of the Bering Straits--the only region in which whales were still being captured in any numbers. San Francisco's advantages, however, expanded tremendously with the



coming of steam whaling. The original cost of a steam whaler was about three times that of a sailing vessel of equal capacity, and the expenses of operation were greatly increased by a heavy coal bill and a crew which necessarily included several skilled mechanics. Such vessels, in order to be profitable, had to spend a larger proportion of the year actually on the whaling grounds, and a smaller percentage in going to and from port. Carrying a cargo to the Atlantic coast, via Cape Horn, was out of the question; and consequently many vessels which were still owned in New Bedford transferred their registry and base of operations to San Francisco. Catches of oil and bone were shipped after 1869 to the Eastern market over the new transcontinental railway; and these railway connections plus her facilities for mechanical repairs and for general refitting, soon enabled San Francisco to supplant the Hawaiian Islands as the chief whaling base of the Pacific.

From four steamers in 1881, the San Francisco whaling fleet grew to 33 vessels by 1896, comprising almost half of the total of 77 American whalers still sailing seas. In 1883, refineries for the manufacture of whale and sperm oils were built in the San Francisco area and city. But the San Francisco whaling was but a shadow of the industry's former glory. Many disasters among ice floes, the diminishing number of whales, and the replacement of whale oil by petroleum products, caused the Arctic fleet that sailed from San Francisco to grow smaller and smaller. By 1906 there were only 42 whalers left afloat and 14 of these came from San Francisco.

There are no sites left in the San Francisco area that can be closely related to 19th Century whaling industry.

#### Stanford-Lathrop Home.

Location. 800 N Street (Southeast corner of 8th and N),  
City of Sacramento, Sacramento County.

This sturdy three-and-one-half story brick mansion was the home of Leland Stanford from 1861 to 1874. It was while living here that Leland Stanford served as Civil War Governor of California, 1861-63, president of the Central Pacific Railroad, 1862-74, and became a multi-millionaire.

Architecturally this building is one of the most impressive residential structures in California to survive from the last half of the 19th Century. The house is a relatively rare California example of high Victorian taste, and is similar in character to the great town houses that were destroyed in the San Francisco earthquake and fire of 1906.

The original owner and builder of the house was Shelton C. Fogus, a pioneer merchant of Sacramento. Fogus acquired the property in 1857 and the following year Seth Babson was commissioned to design a fine two-story house of brick and plaster on the lot. Stanford purchased the lot and house in 1861 for \$8,000 and resided there while serving as Civil War Governor. From 1863 to 1867, the house was leased to F. F. Low, the next governor of California, as a residence.

In 1868 the Stanford's only child, Leland, Jr., was born in the house. Major changes to the house occurred in 1871-72, when the Central Pacific Railroad began to yield ample profits and the Stanfords readjusted their scale of living in accordance with their new wealth. The entire house was jacked up a full story to permit the addition of the new ground story ballroom; a new wing and mansard roofs were also added. By 1872 the remodeled house contained 44 rooms fitted out with "Magnificent and costly furniture in every room" - with "room for 200 guests at a setting."

But by 1874 not even the glories of this revised house could hold the Stanfords in provincial Sacramento, and they left for the splendors of a much more pretentious new mansion situated on Nob Hill (formerly located on the southwest corner of California and Powell Streets) in San Francisco. Offices of the Central Pacific Railroad were also transferred to San Francisco in 1874. Stanford continued to own the Sacramento mansion and entertained there from time to time. In 1900 Mrs. Jane Lathrop Stanford, the widow of Leland Stanford, gave the Sacramento house to the Roman Catholic Diocese of Sacramento to make into an orphanage. Administered first by the Sisters of Mercy, the Stanford-Lathrop Memorial Home passed to the Sisters of Social Service in 1936 to be used as a home for problem adolescent girls.

The exterior of the Stanford-Lathrop Memorial Home is basically intact, although there have been some changes, which include the removal of urns and iron cresting, and the addition of fire escapes. The interior is also largely intact, although the ballroom on the ground floor has been divided into smaller rooms since 1900. In 1939 the house was generally refurnished and many of the original Stanford furnishings were returned to fit out the first floor rooms. The house is still used as a children's home, but the first floor is open daily to visitors at their request. The site is marked as California Registered State Historical Landmark No. 614.

#### Studebaker's Shop, Placerville.

Location. 543 Main Street, Placerville, El Dorado County.

Site of the wheelbarrow and wagon shop of John Mohler Studebaker, from 1852 to 1858. With money made from his shop and mining stock, he left California in 1858 to return to Indiana, where he subsequently became famous as an Indiana manufacturer of wagons and automobiles. California Registered State Historical Landmark No. 142.

Virginiatown.

Location. Eight and one-half miles west of Auburn, Placer County.

A gold mining town founded in 1851 and the site of Philip D. Armour's 1852-1855 butcher shop. With money acquired in California, he returned to Milwaukee in 1855 and subsequently became the founder of a great packing house. California Registered State Historical Landmark No. 400.

## OTHER SITES CONSIDERED

### COLORADO

#### Oil Creek Discovery Site, (Florence Oil Field).

Location. Fremont County, six miles north of Canon City, off U. S. Highway 50.

This 1862 oil well was Colorado's first commercial oil well. An oil seep was found on Oil Creek, about six miles north of Canon City, in 1859. In 1862 Alexander M. Cassiday bought the oil springs and drilling a well, struck oil at 50 feet. During the 60s he sold his partially refined "coal oil" at Pueblo, Santa Fe, and Denver at prices that ranged from \$1.25 to \$3.00 per gallon.

In 1880 Cassiday brought in another oil well just south of Coal Creek and about 3 miles south of Florence, which marked the opening of the Florence field, the first important oil field in the Rocky Mountain Petroleum field. These wells were so successful that he organized the Arkansas Valley Oil and Land Company, which later became a part of the Continental Oil Company, to work the field and a refinery was erected. By 1900 the Florence field was producing a little less than 1,000 barrels of oil a day, or about .6% of the oil in the United States.<sup>1</sup>

A few of the wells in the Florence field are still producing oil.<sup>2</sup>

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<sup>1</sup>Carl C. Rister, Oil! Titan of the Southwest (Norman, 1949), vii-viii. In 1909 Colorado had 76 active oil wells that produced crude petroleum valued at \$317,680; Wyoming had only one active oil well, which yielded \$18,929. Montana then had no producing wells.

<sup>2</sup>By 1919 Colorado had 10 oil companies and 82 active wells. The capital invested amounted to \$2,931,633; the industry employed 100 people. The value of Colorado's output was \$153,594, as compared with Wyoming's \$21,959,937 and Montana's \$258,046. Source: U. S. Census records.

## OTHER SITES CONSIDERED

### IDAHO

#### Barber.

Location. Ada County, on State Route 21, six miles southeast of Boise, on the Boise River.

Beginning lumbering operations in Southern Idaho in 1906, the Weyerhaeuser interests entered the Barber Lumber Company the same year; the firm was absorbed in 1913 into the larger Weyerhaeuser controlled Boise-Payette Lumber Company.

The Barber Lumber Company, a Wisconsin corporation with an authorized capital of \$150,000, was organized in July, 1902, by James T. Barber, William Carson, C. W. Lockwood and the brothers C. D. Moon and Summer G. Moon. In March, 1902 Barber and Summer Moon had purchased 25,000 acres of timberland on Grimes and Moore's Creek in Boise County. This land formed the basis of operations for the new company.

By 1906 the company had erected a three-band sawmill, dam, small electric power plant, and a town, called Barber, which was located six miles southeast of Boise and situated on the Boise River. The sawmill began operations in 1906 and had a capacity of 200,000 feet per 8-hour day.

The cost of this construction resulted in an increase of capitalization to \$1,000,000 by 1905. By August 1906 the company had also increased its holdings to 61,000 acres of timberland, but embarrassed by the need for money to build a railroad to bring the logs down from the mountains to the mill, they were forced to turn to the Weyerhaeusers for assistance. The Weyerhaeuser associates and the Laird, Norton Company each bought 1,500 shares of stock for \$405,000 in 1906. As a result, capitalization was again increased to \$1,500,000. Legal and economic difficulties, however, blocked the construction of the railroad until 1914. In 1913 the company acquired an additional 12,000 acres of state-owned timberland for \$100,000.

On December 24, 1913 the Barber Lumber Company was merged with the Payette Lumber & Manufacturing Company, a Weyerhaeuser firm, to form the new Boise Payette Lumber Company, capitalized at \$7,000,000. The new firm purchased the stock and property, including 68,823 acres of timberland, of the Barber Lumber Company for \$1,000,000 and paid \$3,000,000 for the same (including 131,303 acres of timberland) of the Payette Lumber & Manufacturing Company.

In March, 1914, the Boise Payette Lumber Company began construction of the long needed Intermountain Railway running from Arrowrock Junction to Centerville, Idaho. This 40-mile line, built at a cost of \$1,037,499, began operations on May 1, 1915. In 1917 the company was also able to buy the Boise and Arrowrock Railroad a 12-mile railroad running from Barber Junction, on the Oregon Short Line, to the Arrowrock Dam, from the U. S. Reclamation Service for \$70,000. Logging and sawing was initiated in 1915, the Barber mill turning out 23,327,000 board feet of lumber in that year and 42,587,000 feet in 1916. By 1923 the total investment in the Barber plant, including a box factory, amounted to \$662,000. Additional lumber purchases were also made so the original Boise Payette holding of an estimated 2,432 million board feet in 1913 had been raised to 3,330 million by 1923.

Due to the Depression of the 1930's, the Barber sawmill was dismantled in 1934 and the Intermountain Railway was liquidated in 1935. The Boise Payette Lumber Company, however, continued to operate the large sawmill that it had erected at Emmett in 1917. In 1957 the Boise Payette Company was renamed the Boise Cascade Corporation. This firm still owns the original Barber Lumber Company timberlands located in Southern Idaho.

#### Bonner Ferry.

Location. Boundary County, junction of U. S. Highways 2 and 95.

Bonner Ferry, in the northern Idaho Panhandle, was the second of the seven early Weyerhaeuser lumbering ventures in that state to become active.

The Bonner Ferry Lumber Company, with an initial capitalization of \$220,000, was organized in Wisconsin by Frederick Weyerhaeuser late in 1902 for the purpose of working 13,000 acres of timberland located along the Kootenai River. A one-band sawmill was erected at Bonner Ferry and began operations in 1904. Four million board feet of lumber were shipped in 1904 and the 52,000,000 board feet level was reached in 1912. Capitalization of the company was increased to \$332,000 in 1905. When the sawmill burned in 1909, it was rebuilt with two headrigs. Production ceased in 1927 and the property was sold in 1937. The earnings of this company never measured up to expenses.



Coeur d'Alene, St. Maires and St. Joe.

Location. Coeur d'Alene: Kootenai County, Junction of U. S. Highway Alt. 95 and State Route 5.

This was the site of early and large-scale acquisition of timberlands in Northern Idaho by the Weyerhaeuser associates. Lumbering operations, however, did not begin until 1916.

In 1901 Edward Rutledge agreed to buy 25,250 acres of Idaho white pine, located on the watersheds of the St. Joe and St. Maries rivers in Benewah County, from the Northern Pacific. In October, 1902, Rutledge and Frederick Weyerhaeuser organized the Edward Rutledge Timber Company, with a capital stock of \$200,000. Rutledge served as president of the new company. By 1916 the firm held 116,650 acres of timberland in Northern Idaho.

Although some logging was engaged in to salvage trees damaged in the forest fires of 1910 and 1913, the Edward Rutledge Timber Company did not begin large scale operations until 1916.

In 1915 a sawmill was erected at Coeur d'Alene.<sup>1</sup> A wooden "V" flume was built to bring logs from the mountains in the Marble Creek region, the company's initial area of logging, across the intervening country to the St. Joe River. On the river they were driven to Lake Coeur d'Alene and then towed to the mill, which began sawing on April 1, 1916.<sup>2</sup> Twenty-one million board feet of lumber were shipped that year and the average cut for the first five years was 45,000,000 board feet per year. The company, however, failed to show a profit,<sup>3</sup> and on April 29, 1931, the company, with its mill and lands, were merged with Potlatch Forests, Inc.<sup>4</sup> The modernized mill at Coeur d'Alene is still operated by Potlatch Forests, Inc.<sup>5</sup>

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<sup>1</sup>This sawmill, in 1934, had a capacity of 120,000 board feet for an eight-hour day.

<sup>2</sup>The flumes were eventually replaced by 15 miles of logging railroads. Lake steamers of the Red Collar Line were used to tow the logs across Coeur d'Alene Lake.

<sup>3</sup>A large forest fire in 1922 gutted the fine stand of white pine on Marble Creek and also burned out camps, flumes and other installations.

<sup>4</sup>The Potlatch Forests, Inc., also included two other Weyerhaeuser companies, namely, the Clearwater Timber Company of Lewiston, Idaho, and the Potlatch Lumber Company of Potlatch, Idaho.

<sup>5</sup>In 1913 the Milwaukee Land and Lumber Company, a subsidiary of the Chicago, Milwaukee and St. Paul Railroad, also held 12,000 acres of timberland purchased from the Northern Pacific Railroad in the St. Maries and St. Joe area. The Milwaukee began lumbering at St. Maries in 1911 and at St. Joe in 1913.

Emmett.

Location. Gem County, junction of State Routes 16 and 52.

This is the site of the largest Weyerhaeuser lumbering efforts in Southern Idaho.

The Payette Lumber & Manufacturing Company was chartered in Minnesota on December 9, 1902 with an authorized capital of \$500,000. Its nucleus was 32,904 acres of state stumpage acquired in the Payette Basin of Southern Idaho by William Deary and Henry Turrish on November 10, 1902 for \$183,620. The Musser and Weyerhaeuser groups (the four brothers) each owned 30 percent of the first stock issued.

Additional timberland was picked up each year, usually at relatively low prices. On May 1, 1905 total holdings were 98,000 acres of timber, which by the end of 1913, had increased to 153,000 acres, with an estimated cut of 1,485,000,000 board feet, and acquired at an original cost of \$1,096,000.

A major task confronting the company was getting the logs from the mountains to the mill. A dam was built at the head of Black Rock Canyon on the North Fork of the Payette River and an 18-mile road was constructed along that stream to Smith's Ferry to bring out the logs. These projects were completed in 1908 at a total cost of \$150,000.

Partly as a result of this activity the Oregon Short Line, a part of the Union Pacific system, began extending its rails northward to the Payette Lakes in 1911-1913. This development meant that the lumber company could be sure of moving its logs at reasonable cost from its lands to Emmett, where the company was planning to erect a sawmill.

On December 24, 1913 the Payette Lumber & Manufacturing Company merged with the Barber Lumber Company, another Weyerhaeuser firm. **as the Boise Payette Lumber Company.** The new corporation bought **all the stock and property** (131,303 acres of timberland) of the Payette Lumber Manufacturing Company for \$3,000,000, and those of the Barber Lumber (including 68,823 acres and a sawmill at Barber) for \$1,000,000. The authorized and paid-in capital of the Boise Payette Lumber Company was \$7,000,000.

About \$1,000,000 was spent on the construction of a large new sawmill at Emmett, which began operations on May 10, 1917. The output of the company jumped to 132,000,000 board feet and averaged 123,000,000 from 1917 through 1923. By 1923 the original Boise Payette holdings of an estimated 2,432 million board feet in 1913 had been increased by additional purchases to 3,330 million.

In 1923 the total investment in the mill at Emmett was placed at \$953,000 and the second company sawmill at Barber, Idaho; including a box factory, amounted to \$662,000.

Due to the depression, the Emmett sawmill was closed down from 1931 to 1933, but reopened in 1934. The Barber mill, however, was dismantled in 1934. In 1954 the Emmett Mill was improved and modernized. In 1957 the Boise Payette Lumber Company was reorganized and renamed as the Boise Cascade Corporation.

The Emmett sawmill is still operated by the Boise Cascade Corporation.

#### Lewiston, Orofino, and Headquarters.

Location. Lewiston, Junction of U. S. Highway 95 and 410, Nez Perce County. Orofino, on State Route 9, 42 miles east of Lewiston, Clearwater County; Headquarters, Clearwater County, 41 miles northeast of Orofino.

This site, located in northern Idaho, illustrates the close relationship that existed between the transcontinental railroads and the Midwest timber magnates in the rise of the lumber industry in Idaho.

In 1895, when James J. Hill's Great Northern Railroad acquired control of the Northern Pacific Railroad, which held huge Federal land grants in Idaho, Montana, and Washington, Hill set out to stimulate the lumber industry of this region. He vigorously advertised his timberland holdings in the Pacific Northwest and reduced railroad rates on lumber shipped east to Minneapolis.

In the process Hill also gathered every acre of timber on which he could lay his hands. Under the terms of the Forest Management Act of 1897 and the Act of March 2, 1899 creating Mount Rainier National Park in Washington, he was legally able to exchange some 450,000 acres of comparatively worthless mountain land situated within the boundaries of the National Park, which was owned by the Northern Pacific, for some of the most valuable timberland located on unreserved public lands situated in Idaho and Washington.

Hill's efforts bore fruit in Idaho in 1900 when Frederick Weyerhaeuser and John A. Humbird, Midwest lumber barons, bought Mount Rainier scrip from the Northern Pacific Railroad for 40,000 acres in Idaho for about \$250,000. In August, 1900, their agents filed claim to this acreage in the upper Clearwater Valley of Clearwater County, which contained one of the finest bodies of Western white pine in the United States. On December 13, 1900, the partners organized the Clearwater Timber Company under the laws of the state of Washington, with headquarters at Tacoma and a capital stock of \$500,000 to manage this land.

The officers of the new firm included J. A. Humbird, first president, and Frederick Weyerhaeuser, Vice-president. Prior to 1927 the company's activities were limited to the acquisition of additional timberland in Idaho. By 1927 the Clearwater Timber Company held about 220,000 acres in Idaho containing more than 2 billion board feet of white pine and 2 billion board feet of other species. The capital stock of the company increased from \$3,000,000 in 1912 to \$6,000,000 in 1924, and finally to \$9,000,000 in 1926.

Logging of the untouched timberland did not begin until 1927. In 1926-27, the Clearwater Timber Company constructed its first sawmill. Located at Lewiston, this large mill had a capacity of 350,000 board feet of lumber per 8-hour working day. The plant sawed its first logs on August 8, 1927 and thirteen million board feet of lumber were shipped out the first year.

Eighty miles of the channel of the Clearwater River from Orofino to Lewiston were also improved in 1927 to allow log drives to the mill. The Northern Pacific and Union Pacific built a railroad from Lewiston via Orofino to Headquarters, the main logging camp of the Clearwater Timber Company. At Headquarters the lumber company constructed 13 miles of "V" flumes and 30 miles of logging railroads into the back country to bring out the logs.

On April 29, 1931, all the properties and the Lewiston mill of the Clearwater Timber Company were merged into a giant new corporation known as Potlatch Forests, Inc. This new Weyerhaeuser firm also included the former holdings of the Potlatch Lumber Company of Potlatch, Idaho, and the Edward Rutledge Timber Company of Coeur d'Alene, Idaho. The Lewiston sawmill, built in 1927, is still operated by Potlatch Forests, Inc. The Lewiston mill was extensively modernized in 1949-50, and a paper and pulp mill were also erected at that time.

#### Potlatch, Elk River, and Bovill.

Location. Latah County, U. S. Highway 95, 19 miles north of Moscow.

The lumbering operations of the Potlatch Lumber Company in the Palouse basin of Northern Idaho represented the most ambitious of the seven early Weyerhaeuser efforts in that state.

