"M" Street Vertical Lift River Bridge at Sacramento. A Unique Design with Architectural Treatment

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Negotiations with the Federal government for the financing of our $170,000,000 State Water Plan, which is of the greatest concern to the people of California, appear to be in a critical stage. According to a newspaper statement from Washington, the Public Works Administration is preparing a report of its investigation of the Central Valley Water Plan as submitted by our State Division of Water Resources. It is said that this report finds the project both feasible and advisable as to its flood control features and as an aid to navigation and salinity control in the Delta region, but recommends further study of the financial setup of the project and the economic consequences to the State and nation of power development with the possibility of its consideration in the long range Public Works Administration program of the government.

It therefore appears that we have one more hurdle to jump in Washington before we can secure the full measure of Federal participation in this plan for aiding the great valleys of California that have been improved to a high degree of agricultural production by the toil and capital investment of our citizens, but are fast becoming desert again for lack of water.

The people voted for this Central Valley Water Plan in a statewide referendum election held in December, 1933, and I hold it is just as sacred a duty for the Governor to carry out the will of the people expressed in that majority referendum vote as it is to obey the mandate of any law enacted by the Legislature. It is for this same reason that I oppose the diversion of the gas tax for any other purpose than road building, as mandated by the people in another referendum vote.

The progress and prosperity of the whole State of California are vitally linked with the well-being and prosperity of every section of our State and the great central valley areas can not be permitted to revert to desert for lack of water and cheap electric power.

Therefore, as the Governor of all California, I hold it my solemn, sworn duty to protect and safeguard the interest and prosperity of the State and people of the great central valleys in this issue, just as much as it was my duty to protect the property and interest of the State and the people of San
Three Highway Tunnels Will Pierce Rock Barriers in Feather River Gorge

By F. W. HASSELWOOD, District Engineer

THROUGH the rugged canyon of the North Fork of the Feather River and its tributaries, the East Branch and Spanish Creek, the construction of the long heralded Feather River Highway is entering its last lap. On this great and important project construction work has been in progress as rapidly as the financial ability of the State would permit for six years.

Two more years at the somewhat accelerated rate of progress now being attained will see the completion of this low level, snow free highway between Oroville, famed for its production of gold, oranges and olives, and Quincy, the county seat of Plumas County, located in the heart of one of the most attractive regions of the Sierras.

The legal necessity for this highway is created by the original bond act of 1910 requiring that all county seats be served by the highway system then contemplated. The actual necessity is found in the vast area in Plumas, Lassen and Sierra counties that will be served by this direct connection to the Sacramento Valley, and in the ease with which not only residents of the Valley but all of Northern California can reach this unexcelled vacation and outing area.

INTERSTATE ROUTE

The necessity and importance of this highway was further increased in 1931 when the road from Quincy east through Portola, Beckwith and Beckwith Pass to a connection with Route 29, eight miles from the Nevada line, was made a State highway, thus transforming it into a major interstate route. Traversing as it does the river canon and crossing low passes, this interstate route offers less obstruction from snow during the winter than any other trans-Sierra highway.

The distance from Oroville to Quincy by way of the North Fork of the Feather River is 77.75 miles, of which 70.75 miles is being built as a single project, no portion of which is of appreciable value until the whole is completed.

From May to November traffic to Quincy and surrounding territory is served by the ridge road by way of Merrimae and Bueks Lake. During the remainder of the year, when this road is closed by snow, traffic may reach the interior valley by way of Reno, Truckee and Auburn, with an increased length of travel of about 85 miles.

WORK STARTED IN 1928

Grading and structures on this 70.75 miles between Oroville and the existing road at Keddie, seven miles from Quincy, will cost about $7,000,000. At the end of the current biennium approximately $6,000,000 will have been expended.