In 1901 and 1902 the Weyerhaeuser group, including Frederick and Charles A. Weyerhaeuser, William Deary and others, acquired about 30,000 acres of white pine timberland located along the Palouse River watershed from the state. In March 1903, the associates incorporated the Potlatch Lumber Company, with an initial capitalization of \$3,000,000. The new company quickly absorbed smaller firms in the area, notably the Palouse River Lumber Company at Palouse, Washington, whose mill and timberlands cost about \$265,000.

In the fall of 1905 construction began on a large sawmill located on the Palouse River in Idaho at the future site of the town of Potlatch. The new mill, 300 feet long, 100 feet wide, and 70 feet high, had a capacity of 300,000 board feet of lumber per 8-hour day. Also erected were a large steel-framed planing mill, a powerhouse, and lumber shed. A Corliss engine with a flywheel 24 feet in diameter drove the machinery. Four band saws, a gang sawmill with 46 blades, and four double edgers turned the logs from the ponds into lumber. A lumberyard covering 65 acres had 45 miles of railroad track. The sawmill began sawing on September 11, 1906. Seventy-five million board feet of lumber were shipped out in 1909.

On the two wide-topped hills overlooking the plant the company also quickly built the town of Potlatch to house its employees. By September, 1906, 163 dwellings had been erected and 40 more were under-way. Shortly thereafter a grade school, high school, hotel, two churches, and a large two-story general store, built of brick, were completed. Two large boarding houses were provided for the single men. A two-story brick building served as a bank, post office, and "opera house". Wooden sidewalks were laid and the main street was macademized.

It was also necessary to build a railroad to bring the timber from the hills to the mill and to ship out the finished product. The Washington, Idaho, & Montana Railway Company, a million-dollar Maine corporation, was organized for this purpose in March, 1905. Construction on this line was rapid, and through trains began running in 1907. This 45-mile railroad ran from Palouse, Washington, where it connected with a branch of the Northern Pacific through Potlatch eastward to Bovill, Idaho, where it met the track of the Chicago, Milwaukee & St. Paul Railway. (This latter railroad opened through freight service from the Missouri River to Puget Sound in May, 1910). The capitalization of the Potlatch Lumber Company was increased to \$6,000,000 in 1906 and to \$8,000,000 in 1907 to finance the construction.

In 1909-1910 the Potlatch Company erected an electrically driven sawmill at Elk River. By 1913 the Potlatch Company was shipping out 135 million board feet of lumber a year and owned 83,043 acres of timberland acquired from the Northern Pacific. The Company paid its first dividends, 3%, in 1911 and these rose to 10% during World War I.

In 1920 the Potlatch Lumber Company owned 170,500 acres of land in Idaho, with a total of 4,426,000,000 board feet of timber.<sup>1</sup> On April 29, 1931 the Potlatch Lumber Company was merged into a new Weyerhaeuser Corporation known as Potlatch Forests, Inc., which also included the former Edward Rutledge Timber Company of Coeur d'Alene and the Clearwater Timber Company of Lewiston, Idaho.

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<sup>1</sup>This holding included 143,000 acres of timberlands and 27,500 acres of cutover lands. From 1903 to 1928 the Potlatch Company cut a total of 2,679 million board feet of lumber.



The Elk River sawmill was totally dismantled in 1936, but the great mill at Potlatch is still operated by Potlatch Forests, Inc.<sup>1</sup>

#### Sandpoint and Kootenai.

Location. Sandpoint in Bonner County, junction of U. S. Highways 2, 95, and Alt. 10; Kootenai, five miles east of Sandpoint on U. S. Alt. 10.

Sandpoint in northern Idaho was the site of the first active Weyerhaeuser sawmill in Idaho. The activities of such Midwest timber barons as Frederick Weyerhaeuser lifted Idaho from the 26th ranking lumber-producing state in 1910 into the 10th rank by 1920.

Idaho's chief industry from 1861 to 1900 was the mining of gold, silver, and lead, but soon after 1900 lumbering became the state's major industry. By 1920 forest products stood second only to agriculture in Idaho's economy.

Idaho is situated in the Western Pine region, its important commercial timber includes the ponderosa or western pine and Idaho white pine, which are found in great abundance. About half of Idaho is covered with forests and three-fourths of the commercial lumber is located north of the Salmon River in the northern part of the state.

During the 1860's a few pine sawmills were constructed in Idaho to provide the lumber needed in connection with gold rushes to that territory, but these mills were limited to production for the local market because of the lack of transportation. By 1880 Idaho had 48 sawmills in operation and in 1890 its mills produced about 27,000,000 board feet of lumber, all of which was consumed within the state. The transportation facilities necessary for the national distribution of lumber from Idaho became available between 1883 and 1893:--the period that saw the completion of the Northern Pacific Railroad's trans-continental line in 1883, the Union Pacific's Oregon Short Line in 1884-85, and James J. Hill's Great Northern Railway in 1893.

In 1895 James J. Hill's Great Northern Railroad acquired control of the Northern Pacific Railroad, which held vast Federal land grants in Idaho, Montana, and Washington.<sup>2</sup> Hill set out to

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<sup>1</sup>The 1905-1906 Potlatch mill was modernized and a box factory was added in 1923 at a cost of \$1,000,000. The sawmill was again modernized in the 1940's.

<sup>2</sup>Federal land grants to railroads in Idaho totaled 1,320,631.17 acres, mostly held by the Northern Pacific Railroad. In 1913 the Northern Pacific Railroad still owned 324,130 acres of timberland with 4.5 billion board feet of timber. This holding, amounting to 8.9% of the total of privately owned timber in the state, was located in Kootenai, Bonner, and Nez Perce Counties of Idaho.



stimulate the lumber industry in this new empire. He vigorously advertised his holdings in the Pacific Northwest as against the pinelands of the South and reduced railroad rates on lumber shipped from the Northwest to Minneapolis.

Early in 1900 agents of the Northern Pacific called the attention of Frederick Weyerhaeuser and John A. Humbird to the white pine forests of the Pend Oreille-Kootenai district of the northern Idaho Panhandle. The Weyerhaeuser agents acquired 184,000 acres of timberland located in Priest River Valley in Bonner and Kootenai Counties, Idaho, from the railroad on favorable terms.

On December 6, 1900 the Weyerhaeuser associates, including Humbird, Weyerhaeuser, Edward Rutledge, and Frederick C. A. Denkmann, organized the Humbird Lumber Company, with headquarters at Tacoma and a capital of \$500,000.<sup>1</sup> The new firm also acquired the Sandpoint Lumber Company with its single-band sawmill at Sandpoint. This plant was converted into a two-band sawmill and began sawing logs in 1902. The operations of the Humbird Lumber Company at Sandpoint in 1902, producing 17 million board feet of lumber in the first year, marked the beginning of active logging in Idaho by the Weyerhaeuser associates.<sup>2</sup>

The Sandpoint mill was destroyed by fire in 1907, but was at once rebuilt with improvements that gave it a 200,000-foot capacity for an 8-hour work day. In 1911 the company also purchased an old single band sawmill located at Kootenai, five miles from Sandpoint. A third single-band sawmill, located on the Pend Oreille River in Idaho, opposite to Newport, Washington, was added to the company's holdings in 1917. The Humbird Lumber Company's three mills stopped sawing in 1931, although its planing mills continued to run until 1934. By 1937 the mills and remaining timberland had been sold and the Humbird Lumber Company became inactive. Dividends from 1900 to 1937 totaled 430%.

#### Spalding (Lapwai) Mission.

Location. Nez Perce County, at Spalding, junction of U. S. Highways 12 and 95, about 10 miles east of Lewiston.

This was the site of Idaho's first grist and sawmill, erected in 1840.

In 1838 the Reverend Henry Spalding built his second mission station at this location. In the spring of 1840 he completed the construction of a grist mill and sawmill. The mission mills were abandoned in 1847, due to the outbreak of the Cayuse Indian War.

Traces of Spalding's millrace and two chimneys of the mission buildings are still visible today. The site is now a state park.

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<sup>1</sup>The paid-in capital of the company was raised to \$1,000,000 in 1904.

<sup>2</sup>In 1912 Humbird Lumber Company shipped 73,000,000 board feet of lumber.

## Kellogg (The Kellogg Tunnel)

Location. Shoshone County, at Kellogg

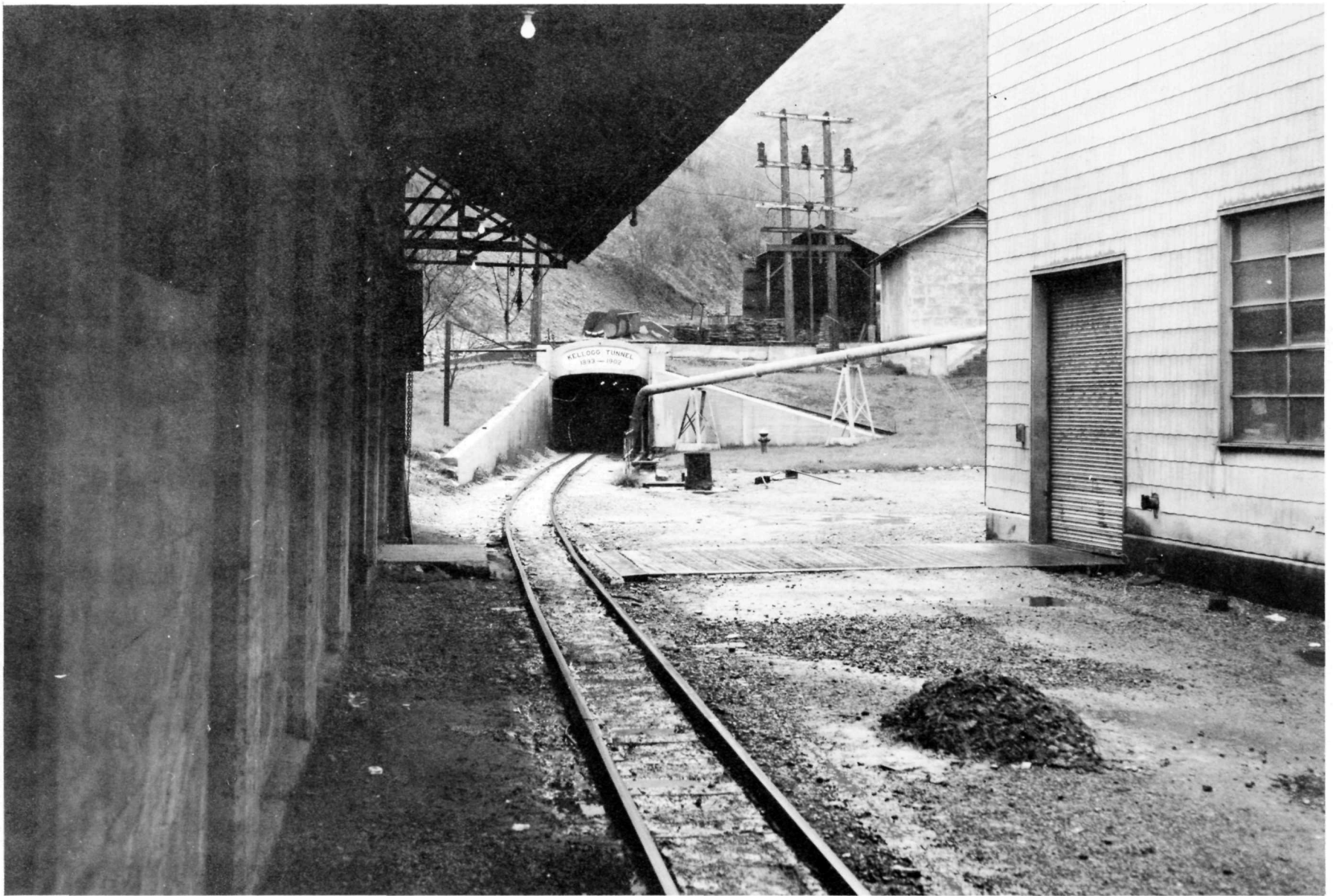
The Bunker Hill Mine is now the largest single lead-producing mine in the United States and supplies about 16% of the nation's refined lead and 20% of the zinc.

The outcrop of the Bunker Hill lode was discovered in 1885. Preliminary development began in 1885-1886. The mine and a small mill were sold to Simeon G. Reed, a merchant capitalist of Portland, Oregon, for \$650,000 in 1886. The Bunker Hill & Sullivan Mining Company, with an authorized capital of \$3,000,000, was incorporated by Reed in 1887. Additional funds were needed for development and between 1892 and 1894 large capitalists such as D. O. Mills and William H. Crocker of San Francisco, and James L. Houghteling and Cyrus H. McCormick of Chicago, entered the company. The first dividends were paid in 1894. By 1920 almost \$35,000,000 in profits had been made from the 8,669,000 tons mined.

The two-mile-long Kellogg Tunnel, started in 1893, reached the vein in 1902, but did not cut the main Bunker Hill ore-shoot until 1904. The completion of this tunnel not only afforded cheaper facilities for moving ore from the mine to the mill, but permitted a large increase in the tonnage mined and milled, thereby diminishing the cost per ton.

The original mill of the company was blown up by dynamite during the great labor dispute of 1899. The present smelters and plant of the Bunker Hill mine have all been built since 1917. The two-mile long Kellogg Tunnel, constructed 1893-1902, is still in use. Today the mine is made up of over 100 miles of tunnels, crosscuts and drifts; the uppermost of these are approximately 3,600 feet above sea level and the lowest, 1,350 feet below sea level. Since work first began, over 25,000,000 tons of ore have been extracted and the value of the lead and zinc refined from this ore has exceeded \$750,000,000.

The Kellogg tunnel and the Bunker Hill mine are not normally open to the public for tours.



Entrance to the Kellogg Tunnel of the Bunker Hill Lead Mine, Kellogg. Idaho

N. P. S. Photo, 1961

## OTHER SITES CONSIDERED

### IOWA

#### Automatic Button Company

Location. 3rd Street and Mulberry Avenue, Muscatine, Muscatine County.

The manufacture of buttons from various native materials began early in the colonial period of American history. Among the various materials used was the shell of salt-water mussels which were found in quantity along the shores. Strangely enough - although fresh-water mussels were abundant in many inland rivers - their shells were not used in button manufacture until the last decade of the nineteenth century.

A German farm laborer of Muscatine, John F. Boepple, first conceived the idea as the result of a swimming mishap in 1890. While swimming in the Mississippi River near Muscatine, Boepple cut his foot on a mussel shell. In his native Germany Boepple had made buttons from horn, and he noticed that the pearly color and hardness of the shell made it an ideal raw material for buttons. Gathering several shells, he took them home and cut a dozen buttons with the aid of a foot power lathe. These buttons - the first to be made from fresh-water mussel shells in the United States - he sold to a Muscatine storekeeper.

Securing a limited local backing, Boepple bought \$500 worth of machinery and in 1891 began making buttons which found a ready market in Muscatine. Outside capital was attracted, and a "button boom" began which caused many Muscatinians to become mussel fishers. The river was dotted with fishing boats and the banks glowed at night with the fires of hundreds of mussel-boiling rigs. The excitement was diminished not a whit when one fisherman found a \$2,000 pearl. Muscatine became in many respects a typical boom town as outsiders, including rowdy elements, moved in.

Overproduction of poor-quality buttons caused the boom to burst, but the perfection of automatic button machines laid the foundation for a healthy industry. A number of large button factories were established which still survive, though their principal product now is various types of plastic buttons.

The Automatic Button Company, one of the pioneer button-manufacturing institutions in Muscatine, still occupies the building in which it was started by Henry Umlandt and John Weber in 1898. Originally called Weber and Umlandt, it was incorporated under its present title in 1902. Weber left the firm to start a separate company, Weber and Sons, which still operates in Muscatine.

None of the other button companies in Muscatine occupies its original buildings.

Quaker Oats Company.

Location. B Avenue and 3rd Street, Cedar Rapids, Linn County.

On the bank of the Cedar River at Cedar Rapids, John Stuart in 1873 started a small oatmeal mill which was the beginning of the giant Quaker Oats Company.

A native of Canada, Stuart had learned the milling trade there before moving to Chicago early in 1873. He soon decided to move to Cedar Rapids and construct a mill with a daily capacity of 300 barrels. He bought a large warehouse on the bank of the Cedar River and industriously converted it into an oatmeal mill. He formed a partnership with Henry Highley, but within a short time Highley sold his interest to George Douglas.

The mill prospered, and within 15 years it consolidated with the two score other oatmeal mills east of the Rocky Mountains, as the American Cereal Company. After many difficulties and several reorganizations, the name was changed to the Quaker Oats Company in 1901. It was a holding company which acquired most of the stock of the American Cereal Company. Today Quaker Oats is one of the "Big Three" of American cereal processors.

The original building in which Stuart started his 1873 mill was later destroyed by fire, and no trace is discernible. Quaker Oats maintains a large processing complex including the original site, but all the buildings are of comparatively recent date.

## OTHER SITES CONSIDERED

### KANSAS

#### Norman No. 1 Oil Well.

Location. Southeastern edge of Neodesha, Wilson County, on the Verdigris River.

Here on October 4, 1893, on land owned by T. J. Norman, a well was "shot" which became the opening well of the Mid Continent District. One of five oil districts covering the continental United States, the Mid Continent District extends from Michigan to Tennessee and from Ohio to Oklahoma.

Soon after the discovery of oil in Pennsylvania in 1859, drilling began around Paola, Kansas Territory, making that the second area in which a serious search for oil was undertaken. The Civil War brought an end to the enterprise. A second phase of searching for oil followed the war, with the field of exploration gradually extending southward through eastern Kansas. Finally, a third and very intensive era began in 1891, when eastern interests came in and began drilling numerous wells.

The hole which was to become the Norman No. 1 well was drilled in November 1892 by C. L. Bloom of Independence, Kansas. On the 28th of that month it was bottomed at 832 feet in 22 feet of Neodesha (Bartlesville) oil sand. After it was "shot" the following year, it initially produced 12 barrels daily. A number of other wells were drilled in the vicinity of Neodesha, and in 1894 the wells were sold to the Standard Oil Company, which continues to operate a large refinery there. The Norman No. 1 was abandoned because of a leaky casing after 76 years of operation.

A replica of the original rig has been built on the site, and a large interpretive sign details the history of the well. The replica is not an operating model, nor does it appear to be complete.<sup>1</sup>

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<sup>1</sup>Total Kansas oil production from 1889 to 1900, was 516,593 barrels. Production in 1892 amounted to 5,000 barrels, in 1893 to 18,000, and in 1895 to 44,000 barrels. The peak of Kansas production, 45,451,000 barrels was reached in 1918.



Stapleton Oil Well No. 1.

Location. Butler County, on the northwest edge of El Dorado (S29-T28S-R5E).

Stapleton Oil Well No. 1, drilled October, 1915, was the discovery well of the Butler County fields, Kansas' most productive oil region.

From 1900 to 1914 Kansas oil fields produced at the rate of 3,000,000 or less barrels of oil a year. In 1915, however, the Continental Oil Company brought in the discovery well of the El Dorado field at El Dorado, and Kansas' oil production increased from 2,823,000 barrels in 1915 to 8,738,000 barrels in 1916. As additional fields at Augusta and Towanda in Butler County were also opened, state production leaped to 36,536,000 barrels in 1916 and 45,451,000 barrels in 1918. This output from the southeastern Kansas oil fields made that state the fourth ranking oil producing state in the nation by 1922. El Dorado, in the Walnut River valley, is still the largest and most productive oil field in Kansas.

First Salt Well.

Location. Reno County, on State K-17, in South Hutchinson.

Salt was discovered in South Hutchinson on September 27, 1887, by Ben Blanchard who was drilling a well hoping to strike gas or oil. At about the 300-foot level his drill struck a rich vein of pure salt. By 1888 there were almost a dozen salt plants in operation at Hutchinson and about 500 barrels of salt were produced a day. One of Kansas' most important industries, by 1900 the state was third in the salt production, and by 1925 was producing 11% of the nation's salt.

Hutchinson is still an important salt producing center and the mines, which underlie much of the city, are still active. The general area of the discovery well is marked by a historical marker located on State K-17 in South Hutchinson.

Silkville.

Location. Franklin County, on a ranch southwest of Williamsburg on U. S. 50.

Silkville, a communal colony, was established in 1869 by a Frenchman, Ernest Valetton de Boissiere, as a silk producing enterprise. It was technically successful and in 1876 silk produced at the colony won first prize at the Philadelphia Centennial Exposition. As a commercial venture, however, the project failed because of marketing difficulties.

A group of stone buildings erected by the colony still stand and are now used as part of a ranching operation.

Piazzek Flour Mill.

Location. Jefferson County, on the Delaware River at the northeast edge of Valley Falls.

This mill, erected by J. M. Piazzek in 1878, is an excellent example of a type of flour mill widely used on the Midwest frontier.

The stone structure is a large three-story building built of sandstone. The old mill is in fair condition and still has its original machinery and burrs.

For the Kansas City Stockyards, see Missouri:

Kansas City Stockyards, Missouri-Kansas.

## OTHER SITES CONSIDERED

### MINNESOTA

#### Marine on the St. Croix.

Location. Town of Marine, Washington County.

Formerly known as Marine Mills, this town is the second oldest in the state and the oldest civilian settlement. The site marks the location of the first commercial sawmill in Minnesota, the birth of Minnesota's important white pine lumber business and the beginning of sixty years of logging activity in the St. Croix Valley.

In 1838, Lewis S. Judd and David Hone came to this site from Illinois. After claiming the land for a millside, they returned to Illinois, where with six others, they formed the Marine Milling Company. In the following spring, the firm's eight active partners set out to Minnesota in a steamer with the mill machinery. In 90 days they completed the mill powered by water from the stream and, in August, 1839, cut the first commercial lumber in what is now Minnesota.

In the late 1840s, business outgrew the capacities of the first crude mill, so in 1852 it was replaced by a larger one, powered by a 40-foot overshot water wheel. After this structure burned to the ground in September, 1863, a new mill was built. The mill soon became outmoded and was replaced by a still larger one. This new mill likewise became outmoded by 1873 so it was completely equipped with new machinery. The enlarged mill could cut from twenty-five thousand to thirty thousand feet a day.

The decade of the 1870s was the most prosperous one for the Marine firm which at that time was known as Walker, Judd, and Veazie. The depression of the 1870s, a series of log jams along the Upper St. Croix River, and the depletion of the forests eventually combined in 1885, forced the company into bankruptcy. After several attempts to reopen the mill failed, the machinery was sold in 1895 and the numerous buildings and sheds torn down. During its years of operation, the mill had produced 197,000,000 board feet of lumber.

Only two structures of the old town have survived: the general store and the town hall. Both are well preserved. At the old millsite, one sees only the ruins of the engine house, built in 1873, in a clump of underbrush.

Mountain Iron Mine.

Location. North of U. S. Highway 169, western edge of Mountain Iron, St. Louis County.

The discovery of the Mountain Iron Mine in 1890 marked the opening of the famous Mesabi Range, the largest iron ore deposit in the world. It set in motion a series of events which was to make Minnesota the largest producer of iron and ore in the Nation and enabled the United States to become the world's largest manufacturer of steel. From the first shipment of ore from this mine in 1892 until 1961, this range supplied over two billion gross tons of ore to the steel furnaces of the Nation--more than half the iron ore mined in the United States during these years.

After sixteen years of explorations in the iron country of northern Minnesota, Lewis H. Merritt and his sons hired J. A. Nichols, a mining captain, to explore for them. In 1890, Nichols found the Mountain Iron Mine, the first on what proved to be the largest of the state's three iron ranges.

In 1893, the Merritts overextended themselves and were forced to sell their ore properties to John D. Rockefeller. Later Rockefeller transferred his interests to the newly-formed combine known as the United States Steel Corporation.

States

The Oliver Iron Mining Division of the United Steel Corporation operated the Iron Mine until 1956 when it was closed down. During its period of operations, the mine shipped over 48 million gross tons of iron ore.

The Mountain Iron Mine was abandoned in 1956 and is now filled with water. It is privately owned, but the State of Minnesota has undertaken to interpret the site.

## OTHER SITES CONSIDERED

### MISSOURI

#### Kansas City Stockyards, Missouri-Kansas.

Location. The Kansas City Stockyards are located in two states: in Jackson County, Missouri, and Johnson County, Kansas. The yards extend from 23rd Street north to 12th Street and straddle the state line from Genessee Street to the Kaw River.

The Kansas City Stockyards, established in 1870, resulted in that city's rapid rise as a major meat packing center. From 1890 to date, Kansas City has been the second largest livestock and packing center in the United States.<sup>1</sup>

The first slaughter house was founded in Kansas City, Kansas, in 1860 and the first packing house in 1868. But the rise of Kansas City as a major packing center was due to the work of Charles Francis Adams, who erected the first of the stockyards in 1870. In 1871 he also induced the first of the major packers, Plankinton and Armour, to build a plant adjacent to the yards in Kansas City, Kansas. The original area of the yards expanded from five acres in 1870 to 100 acres by 1876. In 1888 Swift and Company also opened a plant at Kansas City, Kansas, and by 1900 the other major firms such as Morris and Company, and the Cudahy Packing Company had also built plants at Kansas City.<sup>2</sup>

The Kansas City Stockyards, now comprised of 238 acres, are still situated in the original location; 64% of the yards are in Kansas and 36% in Missouri. The pens and other facilities, however, are all modern.

The Kansas City Livestock and Exchange Building, located at 1600 Genessee Street in Missouri, is a modern 9-story building.

The packing plants are located in Kansas. Among the older ones, Swift and Company is situated at Adams Street and Berger Avenue, and the Cudahy Company is at Kansas Avenue and Railroad Street.

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<sup>1</sup>After 1890 only Chicago exceeded Kansas City in importance as a packing center.

<sup>2</sup>Comparative figures on the cattle received at the three largest livestock markets in the United States from 1890-1920, are as follows:

	Chicago	Kansas City	Omaha
1890	3,484,000	1,472,000	607,000
1900	2,729,000	1,970,000	828,000
1910	3,053,000	2,230,000	1,223,000
1920	3,849,495	2,500,166	1,602,799

McCormick (or Holladay) Distillery.

Location. Platte County, one mile east of Weston on Country Route JJ.

Originally erected in the 1840s as a packing plant by Ben Holladay and his brother David Holladay, the structure was converted to a whiskey distillery in 1856 by David Holladay, after he discovered that the nearby springs contained limestone water that was ideal for the making of bourbon. The business flourished until 1920, when it was outlawed by the National Prohibition Act of 1919.<sup>1</sup>

In 1937 the large three-story stone building was restored and again utilized as a distillery. The structure, which is in excellent condition, is still used for making whiskey.

St. Joseph Branch of the Bank of Missouri.

Location. Buchanan County, 402 Felix Street, St. Joseph.

The St. Joseph Branch of the Bank of Missouri, established in 1859-60, is believed to be the oldest building west of the Mississippi River to be devoted continuously to the banking and trust business. The exterior is unaltered and on the interior the original ornate hand-carved oak fixtures and fireplace are still in use. The building now houses the Missouri Valley Trust Company.

Henry L. Rozier Bank.

Location. Ste. Genevieve County, Second and Merchant Streets, Ste. Genevieve.

This 2 1/2-story stone building was erected in 1820 by the Iron Mountain Mining Company as a pay station and commissary. The little altered structure has served as the Rozier bank since 1891.

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<sup>1</sup>From about 1810 to 1880 whiskey was the national drink. By 1850 Cincinnati was the chief center of the distillery industry and in 1860 the distilled or spiritous liquor industry was the 9th ranking industry of the United States and produced products valued at \$56,589,000.



### Aid-Hodgson Flour Mill.

Location. Ozark County, on County Route BB, 17 miles northeast of Gainesville, in Sycamore community.

This three-story red-barn frame mill, erected in 1897, is an excellent operating example of a typical Midwest country flour mill.<sup>1</sup>

The first mill on this site was built in 1869 and the existing structure, constructed of hand-hewn pine, was erected by Alva Hodgson in 1897. A grocery store built in the same period stands near the mill.

The original machinery, driven by two water powered turbines, still grinds flour and corn meal.

### Maramec Iron Works.

Location. Phelps County, in Maramec Spring State Park, 7 miles south-east of St. James on State Highways 68 and 8.

Developed in 1826, this was the site of the first commercially important iron furnace in Missouri.

Thomas James and Samuel Massey of Ohio purchased the land in 1826 and set to work to construct an iron furnace. The village which they developed about the furnace included a store, blacksmith shop, and grist mill. The ore was mined from the nearby banks of the Meramec river, while lime for flux and wood for charcoal came from the surrounding hills. The smelted iron was transported by wagon to Washington and St. Louis until 1860, when the railroad reached St. James and this latter town became the shipping point.

The furnace closed down in 1876 and the mines ceased operations in 1891. Best preserved of Missouri's early iron works, the Maramec works surviving structures include the huge pyramid-shaped, cut-stone, charcoal-fired cold blast furnace. Erected in 1857, this plant could produce a 14-ton average daily. Also standing are the exhaust stacks of eight bloom furnaces; of buildings, only the foundation of the old casting house are still visible.<sup>2</sup>

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<sup>1</sup>Missouri has 36 surviving examples of country flour mills that were erected between 1800 and 1916. Only a few of these, however, are little altered and are still operating.

<sup>2</sup>Other examples of early Missouri Iron Works are to be found at (1) the Moselle Iron Furnace, Franklin County; this was erected in 1848 and the 31-foot high furnace is still standing. (2) The Scotia Furnace, near Leasburg in Crawford County. Erected in 1870 and active until 1880, only a large limestone stack of this furnace still stands.

### Mine La Motte Site.

Location. Madison County, at Mine La Motte, off U. S. Highway 67.

Mine La Motte is the site of the first (ca. 1715) lead mine in the Mississippi River Valley.

About 1700 French explorers first reported that the Indians were working lead mines in Missouri. The first serious attempt by the French to work these shallow lead deposits was made at Mine La Motte between 1715 and 1720. The output of lead throughout the French and Spanish period, however, was not great, and the total production of Mine La Motte from 1723 to 1804 has been estimated at 8,000 tons.

Until 1830, when the Wisconsin mines began producing, the Missouri mines, however, were substantially the sole source of lead in the United States, but their output was far from sufficient to meet American needs. Mine La Motte continued to be worked until late in the 19th century.

The site of the mine is marked by an interpretative sign; there are no visible remains.

### Potosi (Mine à Burton) Lead Mines.

Location. Washington County, at Potosi, intersection of State Highways 8 and 21.

In 1799 Potosi became the chief seat of the American lead mining industry, when Moses Austin introduced new smelting techniques and procedures into the Missouri industry.

In 1724-26 shallow deposits of lead were discovered at Old Mines and Mine Renault, located about 13 miles north of Potosi, and in 1763 Mine à Burton was found at Potosi. These deposits were worked by the French as open pit mines not more than 10 feet deep. By 1798 there were 20 French log furnaces in operation at Mine à Burton. In 1798 Moses Austin of Virginia obtained a grant of land one league square at Potosi, which included most of Mine à Burton. In 1799 he built the first reverberatory furnace west of the Alleghenys. This furnace, constructed of limestone, was much more effective than the log furnaces then in use in Missouri. Austin also erected a shot tower and plant for the manufacture of sheet lead. He then conducted the first shaft mining in Missouri, going as deep as 80 feet. From 1801 to 1803 the Missouri lead industry employed about 150 men four months out of each year and produced about 700,000 lbs of lead annually, which was valued at about \$36,500. In addition, 120,000 lbs was manufactured in shot and sheet at Mine à Burton, which increased the value of the lead by about \$3,600 a year. From 1804 to 1819, Mine à Burton and Mine La Motte together yielded approximately half of the lead produced in

the United States.<sup>1</sup> As the shallow deposits were exhausted, however, Mine à Burton decreased in importance in the latter part of the 19th century.

There are no remains visible at Potosi of the early lead mining operations and the site of Mine à Burton is not marked.

Two surviving examples of early Washington County lead smelters are as follows: 1. The Cresswell Furnace Chimney, located 12 miles northwest of Potosi on County Route F, at the bridge across Mineral Fork Creek in Aptus community. This large stone chimney is all that survives of the second Scotch hearth furnace to be erected in the county. Built in 1838, the smelter had a capacity of 2 1/2-tons of lead a day. 2. Murphy's Furnace Chimney, located in the Cadet area, about 200 yards from State Highway 21, 1 mile west of the entrance to Washington State Park at Cannon Mines Creek. Erected about 1848, this pyramid-shaped limestone chimney with a keystone arch is all that remains of a Scotch hearth lead-smelting furnace.

#### Bonne Terre Lead Mines.

Location. St. Francois County, at Bonne Terre, one mile west of U. S. Highway 67, via state route 47.

With the development of the deep deposits of low-grade ore at Bonne Terre in 1867-71, Missouri entered into a new era of lead mining.

After 1845 the mining of lead in Missouri had begun to decline owing to the depletion of surface deposits, and from about 1830 to 1871 the state also lost its former prominence in the industry due to the rise of the important Wisconsin mines. The new phase in Missouri was ushered by the St. Joseph Lead Company, which was soon to become the most productive lead enterprise in the world. The company, capitalized at \$1,000,000, was incorporated in New York on March 25, 1864 to work 946 acres comprising the La Grave mine at Bonne Terre. Operations on these shallow deposits began in 1865, but production for the first few years was small. In 1869, however, the firm imported a diamond drill from France and made the first use of it in the United States to prospect for deep deposits of ore. With this device an ore deposit about 500 feet thick was discovered at the depth of 120 feet. While these deposits were

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<sup>1</sup>Missouri production of lead averaged about 1,100 tons per year from 1804 to 1820; about 1,900 tons annually from 1821 to 1830, and about 3,600 tons a year from 1831 to 1850. By 1819 Missouri's 41 lead mines employed 1,100 miners and the total value of Missouri production from 1804 to 1819 amounted to about \$2,400,000.

of low grade, their magnitude was such that its total lead content caused the known shallow deposits at Mine La Terre, Potosi, Palmer, and similar sites to fade into insignificance and once again raised Missouri into a high position as a major lead-producing state.<sup>1</sup> Shafts were sunk in 1870 to reach the deep deposits and in 1874 the company paid its first dividend.

The company also expanded its mining resources by purchasing additional tracts of ore: Thus the Penn Diggings, 344 acres, were added in 1883; the mine and 3,218 acres at Deslodge were acquired in 1886; the Doe Run mine, near Farmington, was added in 1887, and the Flat River mines purchased in 1890. In 1890 the company also finished the construction of a 32-mile-long railroad from Bonne Terre to Herculaneum on the Mississippi River and at the latter town completed the construction of a giant lead smelter, which was then the largest in the United States. From 1864 to 1929 the St. Joseph Lead Company produced 2,707,957 tons of ore and paid out \$63,963,189 in dividends.<sup>2</sup>

Bonne Terre is the oldest of a series of closely spaced lead mining towns that are all largely owned by the St. Joseph Lead Company. Surrounded by mine shafts, Bonne Terre today is a modern company town. The headquarters and offices of the company are situated in a 2 1/2-story brick building at Main and Allen Streets.

The 1890 smelter of the company is still in operation at Herculaneum.

<sup>1</sup>Production of the St. Joseph Lead Company increased as follows: from about 22 tons of lead a month in 1869, to about 122 in 1873, and to 350 tons in 1879.

<sup>2</sup>Comparative figures on the major lead-producing areas of the U. S. 1871-1907 (in tons of 2000 lbs).

	Colorado	Idaho	Mississippi Valley	Montana	Nevada	Utah
1871	0	0	12,000		6,000	5,000
1881	40,457	800	30,770	3,000	12,826	24,000
1891	64,000	38,000	34,000	14,127	2,500	17,000
1901	74,056	81,275	57,898	5,790	1,873	49,870
1907	47,332	111,697	128,193	2,005	3,373	54,738

## OTHER SITES CONSIDERED

### MONTANA

#### Black Eagle Hydroelectric Plant and Copper Concentrator.

Location. Cascade County, at Black Eagle, on the north side of the Missouri River, opposite to the City of Great Falls.

The Black Eagle Hydroelectric Plant, erected in 1889-1891, is the site of the first hydroelectric plant in Montana; this plant was also among the earliest of such generating stations to be erected in the Far West.<sup>1</sup>

The first electric generator in Montana, a Brush steam generator, was demonstrated at Butte in November, 1880, and this new device was quickly adopted. Other Montana towns, such as Helena in 1882, Great Falls, Billings, and Livingston in 1887, also soon had electric lights. Until 1891, however, steam power generated all of Montana's electricity.

In 1887 James J. Hill of the Great Northern Railroad and Paris Gibson formed the Great Falls Water Power & Townsite Company and acquired all of the water power sites along the Missouri River near Great Falls. In 1889 the company agreed to undertake the construction of a dam and hydroelectric plant at Great Falls for the purpose of supplying electrical power for use at the Boston & Montana Consolidated Copper and Silver Mining copper concentrator, which the mining firm proposed to erect opposite to Great Falls, in order to reduce ores from the Butte mines.

Construction on the dam and power house, known today as the Black Eagle hydroelectric development, started in 1889 and was completed in 1891. Power for the mining company's concentrator was transmitted by a 1,000-foot rope drive, and a similar installation 1,500 feet long carried power to the smelter. Power was delivered to the refinery, a distance of 2,000 feet over a large number of half-inch copper conductors in parallel, carried on a two-pole fixture with 3 and 4 arms.

In 1893 the Townsite Company also built an additional power house on the south bank of the river to furnish power for the flour mill of the Royal Milling Company.

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<sup>1</sup>Hydroelectric plants appeared in the various Far Western states as follows: 1. Washington, at Spokane in 1886; California, at Grass Valley and Nevada City in 1887; Idaho, at Boise and Hailey in 1887; Oregon, at Oregon City in 1889; Utah, at the Ames Plant for the Gold King Mine in 1891; Nevada, at Floristan for Reno in 1900; Arizona, on the Arizona Canal for Phoenix in 1901; and Colorado, at the Shoshone plant in 1909.

The Black Eagle plant was redeveloped in 1927 and an 18,000-kw generator station installed. The original timber crib dam was also then replaced by a concrete gravity dam.

The electrolytic copper refinery was completed in 1892 and operated until 1916, when it was replaced by the existing copper and zinc reduction works.

#### Canyon Ferry Hydroelectric Plant Site.

Location. Lewis and Clark County, about 15 miles east of Helena, via State 284.

The Canyon Ferry Hydroelectric Plant was the second water-powered generating plant to be built in Montana.

The Canyon Ferry development was completed in 1898 on the Missouri River near Helena by the Helena Water and Electric Power Company. The original plant was active until 1949, when the building and site were flooded out by the construction of Bureau of Reclamation's Canyon Ferry Dam.

#### Big Hole River Hydroelectric Plant Site.

Location. Silver Bowl County, about 30 miles southwest of Butte.