Work was started on this project April 27, 1928, by establishment of a convict camp on the East Branch near Paxton. A month later

(Continued on page 22)
TWO TOUGH SPOTS for highway building are encountered in the GRIZZLY DOME and ARCH ROCK areas of the Feather River Canyon Route. Three tunnels are necessary, two in the ARCH ROCK area as shown by dotted lines in the upper picture and one through the dome-shaped granite mass of GRIZZLY DOME rising sheer some several thousand feet from the river's edge.
Great Caravan and 10,000 Participants Mark 2 Redwood Highway Dedications

HEADED by Governor Frank F. Merriam, Director of Public Works Earl Lee Kelly, Chairman Harry Hopkins and members of the Highway Commission, and Grand Marshal Harry Ridgway, some 10,000 highway enthusiasts participated August 5th in the celebration and monster caravan, commemorating the official dedication and opening of the Waldo-Sausalito and Cloverdale-Hopland sectors of the Redwood Highway.

State highway officials declared that the caravan was one of the largest and the celebration and ceremonies among the most spectacular ever held in California.

The day’s events were sponsored and mobilized by the celebrations committee of the Redwood Empire Association, H. G. Ridgway, chairman, with the cooperation of the Mayor and Chamber of Commerce of Sausalito, the mayor and Chamber of Commerce of Cloverdale, D. G. McMillan and Judge Don Ward of Hopland, and a number of city and county chambers of commerce throughout the nine counties.

DINNER TO GOVERNOR

The week end’s events commenced with an informal dinner tendered Governor Merriam, Director Kelly and members of the Highway Commission at Sausalito by the city officials, Lions Club and Chamber of Commerce of Sausalito.

Sunday’s events commenced with a program and ceremonial in Sausalito’s historic plaza—dedicating the Waldo-Sausalito sector.

This was immediately followed by an unique “barrier-breaking” ceremony. A sailing yacht and a power boat—typical of Sausalito’s outdoor sports attractions—were placed angrewise across the new Waldo-Sausalito highway sector, with a “barrier” of redwood boughs strung between the two boats.

Signalizing the opening of this highway to traffic, Governor Merriam’s car was driven through the barrier. Simultaneously, an attractive Sausalito sailorette crashed a bottle of Napa County wine on the bow of one of the boats.

Sausalito arrangements were in charge of the mayor and Chamber of Commerce of Sausalito, including Mayor Webb H. Mahaffey, Captain W. T. Dillon, president of the Chamber of Commerce; Dick Lewis, Henry Meyer, W. Robert Miller, Andy Anderson, Manuel Monetti and others.

General Chairman Harry Ridgway presented Judge Paul Helmore as master of ceremonies for the Sausalito festivities.

The caravan, which was mobilized during the speaking program by the State Highway Patrol and Sausalito Police Chief Manuel Monetti, then started its historic pilgrimage to Cloverdale and Hopland.

En route delegations were picked up in San Rafael, Novato, Petaluma, Cotati, Santa Rosa, Windsor, Healdsburg and Asti. Petaluma arrangements were in charge of L. J. Peterson, Sam Brown and Dolph Young, secretary of the Chamber of Commerce.

REFRESHMENTS AT SANTA ROSA

At Santa Rosa, a brief stop was made to enjoy refreshments served by the Santa Rosa Chamber of Commerce, in charge of Mayor George R. Cadan and G. Lansing Hurd, secretary.

On arrival at Cloverdale, American Legion drum corps from Healdsburg, Cloverdale, Hopland and Ukiah, together with the Lytton Boys’ School band, led the procession over Cloverdale’s gaily decorated main street. Several hundred more automobiles joined the cavalcade at Cloverdale. Cloverdale arrangements were in charge of Mayor R. M. McClelland and President of the Chamber of Commerce Hilmer Peterson.

Continuing on schedule, the monster cavalcade proceeded over the newly completed Cloverdale-Hopland sector, one of the most spectacular and panoramic highway units in the State highway system.

As the motorcade passed majestic “Squaw Rock,” Pomo Indians by smoke signals informed Hopland that the caravan approached.

BARRIER OF HOP VINES

Arriving at the outskirts of Hopland, the caravan was stopped by a substantial “barrier of hops,” made of interwoven hop vines.