This was the site of the third hydroelectric plant to be erected in Montana.

A small hydroelectric plant was installed on this site on the Big Hole River in 1899 to supply power to the city of Butte. The plant is no longer active.

#### Washoe Copper Smelter

Location. Silver Bowl County, on 4th Street 1 mile from Anaconda, and about 28 miles west of Butte, on U. S. 10A.

The Washoe Smelter, erected in 1902, is one of the largest copper smelters in the world.

Anaconda was founded in 1883 by Marcus Daly, the originator of Montana's great copper industry, as the site for his copper smelter; this plant, the largest in the world, was completed in 1884. From 1887 to 1907, Montana was the leading copper-producing state in the nation, and this output was largely based on the production of the Butte mines.



In 1892 the first smelter was replaced by an even larger smelter, and converters were added to form the first fully equipped copper reduction plant in the United States. In 1902 this plant was replaced by the present gigantic Washoe smelter. The huge stack is 585 feet high, 75 feet in diameter at the base and 60 feet at the top. Nearly all the zinc and copper ores mined in Montana are still concentrated and smelted at this plant.

Ohio Oil Company Well No. 1.

Location. Carbon County, near Bridger, U. S. Highway 310.

Ohio Oil Company Well No. 1, completed on December 12, 1915, was the discovery well of Montana's first permanent oil field.

The first reported discovery of crude oil in Montana was made by members of an immigrant wagon train in 1864, when they found an oil seepage about 12 1/2-miles northwest of the Bozeman Trail crossing of the Big Horn River. In 1892 oil seepages were also found around Kintla Lake in Flathead County, about four miles south of the Canadian border. The first efforts to develop this field began in 1899 and the first oil well in Montana was drilled in this area in 1901. A good quality oil was found, but not enough for commercial production. As a result Montana's first short-lived oil boom collapsed.

Montana's second oil boom occurred in 1902-1909. In 1901 Sam Somes found traces of oil in the Swift Current Creek district north of St. Mary's Lake in Glacier County. Drilling began in 1902 and in 1903 oil was struck at 500 feet. In 1904 a sixty-barrel-a-day well was brought in. By 1906, 12 wells were in production in that district, and of these, five were producing in paying quantities; also every acre of this 60-mile-long by 15-mile-wide field had been claimed by speculators. But production soon declined, the wells filled with water, and by 1909 the field had been abandoned.

In August, 1915, drilling operations started in Wyoming in an area known as Elk Basin, close to the Montana line. In December, 1915, the Ohio Oil Company brought in its discovery well on the Montana side of the Elk Basin near Bridger. After reaching its peak of production in 1917, when it produced 99,399 barrels, production at the Elk Basin field has gradually declined ever since.

By 1919 Montana had five oil companies, 31 active wells, and \$827,067 in capital invested in petroleum; the industry then employed 48 people. The value of Montana's petroleum product was \$258,046, which ranked it second after Wyoming as an oil producing state in the Rocky Mountain petroleum fields.<sup>1</sup>

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<sup>1</sup>The value of Wyoming's petroleum in 1919 was \$21,959,937 and that of Colorado, \$153,594.

The chief significance of the Elk Basin discovery lay in the encouragement that it gave to prospectors to continue the hunt for oil in Montana. As a result of success at Elk Basin, more important producing oil fields were soon found, such as the Cat Creek Field in Petroleum County in 1920, the Soap Creek Field in Big Horn County in 1921, and Kevin-Sunburst Field in Toole County in 1921.

The Elk Basin oil well near Bridger still produce some oil.

## OTHER SITES CONSIDERED

### NEBRASKA

#### Florence Bank.

Location. Douglas County, 8502 North 30th Street, North Omaha.

Built in 1856, this two-story brick structure is still utilized as a bank. The building is now being restored by the Florence Historical Foundation.

#### Fontenelle Bank.

Location. Sarpy County, 23rd and Main Streets, Bellevue.

Built in 1856, this two-story brick building served first as a bank, then as the Sarpy County Courthouse, and finally as a town hall. The structure is now being restored by the Greater Nebraska Historical Foundation.

#### Omaha City (Union) Stockyards.

Location. Douglas County, Omaha. The Union Stockyards are located at 36th and L Streets. For location of various packing plants see below:

Established in 1884, the Union Stockyards played a vital role in making Omaha a major meat packing center. From 1894 to date, Omaha has been the third largest packing center in the nation.<sup>1</sup>

Omaha had had commercial stockyards since 1867 and a number of small commercial packing houses since 1871, but the modern large-scale development of the city's meat packing industry dates from the establishment of the Union Stockyards Company by John A. McShane in 1884. Omaha's rapid rise was due to its location in the center of the corn belt and its direct communication with the great grazing regions of the West. The use of refrigerator cars to ship dressed beef was also important in its success.

The first large packer to establish a plant at Omaha was George P. Hammond of Detroit, who opened his plant near the Union Stockyards on May 19, 1885. In 1887 the Armour-Cudahy Company of

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<sup>1</sup>After 1890 Omaha was exceeded only by meat packing industries at Chicago and Kansas City, Missouri-Kansas.

Chicago, and in 1888, Swift and Company, both erected packing plants at Omaha. As a result of the rapid rise of the meat-packing industry, Omaha's population increased from 30,000 in 1880 to 120,000 by 1890.<sup>2</sup>

The Union Stockyards, established in 1884, are still located at the original site but the facilities are now all modern.

The Livestock and Exchange Building, located at 29th and M Streets, is an 11-story structure that was erected in 1926.

The Cudahy Packing Plant, located at 36th and O Streets, was erected by St. Thomas Lipton of London in 1886. In 1887 the plant was purchased by the Armour-Cudahy Company. In 1890 Philip Armour withdrew from this firm and it then became the Cudahy Plant. The plant includes some 20 buildings which range from one to six stories in height and occupy a five-square-block area. Most of the buildings are built of brick, but the earliest one, which houses the offices, is a two-story frame structure.

The Swift Packing Plant, located at 27th and Q Streets, was completed in 1890. This plant covers approximately 8 square blocks and is comprised of a collection of brick and stone buildings that are typical of a large packing plant.

The Armour Plant, located at 29 and Q Streets, was erected in 1898, when the Armour interests reentered the Omaha packing field. This plant occupies about 3 square blocks.

<sup>2</sup>Comparative figures on the cattle received at the three largest livestock markets in the United States from 1890-1920, are as follows:

	Chicago	Kansas City	Omaha
1890	3,484,000	1,472,000	607,000
1900	2,729,000	1,970,000	828,000
1910	3,053,000	2,230,000	1,223,000
1920	3,849,495	2,500,166	1,602,799

## OTHER SITES CONSIDERED

### NEVADA

#### Columbus Marsh.

Location. In the northwest corner of Esmeralda County, between U. S. Highways 6 and 95, and State Highway 10.

In 1871 William Troup, a prospector from Virginia City, made the first discovery of borax in Nevada near Columbus Marsh.

Operations began at Columbus Marsh in 1872 and among the first companies was the Borax Company of California. This site, together with Teel's Marsh located 10 miles to the northwest in Mineral County, Nevada, became the main producing center of Borax in the United States in the 1870's. By 1875, however, out of all the numerous companies which had joined in the Nevada borax rush, only five were left, due to low prices and intense competition. Columbus, a small mining town founded in 1864, and located five miles north of Columbus Marsh, had grown from a population of 200 in 1870 to about 1000 by 1875 as a result of the borax operations but when this industry declined, the population fell off to 100 by 1881. About 1884 Francis Marion (Borax) Smith acquired 16,000 acres at Columbus Marsh, and in 1885, organized the Pacific Borax Salt and Soda Company to work the Columbus Marsh property. The output from this source and his second plant at Teel's Marsh, made him the largest producer of borax on the West Coast.

In March, 1890, F. M. Smith purchased the extensive borax holdings of William L. Coleman in Death Valley and at Calico, California. On September 5, 1890, Smith consolidated this new acquisition with his Nevada companies into the Pacific Coast Borax Company. This step united the principal borax firms in the West into one company. Borax operations at Columbus Marsh ceased in 1910.

There are no remains of the borax works at Columbus Marsh or are there any buildings left at Columbus.

#### Teel's Marsh.

Location. In the southwest corner of Mineral County, 9 miles west of Belleville (State Highway 10).

Late in the summer of 1872, Francis Marion (Borax) Smith, a 27-year-old prospector from Michigan, located the richest source of borax yet found at Teel's Marsh. Other borax companies had already began borax operations at Columbus Marsh, ten miles to the southwest, in 1872.

In the fall of that year Smith, with his brother Julius, and the Chicago firm of Storey Bros., formed a company and production at Teel's Marsh started in the same year. The output of established plants in southwestern Nevada and Northern California, however, soon broke the market and Storey Bros. sold out their interests to Smith Bros. By 1875, out of all the numerous companies which had joined in the Nevada borax rush, only five remained. The Smith Bros., however, persisted in their efforts. In 1875 F. M. Smith went East, established a store and office in New York City, and undertook a campaign to introduce borax to the public. A small refinery was built at Oakland, California, where they could turn out a more satisfactory product than was possible in the desert. In 1884, Julius sold out his interests and left F. M. Smith as the sole owner of the firm of Smith Bros. and the Teel's Marsh. Smith had also acquired 16,000 acres at Columbus Marsh, Nevada, and in 1885, organized the Pacific Borax Salt & Soda Company to work the Columbus Marsh. The output from these two plants made Smith the largest producer of borax on the West Coast.

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There are no remains of the borax works at Teel's Marsh.

#### Ruth.

Location. White Pine County. The open pit copper mine is located at Ruth, and the smelter at McGill, both are near Ely.

The open pit mine at Ruth was the second of the low-grade porphyry copper mines to be developed in the United States; the Ruth development also marked the beginning of the copper mining industry in Nevada.

In 1900 two young California miners, Edward F. Gray and David P. Bartley, filed claims for copper outcroppings discovered at the future sites of the Ruth and Kearsage mines. When it became clear that large amounts of capital would be needed to work these claims, Mark L. Requa of Oakland, California, a son of the banker Darius Ogden Mills, formed the White Pine Copper Company for this purpose in 1902 and invested \$150,000 of his own money. This company was reorganized and consolidated by Requa, with an increased capitalization, as the Nevada Consolidated Copper Company in 1904.



In 1905 the corporation borrowed \$2,000,000 to build a railroad from Cobre, on the Southern Pacific transcontinental line, down the steptoe valley to the mine at Ruth. Construction on the 141-mile Nevada Northern Railroad was completed in the fall of 1906. Work on the large copper smelter at McGill was started in 1907 and the concentrator went into production in 1908. Mining operations at the Ruth open pit mine began in 1907. In 1910 the Utah Copper Company, owned by Simeon Guggenheim and J. P. Morgan, acquired a controlling interest in Nevada Consolidated Copper Company by purchasing 1,000,152 shares of that company's stock for \$4,455,120.

From 1907 to 1917 the Ruth mine yielded 67,220,700 tons of low-grade ore from which was produced 617,785 tons of copper. From this output the Nevada Consolidated Copper Company was able to pay \$75,770,882 in dividends, while at the same time accumulating a working capital of \$48,293,528. From 1907 to 1961 the company has removed more than 168,000,000 tons of ore and 275,000,000 tons of waste. From this has been produced 3-1/2 billion pounds of copper valued at \$590,000,000 and also 1-1/2 million ounces of gold and nearly 11 million ounces of silver, with an additional value of \$45,000,000.

The 1907-1908 smelter and mill of the company still stands at McGill. Through modernization and improvements, the original capacity of the plant has been increased from 10,000 tons a day to 21,500 tons. The company-owned town and office buildings at McGill are all modern structures. Guided tours through the copper smelter are offered each weekday at 1:00 P.M.

The center of mining operations is located at the vast Ruth or Liberty open-pit mine at Ruth. This mine, situated in the shell of a mountain, is more than one mile in diameter and nearly 1,000 feet deep. As rock is removed from the glory hole, constantly receding terraces or means are formed around the inner sides of the giant pit. A company road, marked with directional signs, leads the visitor to an observation point at the brink of the great pit, from where the spectacle can be viewed in safety and without hindrance to the mining operation.

The ore body, which stretches approximately six miles in an east-west direction, has four major access points: the Ruth or Liberty pit, the later Tripp and Veteran Pits, and Deep Ruth underground workings. Only the Liberty pit is being worked today. The company-owned houses making up the town of Ruth, which are utilized as dwellings by the miners, are scattered over the hillsides and appear to date from the 1920's.



Ruth Open Pit Copper Mine, developed in 1907, Ruth, Nevada

N. P. S. Photo, 1961

## OTHER SITES CONSIDERED

### NEW MEXICO

#### Santa Rita Copper Mine.

Location. Grant County, Southeast of Silver City.

The Santa Rita Copper Mine is the oldest active mine in the Southwest and the first copper mine to be developed in that region.

According to tradition an Apache chief guided Lt. Col. Jose Manuel Carrasco, Spanish commandant of a New Mexico military post, to the mine in 1800. In 1804 Carrasco sold the mine to Don Francisco Manuel Elguea, a wealthy Chihuahuan merchant and crown official, who developed the property under the Santa Rita del Cobre grant from the Spanish government. Elguea worked the mine until his death in 1809 with convict labor secured through his influence with the royal government. A primitive smelting plant was built, together with a triangular adobe fort for defense against Apache raids. Copper ingots of 150 pounds each were produced at the mine and had to be transported by mules for 300 miles. From 1825 to 1830 the American trapper, James O. Pattie, and a group of associates worked the mine under a lease from Elguea's widow. During this five-year period, Pattie made peace with the Apaches and suffered no losses through depredations. After Pattie's time the mine passed through many owners, and in 1872 Matthew D. Hayes of Denver, Colorado, finally purchased a clear title from Elguea's heirs. In 1880 J. Parker Whitney purchased the mine and he, in turn, sold it in 1900 to the Anaconda Copper Company. In 1909 the Santa Rita Mine was acquired by the Chino Mining Company. In spite of its long and colorful history, the Santa Rita mine, and also the State of New Mexico, have never been significant producers of copper.<sup>1</sup>

The Santa Rita Copper Mine is still being operated, now by the Kennecott Copper Company. The only surviving evidence of the Spanish period, an adobe fortress tower, however, was torn down by the company several years ago. The mine is now worked by the open pit method.

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<sup>1</sup>Copper production in New Mexico, 1880-1919, based on U. S. Census records:

<u>Year</u>	<u>Value of Copper Produced</u>
1880	4,055 Ingots
1902	\$ 271,270
1909	360,394
1919	8,135,067



Santa Rita Open Pit Copper Mine, New Mexico

N. P. S. Photo, 1960

## OTHER SITES CONSIDERED

### NORTH DAKOTA

#### De Mores Packing Plant Site.

Location. Billings County, on U. S. Highway 10 and Interstate 94, at Medora.

The De Mores Packing Plant Site at Medora represents an ambitious and interesting, but premature attempt to establish the meat packing industry in North Dakota.

In 1882 the Marquis De Mores, a wealthy Frenchman, married Medora Hoffman, a New York heiress, and decided to go into the meat packing business in the West. He selected the Northern Pacific crossing of the Little Missouri River in North Dakota as the site for his cattle enterprise.

In 1883 he established the town of Medora, and there erected a large abattoir which was capable of handling 150 beeves a day. To pasture the cattle he purchased, he also acquired some 15,000 acres around Medora. Cold storage facilities were erected at Helena, Billings, Miles City, Medora, Bismarck, Fargo, Brainerd, Duluth, Minneapolis, St. Paul, and Chicago. Finally, at Medora he also erected a huge 26-room frame chateau, staffed with French servants, where the Marquis and his wife and their guests lived while visiting the Badlands.

The French nobleman's dreams of becoming the meat packing king of the West, however, were short-lived. Located in the heart of the range country, his cattle could only be marketed during a short period of time. Eastern consumers also preferred corn-fed to range-fed beef. Between 1883 and 1886 the losses on packing operations totaled more than \$300,000. During the disastrous events of 1886-1887, moreover, the open range cattle industry practically received its death blow. The De Mores Packing plant was closed forever in 1887.

The large abattoir was destroyed by fire in 1907 and today only the huge chimney remains to mark its site.

The large chateau, however, still stands. Equipped with many of the original furnishings and other personal effects of the Marquis, this structure is administrated as a historic house exhibit by the State Historical Society of North Dakota and is open to the public.



## OTHER SITES CONSIDERED

### OKLAHOMA

#### Bartlesville Discovery Oil Well.

Location. Washington County, in Johnstone Park, Bartlesville.

To the Cudahy Oil Company's Well No. 1 Nellie Johnstone at Bartlesville, petroleum historians have awarded the distinction of "first commercial well in Oklahoma."

Surface oil had been observed in this area on the south bank of the Caney River since 1875, and exploration began in 1897. On April 15, 1897 the drill tapped the later famous Bartlesville Sand at 1,252 feet. The well was a moderate producer, yielding from 50 to 75 barrels a day. Absence of pipeline and railroad facilities to transport the oil to a market, together with Interior Department lease regulations (it was Indian land), soon made the operation unprofitable. The well was capped.<sup>1</sup> In 1902 the Santa Fe railroad reached Bartlesville and the town enjoyed a boom that soon brought the Bartlesville Sand Formation into extensive oil production.<sup>2</sup>

The Discovery Well produced diminishing amounts of oil until the 1940s, when it was shut down and the derrick and drilling equipment restored. These now form the central feature of Johnstone Park in Bartlesville.

#### Red Fork Discovery Oil Well.

Location. Tulsa County, north side of Red Fork city limits on U. S. Highway 66, near Tulsa.

The Discovery Well at Red Fork, which gushed on June 24, 1901, ushered in the modern era of the Oklahoma petroleum industry. Although this Heydrick-Wick well was only a modest producer, its discovery was given widespread publicity in the newspapers and this sparked a great rush that soon led to the discovery of vastly more important Oklahoma oil fields.

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<sup>1</sup>Oklahoma produced 625 barrels of oil in 1897, 1,020 in 1898, 2,230 in 1899, and 6,472 in 1900.

<sup>2</sup>Bartlesville's population increased from about 1,000 in 1902 to 2,000 by 1903. The Bartlesville Sand Formation was in extensive production by 1906.



The spectacular Spindletop discovery in Texas on January 10, 1901 galvanized Oklahoma landowners and prospectors into a full-scale search for oil. Drilling on the Discovery Well site began in May, 1901 and on June 24, the well began to yield about 10 barrels of oil a day. The news of this discovery, much exaggerated by the press, at once triggered the rush of thousands of promoters, speculators and developers to Red Fork. Overnight the little village of Red Fork, comprised of two or three stores and a dozen dwellings, was converted into a boom town. The Red Fork discovery thus excited widespread interest in, and led to the rapid discovery and exploration of Oklahoma's great oil resources.<sup>1</sup>

The Heydrick-Wick Discovery Well was still pumping in 1946.

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<sup>1</sup>Oklahoma Oil Production, 1900-1903, increased as follows:

6,472 barrels	in 1900
10,000	" " 1901
37,100	" " 1902
138,911	" " 1903
and reached 1,366,748	" " 1904

## OTHER SITES CONSIDERED

### OREGON

#### Astoria.

Location. Clatsop County, U. S. Highway 101 and 30.

From 1875 to 1887 Astoria was the world capital of the salmon canning industry and from 1888 to date the chief center of the Columbia River salmon canning industry.