With some difficulty Governor Merriam cut this “barrier” with a pair of large pruning (Continued on page 6)
OPENING DAY CARAVAN passing Squaw Rock on the new Cloverdale-Hopland sector of the Redwood Highway Sunday, August 5th. Inset shows another portion of this fine modern highway along the Russian River.
Thousands Greet Governor at Hopland
(Continued from page 4)

shears, thus officially opening the new Cloverdale-Hopland unit to the public at large. The American Legion drum corps and Lynton band escorted the caravan into Hopland.

The official guests and speakers were entertained at luncheon by the Parent-Teacher Association, The Ladies’ Catholic Guild and the Farm Center of Hopland.

An elaborate speaking program followed, broadcast to the many thousands assembled under a bright blue sky by a public address car.

Included in the assemblage were Federal, State, county and city officials, automobile club representatives, newspaper publishers, chambers of commerce and other organization representatives and a host of other officials and leaders from various parts of the Pacific coast.

Immediately following the speaking program, colorful Indian ceremonials were staged, under the direction of Hopland Chairman D. G. McMillan—reminiscent of yesteryears before the coming of the white man.

NOTABLE LIST OF SPEAKERS

Speakers during the day’s events included Governor Frank F. Merriam, Earl Lee Kelly, Director of Public Works; Harry A. Hopkins, Chairman California Highway Commission; Timothy A. Reardon, Highway Commissioner from San Francisco; Dr. W. W. Barham, Highway Commissioner from Yreka; M. Goldman of Petaluma, President of the Redwood Empire Association; C. H. Sweet-

BREAKING THE FIRST BARRIER at Sausalito, Governor Merriam and Director Earl Lee Kelly at left wave the caravan on its way between two yachts manned by jaunty sailorettes.

The newly completed Waldo-Sausalito and Cloverdale-Hopland sectors eliminate two of the worst “bottle-necks” and traffic hazards in the State highway system.

INTERESTING DATA

District Engineer John II. Skeggs of District IV, which includes both projects, received high commendation for the splendid job of engineering and construction executed under his direction.

The new Waldo-Sausalito sector in Marin (Continued on page 28)
CROWDS AND CARS filled every available inch of space around the speakers' stand at Hopland, the northern terminus of the new road where the caravan ended its 15 mile journey. An elaborate program followed, during which Governor Merriam, the principal speaker, was given a great ovation.

HOP VINES ARE TOUGH as Governor Merriam discovered as he sheared the barrier. Front row, left to right: Highway Commissioners Barham and Reardon; the Governor; Miss Redwood Empire, Director Earl Lee Kelly and Chairman Harry A. Hopkins of the Highway Commission.
Western State Highway Officials Urge Imposts on Diesel and Airplane Fuel

By R. H. BALDOCK,
State Highway Engineer of Oregon and Secretary-Treasurer Western Association of State Highway Officials

The Fourteenth Annual Convention of the Western Association of State Highway officials was held at Seattle, Washington, on July 5, 6 and 7, with every one of the eleven western States represented by delegates.

The convention was opened with addresses of welcome by Mayor Charles L. Smith of Seattle and Governor Clarence D. Martin of the State of Washington, to which President T. S. O'Connell of the association responded.

In the first address of the meeting Leslie M. Scott, chairman of the Oregon State Highway Commission, speaking on "Highways of Progress," traced the development of highways since the invention of the wheel and eulogized the Roman roads, which were built straight toward their objectives and have lasted twenty-three centuries. He called attention to the fact that 100 years ago the highways had all the traffic, until 60 years ago, when they were superseded by the railroads.