The first commercial salmon cannery on the Columbia River was erected at Eagle Cliff, Washington, in the fall of 1866 by George and William Hume and Andrew S. Hapgood. Their operations, which began in 1867, marked the beginning of the great multi-million dollar salmon canning industry that soon developed on the Columbia River. From 4,000 cases valued at \$64,000 in 1867, production increased to 150,000 cases valued at \$1,800,000 in 1870.

Astoria's first cannery was erected by Badollet and Company in 1873 and a second was added in 1874 by S. D. and John Adair and A. Booth. By 1875 Astoria had emerged as the salmon capital of the world. Between September and December of that year 24 ships sailed from Astoria bound for Europe with cargoes of salmon. In 1877, 11 of the total of 17 canneries in operation on the Columbia River were located at Astoria. By 1880 there were 29 canneries operating on both banks of the Columbia and located between Astoria and the Cascades. These represented a capital investment of \$1,000,000 and gave occupation to 2,500 fishermen, half of whom lived in or near Astoria, and the rest in smaller cannery towns along the river, and to 3,100 Chinese, who worked in the canneries. In 1880 these canneries produced 530,000 cases of canned salmon valued at \$2,650,000; 1,200 boats were then employed on the Columbia catching fish. Astoria then had a population of 2,803 persons. The peak on the Columbia was reached in 1883, when the 39 canneries (24 of which were located at Astoria) in operation produced 629,000 cases valued at \$3,147,000, and 1,600 boats were employed on the river.

In 1888, however, the Alaska salmon pack surpassed that of the Columbia for the first time. In 1889 the British Columbia pack, and in 1899, the Puget Sound output both exceeded that of the Columbia.

By 1889 the number of salmon in the Columbia had begun to decrease rapidly and the number of Columbia River canneries also declined correspondingly from 39 in 1883 to 21 by 1890. In 1913 there were only 15 salmon canneries still in operation on the Columbia.

This failing supply of salmon, together with the intense competition in the industry, led to combination among the formerly independent canneries. In 1898 A. B. Hammond organized the Columbia

River Packers Association at Astoria. This corporation, modeled after the Alaska Packers Association of San Francisco, which had been successfully formed in 1892, united eight companies into the largest and most powerful firm on the Columbia. In 1914 this "Combine" produced about 140,000 cases out of the total Columbia pack of 454,621 for that year.

Salmon fishermen also formed unions for their own protection at an early date. The first of these, the Fishermen's Protective Union, was organized at Astoria in May, 1879. In 1896 a group of 200 fishermen at Astoria also founded their own cooperative cannery--the Union Fishermen's Co-op Packing Company.

Astoria has still a considerable number of sites and buildings illustrating the community's important role in the history of the Columbia River salmon canning industry. Included are the following eight sites:

1. 1873 Badollet & Company Cannery Site.

Located between the foot of 34th and 35th streets on the waterfront, only a few original pilings remain off-shore to indicate the site of Astoria's first (1873) salmon cannery.<sup>1</sup>

2. 1874 Booth & Co. Cannery.

Located on the waterfront at the foot of 33rd Street, A. Booth and associates built the cannery in 1874 (S. D. and John Adair had first organized the company, the third cannery to become active in Astoria). The cannery changed hands several times in the following years, but remained independent of the Columbia River Packers Association. The cannery, owned by the Columbia River Salmon Company, ceased operations about 1948. The original 1874 buildings are still there, but are in very poor condition, having been unused for at least the past 15 years. A small part of the structure is now used as a residence.<sup>2</sup>

3. 1876 Kinney Salmon Cannery.

Located on the waterfront between the foot of 5th and 6th Streets. Marshall J. Kinney established this cannery on this site in 1876 and for several years it was the largest cannery in Astoria. Canning operations ceased in 1898 when the structure was acquired by the Columbia River Packers Association (now known as the Bumble Bee Seafoods, Inc.). The original 1876 cannery building has been utilized by the "Combine" since 1898 as a warehouse for the storage of cannery equipment and fishing gear. A section of the 1876 cannery was destroyed in 1951 when a ship crashed into the north river section of the building, but two of the original main buildings still stand. The structure on the

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<sup>1</sup>Site is owned by the Port of Astoria.

<sup>2</sup>Site is owned by Joseph W. Anderson, Astoria, Oregon.

landward side, adjoining the railroad right-of-way, is largely unchanged, while the second (riverside) building has been faced with corrugated metal. These two structures are in good condition. The site is owned by Bumble Bee Seafoods, Inc.

4. 1876 J. O. Hanthorn Co. Cannery.

Located on the waterfront at the foot of 39th Street, J. O. Hanthorn constructed this cannery in 1876. In 1898 this company was merged into the "Combine" (later known as the Columbia River Packers Association) and converted into a cold storage plant, for which purpose it has been utilized ever since. This is one of the largest cold storage plants on the Pacific Coast and is used to freeze salmon for the fresh fish market and also to store frozen tuna until it can be packed. The original 1876 building, together with later additions, is still standing and is in excellent condition. The property is owned by Bumble Bee Seafoods, Inc.

5. 1881 Samuel Elmore Salmon Cannery.

Located on the waterfront at the foot of Flaval Street.  
(See Sites of Exceptional Value).

6. 1885 George & Barker Co. Cannery.

Located on the waterfront, foot of 37th Street. In 1885 William T. Barker and George H. George formed the George & Barker Co. and purchased cannery buildings built two years previously by another salmon packing concern. In 1898 George & Barker Co. merged into "The Combine" and canning was discontinued at their plant shortly afterward.

The original 1883-85 buildings, only slightly altered, are still in existence, and are in good condition. The plant is now utilized as the salmon receiving station for Bumble Bee Seafoods, Inc. Here the gillnetters bring their catches and are tallied. The structures serve as a warehouse for storage for gillnet boats and gillnets during off-season periods, and for the repair of the boats and nets. Original bunk-houses also still stand and are used as fishermen's dwellings. The site is owned by Bumble Bee Seafoods, Inc.

7. 1896 Union Fishermen's Cooperative Packing Co.

Located on the waterfront at 320 West Marine Drive. Organized by fishermen in 1896, the company's main warehouse building, containing the offices and canning equipment and machinery, was built out over the water at that time. The original structure, with additions made in the following years, is still used for the canning of salmon and also tuna. The building is in good condition.<sup>1</sup>

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<sup>1</sup>Site is owned by Union Fishermen's Cooperative Packing Co.

8. 1903 Headquarters and Offices of the Columbia River Packers Association ("The Combine").

Located on the waterfront at the foot of 6th Street. Eight packing companies merged to form "The Combine", (later known as the Columbia River Packers Association) in 1898. In 1903 the corporation erected a one-story frame building as its office and headquarters. This structure has been used continuously since 1903 for its original purpose, and now serves the Bumble Bee Seafoods, Inc. To the office's right is a two-story can factory erected in 1913, which is now utilized for office and storage. Beyond the 1903 office, and to its left stands a two-story frame structure added in the 1930's that is also still used for office purposes. This property is owned by Bumble Bee Sea Foods, Inc. The buildings are in excellent condition.

Bend.

Location. Deschutes County, City of Bend, Junction of U. S. Highway 20 and 97.

Bend is an important lumbering center of the Western Pine Region of the United States.

Located east of the Cascade Mountains, the great forests on the mountains near Bend, Oregon, were inaccessible to lumbermen due to the lack of transportation until the 20th Century. Bend was plotted as a town in 1904 and by 1910 had achieved a population of 536. The isolation of this farming community and its great stands of timber ended on October 5, 1911, when James J. Hill drove the last spike in the Great Northern Railway's subsidiary line, the Oregon Trunk Line, which ran south from the Columbia River to Bend.

In 1908 James J. Hill had decided to build south from the Columbia, up the Deschutes River, through Central Oregon and the Klamath Lake County into California, eventually to reach San Francisco. Hill's proposed plans represented an invasion of territory considered to be part of E. H. Harriman's Southern Pacific-Union Pacific Railway empire. In 1909 Hill's and Harriman's companies engaged in an exciting two-year construction race up the opposite banks of the Deschutes River to Bend, spending nearly 25 million dollars on these projects. At a cost of \$16,000,000 Hill won the race to Bend, but here his line was stopped by Harriman. The Great Northern Railway was not to build south from Bend and to finally reach Klamath Falls, Oregon, and Bieber, California, until May, 1928. The completion of Hill's line to Bend in 1911, however, was to make that town an important lumbering center and opened up the yellow pine region of eastern Oregon.

Timber barons from the cut-over forests of the Great Lake region had already been investigating the estimated 16 billion board feet of standing timber in Bend area and they began purchasing hundreds

of thousands of acres of timber land in that region as early as 1907. In 1915 Brooks-Scanlon, Inc., and Shevlin-Hixon Company, both from Minnesota, arrived in Bend with 2,000 lumberjacks. Each company erected a huge sawmill and production began in 1916.

The Brooks-Scanlon Company constructed 100 miles and the Shevlin-Hixon firm 88 miles of logging railroads to bring the logs to their mills. The two Bend mills were soon cutting a total of 200,000,000 board feet annually and in the late 1920's this figure rose to 500,000,000 board feet a year. Bend's population increased from 536 in 1910 to 5,415 by 1920. The town's important lumber production helped lift Oregon from the nation's 9th ranking lumber producing state in 1910 to the second rank in 1920, surpassed only by Washington.

In 1950 the Brooks-Scanlon Company purchased the plant and timber holdings of Shevlin-Hixon firm. The Shevlin-Hixon Sawmill, which was situated on the west side of the Deschutes River at the foot of Riverside Avenue in Bend, was razed in 1958. At the same time, the 1916 Brooks-Scanlon Lumber mill, located at the south city limits, was completely modernized at a cost of \$3,000,000. This latter mill is still in operation. Most of the timber on company-owned land has been cut and the chief source of supply is now the timber located in the National Forests in that region, which is cut under a sustained yield program.

#### Clifton.

Location. Clatsop County, 25 miles east of Astoria and 3 miles north of U. S. Highway 30.

Site of the Cook Brothers salmon cannery erected in 1873.

In 1873 J. C. Cook and his brother Vincent Cook organized the Cook Brothers Company and constructed their salmon cannery at Clifton. In 1898 this firm merged into "The Combine" (later known as the Columbia River Packers Association). Canning was discontinued at the Clifton site in the early 1900's.

Clifton then became a receiving station for the fishermen in the vicinity and is still a "company town", owned by Bumble Bee Seafoods, Inc. of Astoria, Oregon. Approximately 12 families reside here and fish for the corporation.

The cannery building, erected in 1873, is still standing. After 1900 it was converted into a bunkhouse, but has been unused for many years and is in a rotted or dilapidated condition. One other original building, a shed or warehouse, now used as a covered net rack, still stands. The shed is in good condition. The main warehouse, built in 1913 and used for stores is also in excellent condition. The other buildings in use are of a more recent date.

The original Cook residence was destroyed by fire many years ago.



Coos Bay (Marshfield-North Bend).

Location. Coos County, junction of U. S. Highway 101 and State Route 42, on the Pacific Ocean.

Located on the Pacific Coast of Southwestern Oregon in the great Douglas Fir forests, Coos Bay became an important lumber producing center in the first decade of the 20th century.

Settled in 1853, Coos Bay was a center of the Oregon's early lumber industry. By 1856 the town had two steam sawmills in operation and lumber and coal were shipped to the San Francisco market.<sup>1</sup> Shipyards were also opened at Coos Bay in 1856 and between that year and 1881 they constructed a total of some 51 small ships aggregating about 21,470 tons.

In the early 1900's, with the exhaustion of the Great Lake forests and the resulting migration of Midwest lumber barons to the Pacific Northwest, Coos Bay became an important lumber producing center for the national market.

In the summer of 1902 Frederick Weyerhaeuser of St. Paul acquired 172,492 acres of timberland located in Oregon from James J. Hill's Northern Pacific Railroad at a price of \$5.00 an acre. On this total, 141,000 acres were located in the Douglas Fir region near Coos Bay. In 1908 Alfred Powers and C. A. Smith moved their logging crews from Minnesota to Coos Bay, where they built a large sawmill. The channel through the bay to Marshfield was also dredged out in 1908 to permit the entrance of larger lumber-carrying schooners. As a result of the World War I demand for spruce, the Southern Pacific Railroad, in April, 1918, completed a branch line from Florence south to Marshfield, thus affording Coos Bay its first railroad connection.<sup>2</sup>

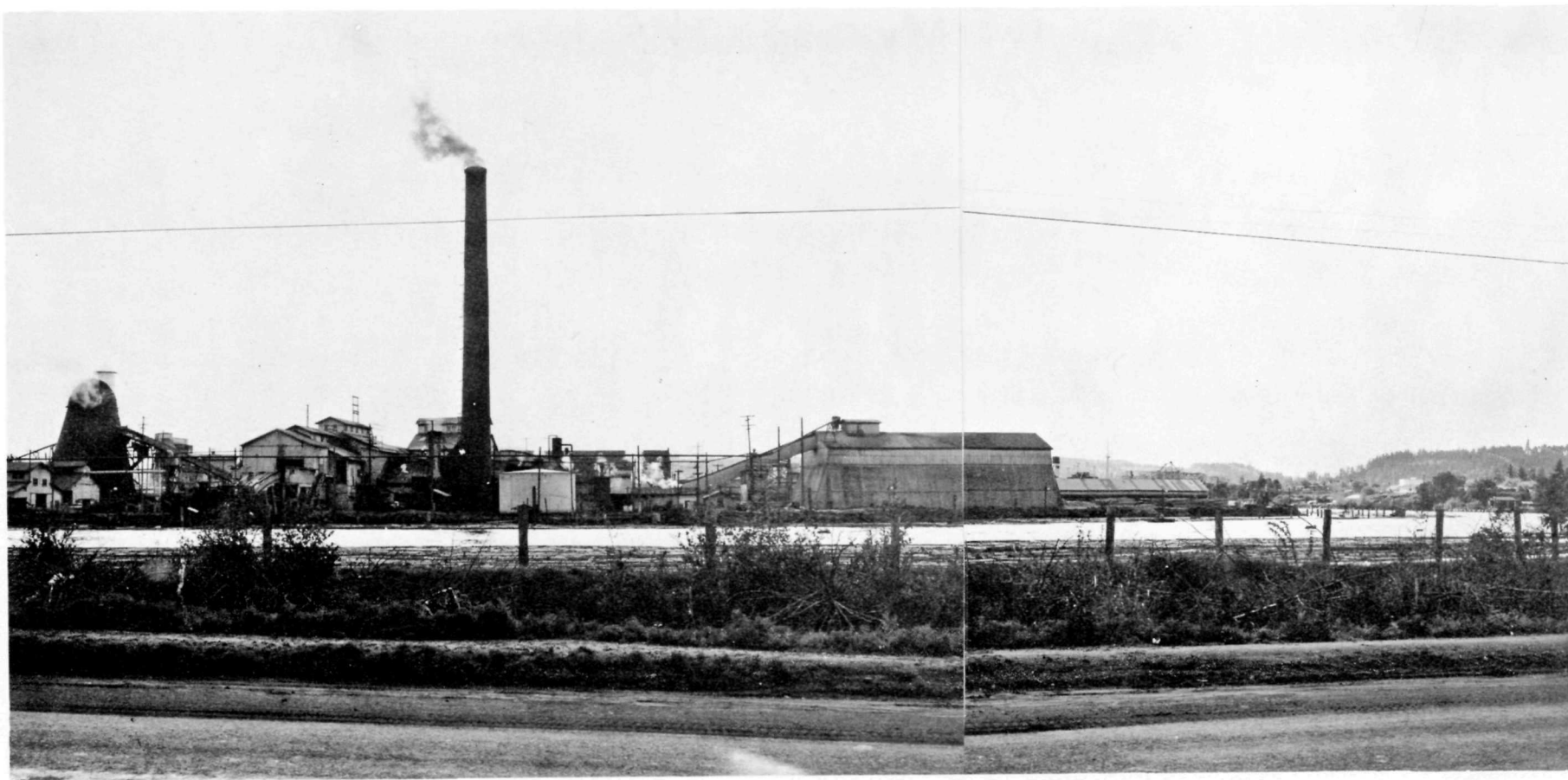
In 1922 a fire destroyed three blocks of the older business buildings in Marshfield, but the booming lumber town was quickly rebuilt.

Coos Bay is still a great lumber producing center. Along its water front are situated four or five large sawmills, including the great Weyerhaeuser plant built at North Bend in 1951, and at the docks are to be seen many ships taking on lumber. The former Coos Bay Lumber Company sawmill, built in 1908 and located near the southern end of Marshfield, is still in operation. Now owned by the Georgia-Pacific Corporation, the 1908 mill has no facilities that would permit interested visitors to tour the busy plant.

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<sup>1</sup>By 1880 the Coos Bay mills were producing from 24,000,000 to 37,000,000 board feet annually.

<sup>2</sup>In 1913 the Southern Pacific Railroad owned 1,643,945 acres of timberland in Western Oregon containing 60.5 billion board feet of timber.



1908 Sawmill, at Marshfield, Oregon

N. P. S. Photo, 1961

Jacob Kamm House.

Location. 1425 S. W. 20th Avenue, Portland, Multnomah County.

The Jacob Kamm House is the finest mansarded (French Second Empire) residence still standing in the Pacific Northwest; it is also representative of the great houses that were erected by Portland capitalists in an effort to rival the palatial homes of 19th century San Francisco.

Jacob Kamm was a well-known figure of 19th century Oregon steamship circles. In 1859 Chief Engineer Kamm formed a partnership with Captain John C. Ainsworth, Oregon riverboat man, and William S. Ladd, influential Portland banker, and launched the steamboat Carrie Ladd, which operated between Portland and the Cascades. In 1860 Kamm joined with Ainsworth and others in incorporating the Oregon Steam Navigation Company, a corporation which established and maintained a monopoly of traffic on the Columbia River and its tributaries from 1860 to 1880.

In the 1870's the wealthy merchants, bankers, and steamboat magnates of Portland began to erect elaborate mansions, emulating the great palaces built by San Francisco capitalists on Nob Hill. Among the last, and the finest surviving example of these homes, is the Jacob Kamm house. Constructed in 1871 in the French Second Empire style, the house has a high mansard roof, small high-ceiling rooms, and bays with tall shuttered windows. The two-story residence is built of wood, but the walls were flush-boarded to look like stone or stucco, and has wooden quoining marks on the corners.

The house has been moved from its original location and altered on the interior for use as a restaurant.

Thomas Kay Woolen Mill.

Location. 260 - 12th Street, Salem, Marion County.

The Thomas Kay Woolen Mill is a fine example of a 19th century (1889) mill building and is one of the few surviving examples of this type of structure on the Pacific Coast.

Oregon's first woolen mill was erected at Salem in 1856 by the Willamette Woolen Manufacturing Company; production began in 1858. The amount of wool produced in Oregon in 1860 was only 220,000 pounds, but by 1870 the wool crop had increased to 1,500,000, and, in 1880, over eight million pounds of wool were exported.

Other woolen mills were constructed during this period at Brownsville in 1863, Oregon City in 1865, and Ashland in 1868. Among the successful mills was the one at Brownsville.



Jacob Kamm House, 1871, Portland, Oregon

N. P. S. Photo, 1960

Overseer of weaving at Brownsville Mill in 1863 was Thomas Kay. Kay had been born in Appleby, England, near Leeds, in 1837. At the age of 13 he was apprenticed to learn the processes of woollen manufacturing. He came to the United States in 1857 and worked for the next six years in mills on the East Coast. In 1863 he took a position at the new Brownsville Mill and was made superintendent of the Company in 1875. In 1889 he sold out his interest in the Brownsville firm and moved to Salem, where he erected his own Thomas Kay Woollen Mill in the same year.

His company was successful and Kay's eldest daughter married C. P. Bishop, a young retail clothing merchant of Brownsville. On Kay's death, the Bishop family inherited the Kay mill and in 1909 they expanded the original business by organizing the Pendleton Woollen Mills, a firm which is still operated by the Bishop family.

The mill is a large two-story brick structure that is still used for its original purpose. The building is in excellent condition and is unaltered on the exterior.

#### Klamath Falls.

Location. Klamath County, City of Klamath Falls, junction of U. S. Highway 97 and State Route 66, in south central Oregon.

Located east of the Cascade mountains in the ponderosa and sugar pine region, Klamath Falls emerged as an important lumbering center in the first quarter of the 20th century.

Established in 1867, Klamath Falls remained a small cattle town until the early 1900's, when dramatic changes began to occur due to the coming of the railroad. By 1900 the exhaustion of the Great Lake region forests, then the chief lumber producing area of the United States, was becoming clearly evident and the Midwest lumber barons began to move into the Pacific Northwest, where they acquired immense tracts of timberland.

In the summer of 1902 Frederick Weyerhaeuser of St. Paul purchased 172,492 acres of timberland located in Oregon from James J. Hill's Northern Pacific Railroad at a price of \$5.00 an acre. Of this total thirty-one thousand acres were located in the ponderosa pine forest of the Klamath Falls region.<sup>1</sup> By the end of 1906 the Weyerhaeuser Timber Company had increased its holdings around Klamath Falls to 89,000 acres.

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<sup>1</sup>The remainder in 1902, 141,000 acres, was located in the Douglas Fir region to the west of the Cascades.





Thomas Kay Woolen Mill, 1889, Salem, Oregon

N. P. S. Photo, 1960



This total increased to 142,570 acres in 1910 and reached 255,000 acres by 1914, acquired at a cost of \$4,422,500.<sup>1</sup>

Prior to 1910, however, the great pine forests east of the Cascades were inaccessible to lumbermen because of the lack of transportation. In 1909, E. H. Harriman's Southern Pacific Railroad pushed a branch line northward from Weed, California, to Klamath Falls, Oregon, thus opening up this region to commercial lumbering.<sup>2</sup>

The growth of Klamath Falls after 1915 was phenomenal as the city became a major lumber producing center.

In spite of their great timber holdings east of the Cascades, the Weyerhaeuser Timber Company refused to build a sawmill at Klamath Falls while that city was served only by one railway, for this situation allowed the railroad to set the freight rates. Finally, in June, 1928, a second railroad, the Great Northern, reached Klamath Falls, after having built south from Bend, Oregon. The great Weyerhaeuser mill, the company's first sawmill in Oregon, was built in 1928-1929.

Located four miles south of Klamath Falls, the huge Weyerhaeuser mill is still in operation, as is the box factory built in 1930; the company now owns about 556,000 acres of timber in this region.

#### Portland.

Location. Multnomah County, City of Portland.

Portland, from 1850 until the 1890's, was the chief sawmill town of the Pacific Northwest's lumber industry.

Founded in 1845, Portland had a population of 821 when incorporated as a town in 1851. Here, in 1850, Cyrus A. Reed, W. P. Abrams, and Stephen Coffin erected the first steam sawmill in the Pacific Northwest. Their ox teams were soon busy hauling huge logs down the skidroads that were later to become Portland's main streets.

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<sup>1</sup>In 1910 the Weyerhaeuser Timber Company held 393,000 acres in Oregon with 18.5 billion board feet of timber, or about 4.7% of the privately owned timber in the state. Of this total 142,570 acres were in Douglas Fir forests located west of the Cascades and 250,430 acres were in ponderosa and sugar pine forests situated east of the Cascades.

<sup>2</sup>In 1910 the Southern Pacific Railroad held 435,000 acres of land with 10 billion board feet of timber in Klamath County, Oregon, as well as 1,643,945 acres of timberland located west of the Cascades with 60.5 billion board feet of timber. Altogether, the Southern Pacific held 17.7% of the privately owned timber in Oregon.

Along the shores of the Columbia River as far east as the Hood River stood great stands of Douglas Fir. In this region skid-roads were pushed from the river banks into the dense forests. Over these paths, five, six and even ten yoke of oxen, driven by bull-wackers, hauled the great logs to water, where the trees were made in rafts and floated down to the sawmills at Portland. By 1860 lumbering had become Oregon's second most important industry, exceeded only by flour milling.<sup>1</sup> Portland lumber was exported to California, Hawaii, Australia, China, and South America. In the output of lumber on the Pacific Coast in 1860, Oregon ranked third after California and the Territory of Washington. By 1865 Portland had four large steam sawmills in operation and had also achieved a population of 5,819.

By 1881 Portland, with a population of 21,000 people, had 48 manufacturing establishments, of which 13 (including 5 large steam mills) produced rough and dressed lumber, molding, doors, sash and furniture. Seven shops made iron and brass castings, boilers, and heavy iron machinery, two produced boots and shoes, two gloves, six made wagons and six harness. The deposits of Portland's six banks totaled \$6,000,000 and the total value of manufactured products and wholesale commercial transactions of Portland in 1881 were estimated at \$31,000,000. There were also 22 real estate agencies, 26 insurance companies, 29 periodical publications, 29 hotels, and about 60 wholesale mercantile houses. In 1881 Portland exported to foreign countries \$5,324,000 worth of commodities<sup>2</sup> including \$3,765,000 worth of wheat, \$1,484,000 of flour, and \$75,000 of other merchandise. One hundred and forty ships, of which 116 were British, 20 American, 2 French, and Spanish and one German, were employed in transporting these exports.<sup>3</sup>

The largest sawmill in Oregon, the Willamette Steam Mills, measuring 325 feet by 60 feet, was erected in Portland in 1869 by George W. Weidler. The company was incorporated in 1871. In 1880 the Willamette Steam Mills employed 150 men, paying wages of from \$2.50 to \$3.50 a day, and cut 26,000,000 feet of lumber. This included 12,000,000 feet of dressed lumber and 6,000,000 laths, valued at about \$325,000. The four other sawmills active in Portland in 1880 produced about 18,000,000 feet annually, making the grand total of lumber produced in Portland 44,000,000 feet, which was valued at \$600,000.<sup>4</sup> Some of the Portland lumber was exported to California, Hawaii, South America and China, but most of it was utilized in Oregon. By 1885

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<sup>1</sup>In 1860 Oregon's industry produced a total of \$2,976,841. Of this the flour milling industry yielded \$1,178,050, and the lumber industry \$690,008.

<sup>2</sup>Out of the total of \$8,049,000 exported from Oregon in 1881.

<sup>3</sup>\$3,741,000 worth of wheat and \$1,453,000 worth of flour were shipped to Great Britain and Ireland in 1881.

<sup>4</sup>Total lumber production in Oregon in 1880 was about 150,000,000 feet.

Oregon's 228 sawmills, represented a capital investment of \$1,500,000 and produced about 150,000,000 board feet of lumber valued at \$1,500,000. In this 1885 production, Oregon retained her third ranking position--still exceeded by California and Washington.

In 1883 the first transcontinental railroad to the Pacific Northwest, the Northern Pacific, reached Portland, to be followed by the second, the Union Pacific via the Oregon Short Line, in 1885. In 1887 a third transcontinental railroad, the Southern Pacific, also reached Portland via the Oregon and California Railroad. These new avenues of transportation opened up eastern markets for the first time. Experimental shipments to Denver, Salt Lake City, Omaha, and Chicago were made in 1885 and led to a trade amounting to some \$5,000,000 a month. Favorable freight rates on the transcontinental railroads gave Portland an advantage over the Puget Sound region of Washington in commerce with these eastern points until 1893, when James J. Hill's transcontinental railroad, the Great Northern Railroad, reached Everett and Seattle, and offered that rich timber area of Washington comparable rates.<sup>1</sup>

During the 1890's Portland still retained its position as the metropolis of the Pacific Northwest and was also that region's biggest sawmill town. By 1890 it was apparent that the exhaustion of the Great Lake region forests, then the major lumber producing center of the United States, would occur within the next 20 years. Signs of the impending dramatic migration of "lumber barons" from the Midwest to the Pacific Coast, which was to reach full tide after 1900, were already apparent in the 1890's. In 1890 Simon Benson and John Yeon moved their lumber-jacks from the Wisconsin woods. They were followed in the 1900's by the Hollands, Wentworths, and Knapps.

This influx of lumber barons was reflected in the rising lumber production figures for Oregon. Oregon increased its lumber output from 444,000,000 board feet in 1889 to 1.9 billion board feet in 1910. This 1910 production by Oregon's 696 active sawmills made it the 9th ranking lumber producing state in the United States. By 1920 Oregon had reached second position in the nation, exceeded only by Washington. Sites reflecting Portland's history as a lumber town include:

1. Jones Lumber Company.

Located at 5500 to 5910 S. W. Macadam Avenue, was one of the pioneer logging companies of Portland and began lumbering on the west bank of the Willamette River at Portland in 1860. Last of the 19th century lumber companies in Portland, the mills of this plant have recently been torn down to make way for the development of an industrial park. Only two buildings still stand--the main finishing warehouse and the office building, both erected in the 1870's. Both of these structures are also scheduled to be demolished.<sup>2</sup>

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<sup>1</sup>Until 1905, however, more lumber was transported by water than by rail.

<sup>2</sup>This property is now owned by the Capital Investment Company, 5920 S. W. Macadam Avenue, Portland.

## 2. Erickson's and "The Skidroad".

Located at 50 N. W. Third Avenue near its junction with West Burnside Street. West Burnside Avenue, north of Ankeny Street, was known as "The Skidroad" and was the famous meeting place of loggers and lumberjacks in Portland in the 1890's. Erickson's, once the most widely known saloon in the Pacific Northwest and primarily a drinking establishment utilized by lumberjacks, originally occupied the full north side of the block on West Burnside Street between N. W. 2nd and N. W. 3rd Avenues. Founded as a simple saloon by August Erickson's in the early 1880's, the establishment grew in size and magnificence until its mahogany bar ran 674 feet, and occupied the best part of a city block. The structure had five elegant entrances and inside were five separate bars whose fixtures and mirrors were the best that money could buy. There was also a concert stage and the mezzanine divided up into small booths. Other features included a "\$5,000 Grand Pipe Organ" and a huge oil painting known as "The Slave Market," which depicted an auction sale of Roman captive maidens. The free lunch served here was prodigious and famous. Erickson's today is still a "workingman's club," bar, and "hangout" for people of the skid road. The fine three story building of the 1880 period, however, has been greatly altered and much reduced in size. The section fronting on West Burnside Street was demolished during the widening of that street. Portions of the old bar are still in use in the existing building, but the old organ has been sold for junk and the slave market painting has disappeared.<sup>1</sup>

## St. Helens.

Location. Columbia County, on U. S. Highway 30, 28.6 miles northwest of Portland.

St. Helens became an important lumber-producing and ship-building center in the first decade of the 20th century.

In 1908 Charles R. McCormick of San Francisco, and formerly of Michigan, purchased a mill site in St. Helens for \$20,000. His St. Helens Mill Company, capitalized at \$250,000, completed the sawmill in September, 1909. Built at a cost of \$247,000, the new mill had a capacity of 120,000 feet per 10-hour day. McCormick's St. Helens Timber Company also acquired 4,000 acres of the Masten timber tract, which contained 110 million feet of timber, for \$450,000. The St. Helens Lumber Company was organized in 1912 to control these two corporations. A second sawmill, which increased lumber production to 210,000 feet per 10-hour day, and a creosoting plant and a shipyard were added in 1912. As a result of these improvements, St. Helens population increased from 400 in 1909 to 1,500 by 1912.

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<sup>1</sup>Site owned by Edward Vos, Trustee, 3840 S. E. Taggart Street, Portland.

Between 1912 and 1927 the St. Helens shipyard launched 42 vessels, making this one of the leading yards on the Pacific Coast. In 1911 McCormick also organized the Chas. R. McCormick Lumber Company of San Diego to supply railroad ties and lumber to the Santa Fe Railway and the mines of Utah, Arizona, New Mexico, and northern Mexico. In 1911-12 he constructed a dock 57 feet wide and 1,200 feet long, with four railroad tracks and berthing space for five vessels, on property leased from the Santa Fe. The San Diego plant also included a framing machine and planing mill. The McCormick Steamship Company was organized in 1921, and by 1925 this corporation had 71 vessels operating between 23 ports on the Pacific Coast.

In 1925 the Chas. R. McCormick Co. of Delaware, capitalized at \$15,000,000, was formed to finance a further expansion of the McCormick empire. The Puget Mill Company (Pope & Talbot) was acquired, and in 1926 new mills were built at Port Gamble and Port Ludlow. The St. Helens mills were also improved and new logging camps were opened at Camp Talbot on the Olympia Peninsula near Port Ludlow and at Camp Cowlitz on the Cowlitz River, both in Washington.

With the depression, however, McCormick was forced to give up his wharf at San Diego, California, in April, 1931; in December of that year he also resigned as chairman of the board and director of the McCormick Lumber Company and the McCormick Steamship Company. In April, 1938, the Pope & Talbot Lumber Company was incorporated to take over the former McCormick properties.

St. Helens, now owned by Pope & Talbot, Inc., is still an active lumber center. The two mills erected in 1909 and 1912 were modernized in 1926. In 1940 the mills were again completely modernized and a new mill was added which increased the daily capacity from 493,000 to 660,000 feet per eight-hour day.

#### Westport.

Location. Clatsop County, on U. S. Highway 30, 30 miles east of Astoria.

Westport was the site of the first salmon cannery built on the Oregon side of the Columbia River and also a pioneer lumbering town.

John West settled at Westport in 1851. In 1856 he erected a water-powered sawmill which could cut about 1,500 feet of lumber a day. This lumber was sold in the California market. In 1857 West also began salting salmon in barrels at Westport, thus establishing the first American river fishery on the Columbia since the unsuccessful J. P. Cushing effort in 1844. The preserving and shipping of salmon in barrels, however, developed very slowly, largely because markets of any importance outside the region failed to materialize. Thus the value of salmon produced in Oregon and Washington in 1860 was only \$13,450.



In 1869 John West and associates established the first salmon cannery on the Oregon side of the Columbia, shipping their product to New York for distribution in eastern markets. Lumber was also exported to Australia, beginning in 1868. In the 1870's West and his associates constructed a two-story steam sawmill near the entrance to Plympton Creek, close to the river shipping point. West died in 1887; his large steam sawmill was destroyed by fire in 1908. Westport, however, continued to produce lumber until 1956, when its last huge sawmill, which had been built in 1910, was closed down.

The John West residence, built in 1857, is located one-quarter of a mile north of the railroad tracks, at the east boundary of the Westport City limits. Although remodeled and altered during the years, the original timbers and some of the siding and joists are still in the structure. The house, however, has been unoccupied for many years and allowed to fall into a most delapidated condition. The dwelling is no longer used and the acreage about the structure is now utilized to graze cattle.

The site of John West's 1856 sawmill is located about 300 yards east of the east city limits of Westport, on old Highway 30 as it crosses West Creek. The site is now overgrown with brush and alder trees; there are no surface traces left of the mill.

The 1869 cannery site was located at the north edge of Westport, adjoining the east edge of the present Westport Lumber Co. plank storage yards. There are no remains of the cannery and rotted planking and rubbish now cover this site.

The Westport Lumber Company mill and docks are located on the Westport Slough. When John West's steam sawmill burned in 1908, Myron Woodward constructed the Westport Lumber Company mill in 1910. This mill continued in operation until 1956, when it was dismantled. All that remains today are the extensive docks, which are still utilized by the present Westport Lumber Company to store lumber for water shipping. The present modern sawmill is located about one-half mile west of the docks.

An old logging tunnel is located on old Highway 30, between the Westport city limits and the Clatsop-Columbia county line. About 1890 this tunnel, some 30 yards in length, was bored through a hill just east of Westport by a group of loggers who were cutting timber on Upper West Creek. Construction of the tunnel cut-off about one-quarter of a mile of hauling by ox-teams. The logs were then dumped in the nearby slough and floated to the second John West sawmill located at the mouth of Plympton Creek. About 1900 the tunnel was enlarged to permit a logging railroad to reach the upper West Creek area. The tunnel and railroad were abandoned in the 1920's. The logging tunnel is now half filled by dirt slides and debris. The north entrance, by old Highway 30, is fairly open and it is possible to walk into this section. The south entrance, however, is choked up to within a few feet of the ceiling and can only be entered by crawling.



## Willamette Falls Electric Company's Stations A & B.

Location. Clackamas County, on the east bank of the Willamette River at Oregon City.

The first important advance in improved transmission of electrical power on the Pacific Coast occurred at Oregon City. Here, on June 3, 1889, the Willamette Falls Electric Company, incorporated on November 8, 1888, completed a hydro plant, comprised of three small dynamos with a total capacity of 60 arc lights, and also a transmission line to the city of Portland, 14 miles distant. Long distance transmission was then a major bar to further progress, for electrical engineers had not yet learned how to carry electricity by wire for any considerable distance from the generator without a costly loss of power. The problem of transmission between Oregon City and Portland was solved in June, 1889, by running 10 individual customer circuits on the pole line, thus making the use of transformers unnecessary.

The Willamette Falls Electric Company's first "Dynamo House", completed in 1889, was known as Station A. The structure, a large two-story frame building, was built out over the Willamette Falls from the east side of the river. Its original equipment included three brush arc dynamos, which were expanded to 7 generators by 1890. Station A was used until about 1897, when it was superseded by Station B, erected 1892-94.

Station A still stands, although it is no longer utilized to generate power, and now forms a part of the Publishers' Paper Company Plant at Oregon City.

Station B, a concrete power house erected in 1892-94, is located on the west side of the river on ground between the ship canal and the river. In 1894 it had three 400 kw, alternating-current generators. Station B, now known as the T. W. Sullivan plant, still stands and is used to generate power. The building, however, was completely reconstructed and modernized in 1953.

## OTHER SITES CONSIDERED

### SOUTH DAKOTA

#### Morrell Packing Plant, Sioux Falls.

Location. Minnehaha County, Weber Avenue and Rice Street, Sioux Falls.

The John Morrell and Company Packing Plant at Sioux Falls is the largest and most important plant in South Dakota's chief industry--meat packing.

Except for gold mining, South Dakota was not a highly developed industrial state prior to 1916. The first flour mill was erected in South Dakota in 1867 and at Sioux Falls in 1873; saw mills made their appearance a few years earlier; these were small plants, however that served only the local market. Several small pork-packing plants were also in operation between 1872 and 1890.

The rise of meat packing as South Dakota's chief industry dates from 1909, when John Morrell and Company began its operation at Sioux Falls. The first building of its present plant, now the largest in the state, was erected in 1911. The daily capacity of its plant at that time was 600 hogs.

## OTHER SITES CONSIDERED

### TEXAS

#### Corsicana Oil Field.

Location. Navarro County, Fourth and Collins, Corsicana, 60 miles south of Dallas.

Corsicana, as the site of the first commercial oil well in Texas and scene of that state's first oil boom (1896-99), served as the prelude to the greater Texas oil drama that was about to unfold at Spindletop in 1901.