During the past two decades rapid strides have been made in highway development and the highways have again become the most important means of transport of passengers and commodities. With relation to the present conditions, quoting Mr. Scott:

"RAILROAD METHODS OBSOLETE"

"Railroad executives fuss and fume. They cry that highway vehicular traffic must be curbed by law from taking railroad business. They scold and bedevil legislatures. Harried by debts and labor rules, high costs and slow facilities, obsolete and heavy equipment, they demand higher rates of transport to their own growing loss. Their old ideas of monopoly, heavy equipment, perpetual capitalization, disregard of repayment of debts, are bringing them ruin. * * * Their efforts are as vain as that of the Persian king, whose soldiers lashed the offending waves of the ocean with whips. Present methods of the railroads are obsolete. Maybe the next generation of executives will be less devoted to old idols and better prepared to meet modern exigencies."

Mr. Scott called attention to the necessity of correct and final locations free from political interferences of all kinds, and to the need for forward-looking executives in the design and construction of road systems to the end that alignment, gradient, sight distance and the superelevation and spiraling of curves would permit speeds of from 80 to 100 miles per hour. He called attention to the two divergent theories of Telford and McAdam, starting 100 years ago, and spoke in favor of Telford's idea of building heavy foundations under all types of surfacing as preferable to the idea of John Loudon McAdam of building thin surfaces over yielding subgrades.

NATIONAL POLICY ASSURED

O. S. Warden, chairman of the Montana State Highway Commission and President of the American Association of State Highway Officials, speaking on "National Legislation," said: "Until the national government began to contribute and became a partner, road building in the United States was a disconnected, desultory and hesitating enterprise."

The most forward legislation yet enacted by Congress, Mr. Warden stated, is the Hayden-Cartwright bill that provides for a three-year program, which is a distinct accomplishment in highway economic planning and an assurance that road building will continue as a national policy. Congress has also given full and ample notice to the states that they can not further divert highway revenue to other than road building purposes without suffering forfeiture of a large percentage of their government allotments. Mr. Warden pointed out that it is indeed high time for the enactment of this regulation because the State legislatures of 1933 chiseled road revenues in an alarming fashion.

Mr. Warden called attention to the fact that government grants could not continue indefinitely and it was much better for the states to return to the matching basis. The speaker called attention to the broadening of the scope of government expenditure outside of a Federal system of roads initiated in the grant of 1933 and stated that whether this policy of the government would continue is an open question, but rather inferred that it is quite probable the government will take more active interest in farm-to-market roads and provide matching money for their construction and improvement.

Mr. Warden commended the states for the rapidity with which work had been placed
Million Men Employed at Peak Operations on Federal Aid Roads

under contract and men furnished with employment in this national emergency. Nearly a million men were employed directly and indirectly at the peak of the operation. The record made by the expenditure of the emergency funds cleared the way for the three-year program just passed by the last Congress.

Assistant State Highway Engineer George T. McCoy of California spoke in memory of James Allen, former State Highway Engineer of Washington, under whose name Mr. McCoy served for many years as Assistant State Highway Engineer of Washington.

Dr. L. I. Hewes, Regional Director of the U. S. Bureau of Public Roads, spoke on "Highway Development for the Whole State" and gave some very interesting statistics, a resume of which is as follows:

Since the original Federal Aid Act of 1916 and, in fact, practically since the subsequent Federal Highway Act of 1916, the Federal aid system in the eleven western states has reached a total of 37,657 miles upon which $348,000,000 of Federal money has been expended. This in comparison to the expenditure of $3,843,600,000 expended on approximately 108,000 miles of road of a total mileage of 296,000 in the entire system. The corresponding cooperation by the western states has been about $150,000,000 or 24 per cent of a total of approximately $520,000,000. This expenditure has been made on approximately 20,230 miles of the Federal aid system, representing an expenditure of approximately $35,000 per mile.

$509,000,000 FEDERAL AID

During the past nine years the gasoline imposts alone have equaled $510,000,000; the registration fees $265,000,000, or a total road operating revenue in the eleven western states in the past nine years of $775,000,000. The government has also built directly, through the Bureau of Public Roads, 5,000 miles of forest roads costing $125,000,000 and 1,200 miles of national park roads costing $37,000,000. The expenditure on public lands highways has amounted to $9,800,000. In consequence the total Federal expenditure on roads in the West to July 1 of this year amounts to approximately $509,000,000, distributed on 20,230 miles of road.