In the course of drilling for water on the east edge of town (on present 12th Street), drillers in 1894 accidentally discovered oil. After a 22 1/2-barrel producer came at Fourth and Collins in 1896, oil rigs rose all over the eastern portion of town and along the edges of the pool, which proved to be about two by five miles in area.<sup>1</sup> By 1898 there were 287 producing wells tapping the pool and northern capitalists had become interested in the pool. The J. S. Cullinan and Co., parent of the Magnolia Petroleum Co., built refineries in 1898 and soon purchased virtually the entire output.<sup>2</sup> The Corsicana daily yield amounted to about 2,000 barrels in 1900 and has declined ever since, although there is still some activity in East Corsicana.<sup>3</sup> In 1900, however, Texas was still only producing about 1.1% of the nation's oil.

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<sup>1</sup>As the result of the Corsicana production, the total production of oil in Texas amounted to 1,450 barrels in 1896; state production then reached 65,975 barrels in 1897, 546,070 in 1898, 669,813 in 1899, and 836,039 barrels in 1900.

<sup>2</sup>J. S. Cullinan was a Pennsylvania refiner.

<sup>3</sup>Daily yield of the Corsicana oil field was about 500 barrels in 1897 and 2,300 barrels in 1898.

## OTHER SITES CONSIDERED

### WASHINGTON

#### Bellingham.

Location. Whatcom County, in Whatcom Falls Park on Lakewood Drive, in the city of Bellingham.

Bellingham was the site of an early sawmill erected on Puget Sound. In the winter of 1852-1853 Captain Henry Roeder and Russell V. Peabody of San Francisco formed the Whatcom Milling Company for the purpose of shipping lumber to California and constructed a water-powered sawmill at Bellingham Bay on Puget Sound. The settlement of Bellingham grew up around their plant, which had capacity of 4,000 board feet a day. The export of lumber began in the summer of 1853 and their ship-building yard also commenced operations in the same year. The shortage of water in the summer, however, hindered the operations of the mill. When the mill burned in 1874, it was not rebuilt.

In 1881 a salmon cannery was also erected in Bellingham. After several years of operation the cannery was also closed. The lumber and salmon canning industries did not return to Bellingham until the early 1900's. In 1901 the Whatcom Logging Company, owned by Peter Larson, J. J. Donovan, and J. H. Bloedel of Wisconsin, opened a sawmill at Bellingham, which had a capacity of 50,000 to 60,000 feet of lumber a day. Their lumber was shipped out by railroad.

The site of the 1853 sawmill is located in Whatcom Falls Park, a 41-acre forested area, in Bellingham. There are no remains left of either the sawmill or of the 1881 cannery.

#### Cedar Falls Hydroelectric Plant.

Location. King County, 4 miles south of North Bend.

In 1900, enriched by the Alaskan gold rushes, Seattle began to rebuild itself and to extend its business district. Streets were widened and improved. The desire for municipal ownership of utilities grew in popularity, with the result that in 1901, the city added the Cedar River Watershed to its water system. In 1902 the city of Seattle entered the business of hydroelectric power generation, by starting the construction of a small power station at Cedar Falls, 30 miles east of the city. The plant was completed in 1905, but increased demand resulted in the enlargement of the station several times within the next few years.



Seattle's 1902-05 Hydroelectric Plant, Cedar Falls, Washington

N. P. S. Photo, 1961

This modest beginning at Cedar Falls marked the beginning of a municipal water and electric program that grew to great proportions after 1918, particularly with the subsequent developments on the Skagit River, in Skagit County.

The Cedar Falls Hydroelectric Plant, built 1902-05, and thereafter enlarged, is still in use. The structure is a brick building two stories in height.

#### Grays Harbor (Aberdeen and Hoquiam).

Location. Grays Harbor County, junction of U. S. Highways 101, 410, and State Route 9.

Although once containing the greatest stand of Douglas Fir ever found in the Pacific Northwest, transportation difficulties delayed the development of the lumber industry in the Grays Harbor region until the 1890's.

The first sawmill was erected at Grays Harbor in 1884; the townsite of Aberdeen was also platted in that year and that of Hoquiam in 1885. In 1888 the Grays Harbor Commercial Company, in which the Puget Mill Company (Pope & Talbot) had a considerable interest, purchased the sawmill of the Perry Lumber & Mill Company of Los Angeles for \$135,000. The mill, which had a daily capacity of 40,000 feet of lumber, was located at Cosmopolis, to the south of the Chehalis River, and on the bend just above the point where Shingle Mill Slough flowed into the river. The mill was improved and by 1893 was producing slightly over 17 million feet of lumber annually. At that time practically the entire cut of the Grays Harbor mills were shipped by water.<sup>1</sup> The Northern Pacific Railroad, however, reached Aberdeen in 1895 and Hoquiam in 1898. By 1900 the Cosmopolis mill was producing more lumber than any other sawmill in Grays Harbor. Its cut that year was about 39,000,000 feet. Of this total approximately 33 million feet were shipped East by rail and the remaining 6,000,000 feet were transported by water to San Francisco, thus indicating a change in method of transportation and also the effect of the railroad in opening new eastern markets for Washington timber.

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<sup>1</sup>In the 1890's the E. K. Wood Lumber Company of San Francisco had bought a sawmill at Hoquiam. In 1900 this firm also purchased a mill at Fairhaven (now included in Bellingham, Washington). By 1905 these 2 mills produced almost 120,000,000 feet of lumber annually--a production exceeded only by the outputs of the Port Blakely Mill Co. and of the St. Paul & Tacoma Lumber Co. One of the E. K. Wood's vessels was the sailing schooner, C. A. Thayer, now on exhibit at San Francisco.



In 1906 the harbor was dredged out to improve ocean transportation and the salt marshes were also drained to permit expansion of the towns.

As the forests of the Great Lakes region became depleted, the Midwest timber barons also began to move to Grays Harbor. Alex Polson arrived in 1895, and the Forneys in 1910.

Grays Harbor is still a great lumber producing center. The Grays Harbor Commercial Company was liquidated in 1929 and there are no remains left of its mill at Cosmopolis. The former Polson Lumber and Shingle Mills, located east of Hoquiam waterway No. 1, at the foot of Ontario Street, in Hoquiam, are still standing, but the modernized mills are now owned and operated by Rayonier, Inc.

#### Eagle Cliff.

Location. Wahkiakum County, on U. S. Highway 830 six miles west of Stella and 9.2 miles east of Cathlamet.

Site of the first commercially successful salmon cannery in the United States, the erection of this cannery in 1866 marked the beginning of the great multi-million dollar salmon canning industry that rapidly developed on the Columbia River.

From 1864 to 1866 William and George Hume and Andrew S. Hapgood had experimented with and successfully canned 4,000 cases of salmon on the Sacramento River in California. This success convinced the partners that canned salmon had a limitless market and that the business was capable of great development, provided that a more reliable salmon run than that on the Sacramento River could be found. In the spring of 1866 the partners began to search for a better field of operations. William Hume went to the Columbia River for this purpose, and based on his favorable report, George W. Hume was sent to the Columbia in July, 1866, to prepare a cannery site at Eagle Cliff in Wahkiakum County, Washington, on the north bank of the Columbia. In October, 1866, at the close of the season's salmon run, the partners moved their equipment from the Sacramento River to the Columbia. When they arrived at Eagle Cliff, a high, heavily wooded cliff, they found that George Hume had built a large house at the base of the cliff to house their intended employees and had also nearly completed the building for the cannery. They spent the winter of 1866-67 completing the cannery, installing their machinery, and making the nets and cans in preparation for the season of 1867. The pack of 1867, by Hapgood, Hume and Company, amounting to 4,000 cases of 48 cans each, which they sold for a total of \$64,000, was the first salmon canned on the Columbia River.

In 1868 George W. Hume withdrew from the firm and constructed a second cannery about one-quarter of a mile below Eagle Cliff, also on the Washington side of the river. The total pack of 1868 was 28,000 cases valued at \$392,000. In 1869, with four canneries in operation, 100,000 cases valued at \$1,350,000 were packed on the Columbia.

In 1871 the exports of canned salmon commenced, when 30,000 cases of a total pack of 200,000 cases were sent to Great Britain, where they realized \$150,000. In 1872 George W. Hume also introduced the first Chinese laborers to the salmon canning industry, employing them as cannery hands near Eagle Cliff.

By 1880 there were 29 canneries, about half of them established by the Hume brothers, operating on both banks of the Columbia and located between Astoria and the Cascades. These represented a capital investment of \$1,000,000 and gave occupation to 2,500 fishermen and 3,100 Chinese; 1,200 boats were also employed on the river catching fish. In 1880 these canneries produced 530,000 cases of canned salmon valued at \$2,650,000.

The Columbia River was the chief salmon producing area of the Pacific Coast from 1867 to 1887. In 1888, however, the Alaska pack surpassed that of the Columbia for the first time, and in 1889, the British Columbia pack also exceeded that of the Columbia. In 1899 the Puget Sound output next surpassed the Columbia River production.

By 1900 the Hume Brothers,--George, William and Robert--are reputed to have earned \$19,000,000 from the salmon canning industry on the Columbia. William Hume continued to operate a cannery at Eagle Cliff from 1867 until his death on June 25, 1902. Eagle Cliff was then utilized as a cannery site until about 1917, when the Columbia River Packers Association ceased operations at the site.

William Hume's cannery, built in 1866-67, disintegrated slowly with age and by the 1930's only some decking and a ramshackle shed were left. Today, the only sign of the original cannery is a few rotted pilings standing off-shore in the river.

The large red frame house that William Hume built as a residence at the foot of the cliff was also demolished in the late 1930's. There are no traces left of this structure.

The site of the second Hume Cannery, built by George W. Hume in 1868, and the Eureka Epicure Packing Company Cannery, built in the 1870's, are both located about one-quarter of a mile down river from the William Hume cannery. Only a few pilings remain to mark the sites of these latter two canneries.

Much river sand has been pumped into this area in recent years, forming an attractive beach that is now used for picnicking, fishing, and camping. The original forested setting, however, is little changed.



1900 View of the First Salmon Cannery Built on the Columbia River, in 1867, Eagle Cliff, Washington

Courtesy of John McCelland, Sr., Longview, Washington

Fort Vancouver Sawmill Site.

Location. Clark County, 12828 S. E. Evergreen Blvd., Vancouver.

Erected by the Hudson's Bay Company in 1828, this was the site of the first sawmill in the Pacific Northwest. This small mill was located on a stream about seven miles above (east) of Fort Vancouver, and was situated almost immediately on the north bank of the Columbia River.<sup>1</sup>

Today the only visible remains of the Fort Vancouver sawmill are the waterfalls and the traces of the mill's former raceway. A portion of the site is now used as a site for a private residence and the inlet from the Columbia River is utilized as a private boat moorage.

Mukilteo.

Location. Snohomish County, five miles southwest of Everett.

This was the site of the first salmon cannery on Puget Sound, Washington.

In 1873 V. T. Tull of Olympia established a salmon fishery at Mukilteo and packed 500 barrels of fish the first year.

From 1867 to 1873 the Pacific Coast salmon canning industry was concentrated solely on the Columbia River, but in 1874 the industry began to spread to other areas. Canneries appeared on the Sacramento River in California in 1874 and on the Fraser River in British Columbia in 1876. In 1877 the Jackson, Myers and Company of Portland, Oregon, opened the first salmon cannery on Puget Sound at Mukilteo. The catch of 1877 amounted to 15,500 cases valued at \$77,300, as compared with 460,000 cases packed on the Columbia River and valued at \$2,052,000 in the same year. Additional canneries were not to be opened on Puget Sound until the 1890's and the region did not reach the 100,000 case year level until 1895. Puget Sound did not become a major salmon canning area until 1899.

There are no traces left of the Jackson-Myers' 1877 cannery at Mukilteo.

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<sup>1</sup> The site is now located 2/10ths of a mile south of Evergreen Blvd at a point 9/10ths of a mile east of the intersection of S. E. Evergreen Blvd and Ellsworth Avenue.

### Oak Point.

Location. Cowlitz County, U. S. 230 and State Route 12, on the north bank of the Columbia River, 14 miles west of Longview, Washington.

Oak Point was the site of one of the early sawmills on the Columbia River.

In May, 1849, George Abernethy, one of the chief merchants of Oregon, sold his lumber and flour mills at Oregon City for \$35,000 and erected a large water-powered sawmill at Oak Point, Washington. Located on the right or north bank of the Columbia, Oak Point was accessible to ocean-going ships. Here virgin timber in vast quantities stood conveniently at the site of the new mill. Other advantages included an un-failing water supply to propel the milling machinery and the great depth of the river where sailing vessels could come along side the wharf and load the lumber in dry condition. The new mill cost \$10,000. Production began at the rate of 5,000 board feet per day in November, 1849. The lumber was shipped to San Francisco where it wholesaled for \$400 per thousand board feet. The wholesale price at the mill on the Columbia was then about \$100 per thousand.

In the 1850's the Abernethy mill at Oak Point produced most of the lumber that was exported through the port of Astoria. The lumber company operated three ships to transport its lumber to San Francisco, where it sold for about \$10 per thousand in the 1850's. By 1860, however, the chief center of the lumber export business had shifted from the Columbia River to the more accessible mill sites and less dangerous waters of Puget Sound.

The Abernethy mill at Oak Point, however, continued to operate, although reduced in importance, and in 1872 was producing 4,000,000 board feet annually.

There are no remains left of the Abernethy mill.

### Oysterville.

Location. Pacific County, on Willapa Bay, west of U. S. Highway 101 and State Route 12A.

Willapa Bay, then known as Shoalwater Bay, was the site where the Pacific Coast oyster industry originated.

The first discovery of oysters on the Pacific Coast was made by Charles J. W. Russell at Willapa Bay at some date between 1849 and 1851. The first oysters from this region of quiet lagoons and large oyster flats were shipped to San Francisco in 1851.



Oysterville, founded on Willapa Bay in 1854, became the first seat of the Pacific Coast oyster industry. By 1854 there were from 150 to 200 men on Willapa Bay who lived chiefly by oyster fishing. By 1857 three schooners were making regular runs to supply the San Francisco oyster market. In 1860 value of the oyster fishery, which employed 100 men, was \$44,597 as compared with a total of \$32,350 produced by the salmon fisheries of Oregon and Washington.

In 1859 the planting of oyster beds commenced. The oyster trade increased steadily until the opening of the first transcontinental railroad to California in 1869, when the shipment of eastern oysters decreased the demand for the Willapa Bay product. In the 1880's parasites and pollution of the water caused severe losses in the oyster beds of Willapa Bay and Oysterville was practically reduced to a ghost town. In this period the oyster industry also spread to the tidal waters at the head of Puget Sound and to the north, off Skagit and Whatcom Counties in Washington.

Soon after 1900 Easterners began to enter the oyster industry. By 1908 oysters, together with crabs and clams, brought returns of \$460,000 a year. In 1915 the shell fishery industry finally reached the million dollar level, but this industry never did compare with salmon and halibut in economic importance in the history of the Pacific Coast.

Oysterville is still a small oyster fishing town, but it probably now earns most of its income as a resort village. There are still five or six small frame houses dating from the 1850's standing in Oysterville.

#### Port Blakely.

Location. Kitsap County, at the southeast end of Bainbridge Island, on Puget Sound.

Port Blakely was the site of one of the early and most important sawmills erected on Puget Sound.

In 1864 William H. Renton & Howard of San Francisco erected a large steam sawmill at Port Blakely, which cost \$80,000 and was capable of turning out 30,000 board feet of lumber per 12-hour day. The mill cut an average of 19,000,000 feet annually from 1864 to 1880.

In 1876 the firm of Renton, Homes and Company incorporated as the Port Blakely Mill Company, with a capitalization of \$600,000. Their steam-powered mill was further enlarged in 1880 so that it could saw 175,000 feet of lumber, plan 50,000 feet and make 50,000 laths in a day of 12 hours. The mill, measuring 490 by 90 feet, could cut logs 6 feet in diameter and 145 feet long. The company owned 35,000 acres of timberland, five sailing vessels totaling 4,790 tons, plus 2 barks, and also a steam tug.



The company-owned town, which had about 400 inhabitants, included 100 dwellings, a hotel with accommodations for 120 guests, a school house, Masonic hall, store, and shipyard. One hundred and twenty men were employed in the mill and 200 more worked in the logging department.

In 1881 70 vessels took on cargoes of lumber at Port Blakely and in 1883 the mill shipped out 54,000,000 feet of lumber. Until 1905 the Port Blakely mill was one of the three largest and most important mills on Puget Sound, having an annual capacity of 100,000,000 board feet of lumber.

The great mill was shut down and dismantled shortly after World War I. Today, nothing remains of the lumber plant but a few traces of its brick foundations. Port Blakely is now a small resort town.

#### Port Discovery.

Location. Jefferson County, on U. S. Highway 101 and State Route 9, west side of Discovery Bay, Puget Sound.

Port Discovery was the site of one of the early sawmills erected on Puget Sound.

In 1858-59 S. L. Mastick & Co. of San Francisco erected a steam sawmill at Port Discovery. During the first 18 months of operation the mill cut 8,500,000 feet of lumber. In 1871 it turned out 12,000,000 feet of lumber and 200,000 laths. In 1880 the mill was enlarged so that the structure, measuring 365 by 95 feet, could cut 100,000 board feet of lumber in a 12-hour day. The plant then employed 70 men. The company-owned town contained 50 dwellings, a hotel, boarding house, general store, town hall, and machine shops. The lumber company owned and operated three sailing vessels, one steam tug and a steamship. Approximately 20 cargoes of lumber were sent annually from Port Discovery to foreign ports in the 1880's.

Today Port Discovery is a minor shipping point for lumber and logs and also a port for small fishing craft. There are no remains left of the great 19th century sawmill.

### Port Ludlow.

Location. Jefferson County, 3 miles northeast of State Route 9E, on the northwest shore of Port Ludlow Bay, and the west shore of the northern entrance to the Hood Canal, Puget Sound.

Port Ludlow was the site of one of the early and important sawmills built on Puget Sound.

In 1852-1853 William T. Sayward and J. K. Thorndike of San Francisco erected a steam sawmill at Port Ludlow with a daily capacity of 35,000 feet. In 1858 the mill was leased to Arthur Phinney, who purchased the plant in 1874 and improved its capacity to 65,000 feet per day. A shipbuilding yard was also added in the 1870's. In 1878 the Puget Mill Company (Pope & Talbot) acquired the Port Ludlow sawmill for \$64,000 and further improved and enlarged the mill.

The new mill, measuring 65 by 394 feet, was operated by 55 men, and had a daily capacity of 100,000 feet of lumber; the new plant was opened in October, 1883. The town of Port Ludlow then consisted of the sawmill, one store, a hotel, a shipyard, a few cabins, and two or three houses. There was also a lath mill that measured 16 by 77 feet. The plant was lighted by 26 Brush arc lights.

Due to the low prices for lumber, the Puget Mill Company closed down the Port Ludlow Mill at the end of 1890 and did not reopen the plant until the end of 1897. In 1904 the Port Ludlow mill was again rebuilt and modernized. In 1906 Port Ludlow shipped out 43,000,000 feet of lumber.

In 1925 the Port Ludlow mill, together with the Puget Mill Company (Pope & Talbot), were acquired by Charles R. McCormick Lumber Company of Delaware. In 1926 the Port Ludlow mill was again rebuilt and its capacity increased to 350,000 feet per 8-hour day and the docks were also completely rebuilt. On December 4, 1935, the Port Ludlow mill was shut down permanently and in 1936 its machinery was dismantled and sold. Also demolished in the last few years was Admiralty Hall, the large ~~mansion~~ built in 1887 by Cyrus Walker, the pioneer lumberman and manager for Pope and Talbot Lumber Company.

### Port Madison.

Location. Kitsap County, at the northeast end of Bainbridge Island, on Puget Sound.

Port Madison was the site of one of the early sawmills built on Puget Sound.

G. A. Meigs of San Francisco erected the sawmill at Port Madison in 1853. The mill was rebuilt in 1854 and 1864, after having been destroyed by fire. When rebuilt in 1864, the mill had a daily capacity of 80,000 feet.

In 1880 the capacity of the Meigs Lumber and Shipbuilding Company mill at Port Madison was 200,000 board feet of lumber per 12-hour work day; the mill could also cut logs 132 feet long. The plant also included an iron and brass foundry, machine, blacksmith and carpenter shops, and a shipyard. The company-owned village provided dwellings for its 300 employees as well as a public hall, library, hotel, store, and Masonic and Templar lodges. The company ceased operations in the late 1890's.

Today the once bustling port is quiet and there are no remains left of the sawmill or shipyard.

#### Port Orchard (Sidney).

Location. Kitsap County, on State Route 14, southern side of Port Orchard Bay, and on the east side of the Kitsap Peninsula, Puget Sound.

Port Orchard (or Sidney) was the site of one of the early sawmills erected on Puget Sound.

In 1853-54 C. C. Terry and William H. Renton built a large steam sawmill at Alki Point on Elliott Bay near Seattle. After two or three years the mill was then removed to Port Orchard, which had a better harbor for sailing vessels. In 1863 the Port Orchard mill was sold to Coleman and Glynden, who rebuilt and enlarged the structure in 1868-69.

The Port Orchard mill was closed and dismantled in the 1930's, because of the depletion of the forests. There are no remains left of the mill.

#### Seattle's Fishing Fleet Harbor.

Location. City of Seattle, 15th Avenue W. and W. Thurman Street, on Salmon Bay below the Ballard Street Bridge.

Puget Sound emerged as a major salmon canning area in 1899 and Seattle then became a major base for this industry.

The first salmon cannery was established on Puget Sound in 1877. But additional canneries were not to be opened in this region until the 1890's.<sup>1</sup> As new population and capital came to the Pacific Northwest, however, the salmon fisheries grew rapidly into one of Washington's major industries. By 1899 Puget Sound had 19 canneries in operation and packed a total of 919,611 cases valued at \$3,710,358.

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<sup>1</sup>Puget Sound did not reach the 100,000-case-a-year level until 1895; 11 salmon canneries were then in operation.



Fishing Fleet Harbor, 1911-16, Seattle, Washington

N. P. S. Photo, 1961

This pack made Puget Sound second only to Alaska as a salmon-producing area, followed by British Columbia and the Columbia River in that order. In 1914 the 22 Puget Sound salmon canneries packed 817,354 cases, representing a value of \$4,555,649. That year Washington employed 8,500 men in its fisheries,--only the Alaskan fisheries were more productive. Seattle became the main base of operations for the Puget Sound fishing fleet.

Seattle, a city of 40,000 in 1890, sprang to life in 1897-99 when it became the main base of supply and departure for the great stampede to the gold fields of the Klondike and the beaches of Cape Nome. By 1900 Seattle's population had increased to more than 80,000 and the city fathers began to rebuild the community as a truly metropolitan center. Between 1903 and 1909 more than 45,000,000 dollars was invested in construction of new buildings, and by 1910 the population had increased to 237,194. A public port commission was established at Seattle in 1911, which transformed Seattle facilities between 1911 and 1916, into those of a major port. Among these improvements were the construction of the Central Waterfront Terminal at the foot of Bell Street, on Elliott Bay, which provided 1,200 feet of berthing space and a six-story warehouse of 300,000 cubic feet capacity for the storage of salmon; and at Salmon Bay a terminal was also built for the fishing fleet, which afforded a sheltered moorage and 195,000 square feet of open wharf space. By 1915 Seattle had emerged as the ranking city in the Pacific Northwest and as a major base of the Pacific fishing industry.

The great facilities for the salmon industry at Central Waterfront Terminal at Bell Street and the Fishing Fleet Harbor (or Fisherman's Terminal) on Salmon Bay are still in use. Especially impressive is the scene at the Fishing Fleet Harbor: here is the great winter port for the Puget Sound and Alaska fishing boats. As many as 200 vessels can be seen tied up, making their repairs and putting their gear in order for the next fishing season.

#### Seabeck.

Location. Kitsap County, on the east shore of the Hood Canal, Kitsap Peninsula.

Site of one of the early sawmills built on Puget Sound.\* In 1862 the Washington Mill Company, comprised of Marshall Blinn, W. J. Adams, John R. Williamson, W. B. Sinclair, and Hill Harmon, erected a sawmill at Seabeck on the Hood Canal. The mill, built at a cost of \$80,000, had an average annual capacity of 11,000,000 board feet of lumber. The company owned and operated two sailing vessels. In 1879 W. J. Adams was the sole owner of the company.

The mill was active until 1886 when it was destroyed by fire. By then the area had been logged over and the mill was never rebuilt. Seabeck is now a supply point for camps and summer homes on the Hood Canal. The area now has stands of second growth timber.

\*Seabeck was founded in 1856.



### Seattle's Pioneer Square.

Location. King County, at First Avenue and Yesler Way, in the city of Seattle.

Seattle was the site of the first steam-powered sawmill built in the Puget Sound region.

In the fall of 1851 the first settlers, led by John N. Low and Arthur A. Denny, arrived at Elliott Bay on Puget Sound, and erected log cabins at Alki Point on the west side of Elliott Bay. In the spring of 1852 the majority of pioneers moved to the east side of the bay and founded a village which they called Seattle.<sup>1</sup> Early in 1852 the brig Leonsa, seeking a cargo of piling for the San Francisco market, anchored offshore. The load of 35,000 feet of logs, cut by the settlers from their claims, was the first shipment of lumber from Seattle.

In the fall of 1852 Henry L. Yesler of Portland arrived at Seattle and began the construction of a steam-powered sawmill for the purpose of exporting lumber to the San Francisco market. His sawmill, with a daily capacity of from 10,000 to 15,000 feet per day, began operations in 1853 and was rebuilt and improved in 1868.

In 1853-1854 C. C. Terry and William H. Renton of San Francisco constructed a second steam sawmill, which located at Alki Point. After two or three years of operation they then removed their mill to Port Orchard, which had a better harbor for the sailing vessels of that period.

By 1880, Seattle, with a population of 3,533, had six sawmills, six sash and door factories, three shipyards, one salmon cannery and three fish packing factories in operation.<sup>2</sup> By 1890, when the first transcontinental railroad, the North Pacific, reached Seattle via the lines of the Seattle, Lake Shore, and Eastern Railway, the city had achieved a population of 42,837, almost equaling that of Portland, Oregon. Seattle's factories in 1890 included a dozen sawmills and nearly as many sash and door and furniture plants.

The former site of Yesler's 1853 steam sawmill is located in Pioneer Square in the city of Seattle. Here around this mill were grouped the various buildings of the pioneers and this was the center of early Seattle. In the 1880's and 1890's Pioneer Square was also the "Skidrow" for celebrating lumberjacks.

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<sup>1</sup>The town plat for Seattle was filed May 23, 1853, the population was then about 170, and the total population of Washington territory was 3,965 people.

<sup>2</sup>Stetson & Post Mill Company, founded by George W. Stetson in 1875, was one of the large early sawmills in Seattle.



The "square" is a small triangular plot that is still surrounded by saloons, cheap hotels, pawnshops and outfitting stores for Alaska, the lumber camps, and fishermen. There are no remains left of Yesler's mill or of the other pioneer buildings.

Spokane Falls Electric Light and Water Power Company.

Location. In Spokane County, north end of Post Street Bridge, in Spokane.

The earliest hydroelectric plant on the Pacific Coast appears to have been located at Spokane Falls (now Spokane) in 1885-86.

George A. Fitch purchased a small water wheel-driven brush arc dynamo with a capacity sufficient to operate 12 arc lights from the coastal steamer Columbia at Portland, Oregon, in 1885. On September 2, 1885 Fitch secured the first franchise issued by Spokane for an electric lighting system.

The dynamo was installed in the basement of the Clark and Curtis flour mill, which was located on the north bank of the Spokane River close to the end of the present Post Street bridge. Driven by a hurdy-gurdy water wheel, this hydroelectric plant went into operation early in 1886 and lighted the village with 10 arc lamps.

The success of this experiment led to the formation of the Spokane Falls Electric Light and Water Power Company in 1886, which bought out Fitch's plant. The company ordered an Edison dynamo from Edison Electric Light Company of New Jersey and signed a lease for the site and water power at the flour mill. A license agreement was secured with the Edison Company, under which the Eastern firm became a small stock holder, and the local company was reorganized as the Edison Electric Illuminating Company of Spokane Falls. The new plant, which had four times the capacity of the first one, went into operation in 1888.

Demand immediately exceeded the capacity of the new Edison plant and a rival company, the Washington Water Power Company, was incorporated on March 13, 1889, when the Edison Company refused to endorse plans to extend the capacity of the Spokane Falls Water Power Company plant. The new corporation purchased a site by the lower falls, where the Spokane River dropped some 70 feet, and proceeded to erect a much larger generating plant to supplement the one at the mill. The main power station was erected almost at the water's edge at the foot of the present Monroe Street Bridge and contained six Edison dynamos, with a total capacity of 8,400 kilowatts. This plant went into operation in 1890. The other dynamos at the flour mill were then moved to the new station and the old site was given up as hydroelectric location.

There are no traces of the 1885-1889 hydroelectric station, which was located at the north bank at the end of the present Post Street Bridge. The 1890 main power station, situated at the foot of the present Monroe Street Bridge, still exists and is used by the Washington Power Company Hydroelectric plant. The original building, however, has been so enlarged and the plant improved, as to possess little resemblance to the 1890 structure.

#### Tacoma.

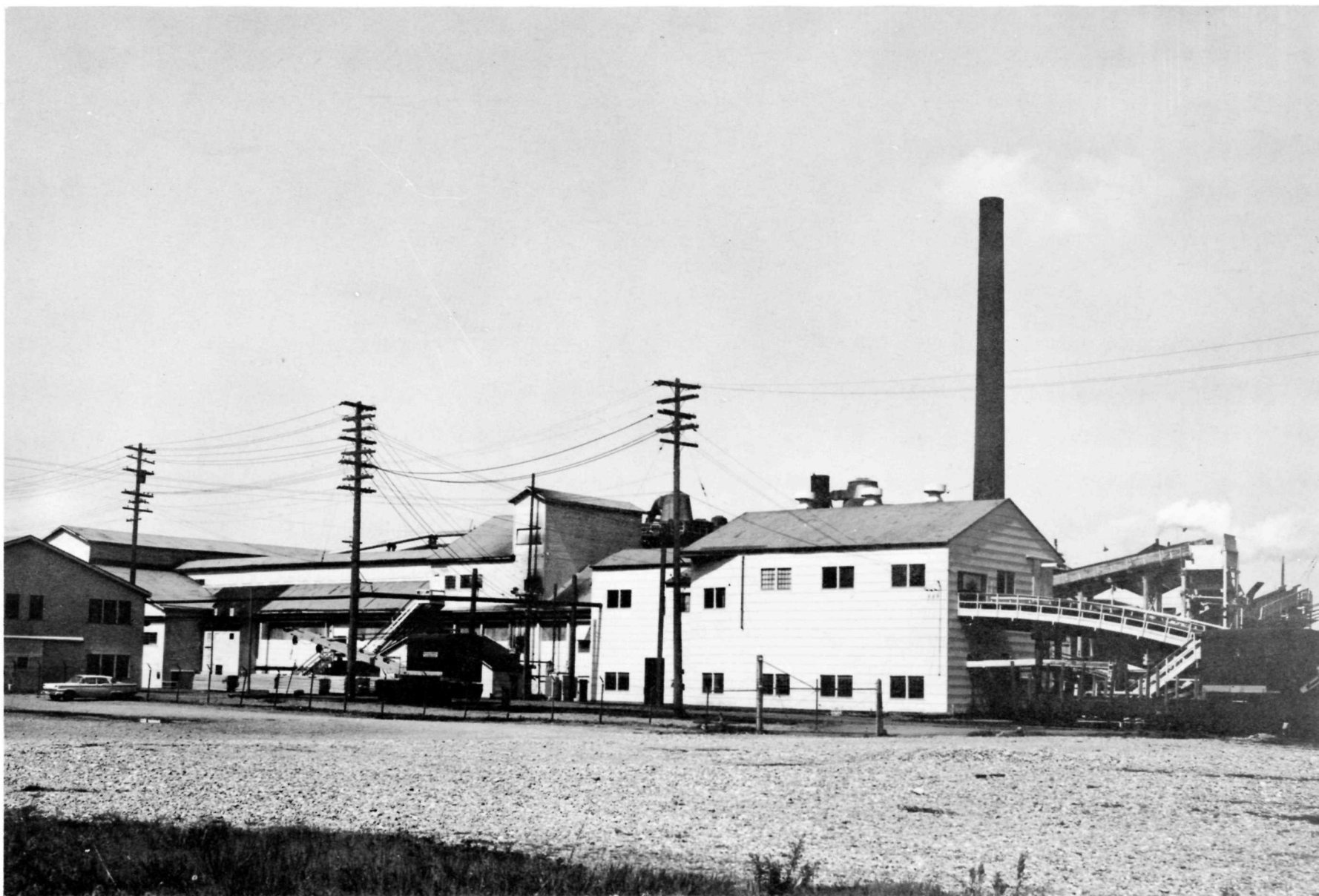
Location. Pierce County, at 1220 St. Paul Ave., City of Tacoma.

Tacoma, in the 1880's, became an important Puget Sound lumbering center, due to the coming of the transcontinental railroads.

In May, 1853, Nicholas DeLin, M. T. Simmons, and Smith Hays, erected a water-powered sawmill at the head of Commencement Bay, near the future site of Tacoma, and lumber was shipped to California. The mill was so poorly situated, however, that it was abandoned in 1856.

In 1868 General Morton Matthew McCarver of Oregon City, Oregon, platted the town of Tacoma as a probable terminus of the Northern Pacific Railroad. In 1868 Hanson & Co. of San Francisco erected a large steam sawmill at Tacoma (then called Commencement City). By 1881 this company, known as the Tacoma Mill Company, owned 30,000 acres of timberland, operated four sailing vessels totaling 4,000 tons, and a steam tug. Their great mill, measuring 80 by 400 feet, had a capacity of 125,000 feet of lumber and 40,000 laths per 12-hour day. The mill could cut logs 150 feet long. Hanson & Co. operated 15 logging camps in the Tacoma area and employed 400 men. In Tacoma, besides the mill, the company also owned 54 dwellings, a general store, and a telegraph office.

On July 3, 1887, the Northern Pacific railroad finally reached Tacoma with direct transcontinental rail connections. This rail tie-up with the East was to result in the phenomenal growth of Tacoma's lumber industry. The first of the Midwest lumber barons to come west was Chauncey W. Gregg, who had been associated with James Hill in the merchandising, fuel, and transportation business in St. Paul, Minnesota. Chauncey came to Tacoma in 1887 and purchased 80,000 acres of timberland from the Northern Pacific railroad. With A. G. Foster, Henry Hewitt, Jr., and Charles H. Jones, Gregg organized the St. Paul and Tacoma Lumber Company. They began operations with a small circular saw in 1888 and the following year completed their "A" mill, which had a capacity of 250,000 feet of lumber per 10-hour day. Tacoma's population increased from 4,000 in 1885 to 42,837 by 1890.



Former St. Paul and Tacoma Lumber Co. Plant, 1889, Tacoma, Washington

J. P. S. Photo, 1961

In 1900 the St. Paul and Tacoma Lumber Company erected their second sawmill, the "B" Mill, which with the "A" mill, gave their plant a combined daily capacity of 500,000 feet of lumber and 400,000 shingles. Their plant was one of the three largest mills on Puget Sound until 1905. Rail shipments of lumber from Puget Sound increased from 124,000,000 feet in 1897 to 1,535,000,000 feet in 1905, and in 1905 for the first time in the history of the lumber industry of Puget Sound, the rail shipments of lumber exceeded that of lumber transported by vessels.

The St. Paul and Tacoma Lumber Company plant, which dates back to 1889, is still in operation. The plant and lumber yards cover about 200 acres and are supplied with logs by a company-owned railroad running to the logging camps in the timberland preserves.

Adjacent to the main mill are lath and shingle mills, machine shops, railroad yard and docks. The original plant has been modernized and the company has been a subsidiary of the St. Regis Pulp and Paper Company since 1943.

#### Tumwater.

Location. Thurston County, on U. S. Highway 99, 2.7 miles south of Olympia.

This was the site of the first American grist-mill and sawmill erected in Washington.

Here, at Tumwater, the first American settlement north of the Columbia River was established in 1845. In 1846 Colonel Michael T. Simmons erected a small water-powered grist-mill. In 1847, using discarded machinery from the Hudson's Bay Company's 1827-28 Fort Vancouver sawmill, Simmons constructed a water-powered sawmill situated on the Deschutes River at Tumwater, where the river had an 80-foot drop.

On October 25, 1847, Simmons, in company with 7 men, organized the Puget Sound Milling Company. Their first shipment was made in 1848, when the Hudson's Bay Company steamer, Beaver, took a cargo of lumber to their Fort Nisqually post. This shipment marked the beginning of the American lumber industry in the Puget Sound region.

There are no remains left of the 1846-47 grist and sawmills. The Tumwater Founders Monument, a large granite block with a bronze plate bearing the names of the 32 original settlers, stands on the west bank of the Deschutes River, marking the site of the Simmons claim.

Utsaladdy.

Location. Island County, northwest end of Camano Island.

This was the site of one of the early sawmills erected on Puget Sound.

In 1855 Thomas Cranney started lumbering on Camano Island, specializing in providing spars for the British, French and Spanish navies. In 1858 Cranney and Grannan erected a sawmill and shipyard at Utsaladdy, which had the best deep water harbor in this section of Puget Sound. Their mill failed in 1875, and in March, 1877, the Puget Mill Company (Pope & Talbot) purchased the Utsaladdy sawmill and some timber for \$32,000. The mill was rebuilt in 1877-78, and when reopened in October, 1879, had a capacity of 75,000 feet of lumber per 12-hour day. The sawmill measured 215 feet by 60 feet. By the fall of 1883 the plant was lighted by ten-light Brush dynamo electric machines, with five arc lights located in the sawmill proper, 2 on the ground floor, and five at the wharf.

For 11 years the mill cut an average of 17,000,000 board feet of lumber annually. The Puget Sound Mill Company closed the Utsaladdy mill in 1890, when prices for lumber fell, and the plant was never reopened.

There are no remains left of the Utsaladdy Mill.

## OTHER SITES CONSIDERED

### WYOMING

#### Tar Springs (Popo Agie or Dallas Oil Field).

Location. Fremont County, 10 miles southeast of Landers,  
U. S. Highway 287.

This is the area in which oil was first discovered in Wyoming.

The first recorded discovery of oil in Wyoming occurred in 1832, when Captain B.L.E. Bonneville explored Wyoming and reported that he had found the Great Tar Springs at the foot of a sand bluff, a little to the east of the Wind River Mountains and near the Popo Agie River. The first oil well in Wyoming was drilled near Fort Bridge in the late 1860s and its crude products sold locally.

In 1880 three test wells were drilled in the great Tar Springs area, southeast of Landers, and these produced small quantities of oil. Lack of a market and high costs of transportation, however, prevented any further development of the Popo Agie or Dallas Oil Field until after the Wyoming oil boom of 1915-1922 had first taken place at the Salt Creek or Shannon Oil Field near Casper.