Dr. Hewes pointed out that in a short time there will be left a very few miles of wholly unimproved road on the present Federal aid system of the western states. The time has now arrived for the states to study and classify all their highways with respect to service and revenues. There is no question but that strong sentiment exists for throwing a greater burden of mileage upon the State highway system or for turning a larger mileage over to the control and financing of the states. He stated that in his opinion (which I believe is shared by all thinking men) it is far better for new roads to be brought into the State highway system rather than to split the revenues for the addition of new roads without State control.

Dr. Hewes stated that it is increasingly clear that there is an obligation against the road revenue for the extension of State roads into the cities and called attention to the inadequate roads in metropolitan areas and to the very heavy tax burden borne by the urban motorist. However, "road revenues spread too thin over either urban or rural roads will compel highway depreciation because it is fundamental that our whole improved mileage is absolutely dependent upon organized maintenance under efficient technical control."

Based on traffic data gathered in Michigan, it would appear that of a total mileage of roads in the eleven western states, amounting to approximately 530,000, 20 per cent or 156,000 can be tentatively termed general use roads with prior claims on road revenues. Of this mileage about 68,000 are on the State systems, leaving a balance of approximately 90,000 miles of general use roads not on the State systems.

(Continued on page 31)
ON MONDAY, July 16, 1934, San Diego, in a fitting and proper way, celebrated its official 165th birthday. It was the anniversary of that day long ago when Father Junipero Serra founded the first settlement in what is now California.

Before Father Serra was born, Cabrillo, a Portuguese seaman in the employ of the Spanish kings, explored San Diego Bay with the thought of establishing a base for the galleons from the Philippines.

On beautiful Point Loma, past which Cabrillo sailed into the bay, Director of Public Works Earl Lee Kelly officially opened to the public on July 17, 1934, the newest completed State highway in San Diego County, named in honor of the first explorer—El Camino Cabrillo.

In the presence of prominent Federal, State, county and city officials and hundreds of residents from San Diego, Colonel Rahlen, commanding officer of Fort Rosecrans, assisted by General William Gatechell, who commanded the fort when the old road was built, cut the ribbon and dedicated the new road to the residents of California.

DIRECTOR KELLY SPEAKER

Mr. Kelly extended greetings from Acting Governor Merriam and complimented the people of southern California on their cooperation in obtaining this new road.

Frank Forward, chairman of the San Diego Chamber of Commerce Highway Committee, was master of ceremonies. He introduced and called upon some of the following for short addresses: President John L. Fox, of the San Diego Chamber of Commerce; Harry C. Clark, chairman of the National Highway Committee; Supervisors Tom Hurley and Edgar F. Hastings; City Manager Fred Lockwood; State Senator William Harper; Congressman George Burnham; State Assemblymen George B. Bowers, Bruce R. Stannard, and Charles W. Stream; former Senator Leroy Wright, president of San Diego Historical Society, and General F. S. Strong, State SERA Director.

Colonel John R. White, superintendent of El Cabrillo monument, Yosemite and Sequoia National Parks, was represented by Assistant Superintendent Daniel J. Tobin. Mr. Tobin told of the efforts being made to obtain an allotment of $35,000 from the Federal government for further improvement of the monument park.

The new highway just completed is 2.7 miles long and extends along the high bluffs of Point Loma to El Cabrillo Monument encircling the old Spanish lighthouse. It comprises the first improvement by the Division of Highways on this unit of the State highway system which is one of the new secondary routes added to the system by the last Legislature.

The work consisted of constructing a bituminous treated surfacing 20 feet wide on a 36-foot graded roadbed and was completed at a cost of approximately $57,550.

As the project lies within the limits of the Fort Rosecrans Military Reservation, Federal funds, apportioned to California for highway construction through National Public Lands, were used in addition to State funds for financing the project.

JOBS FOR SEVENTY MEN

The construction of this new highway unit has furnished employment to an average of seventy men since the work started. Labor was furnished by the reemployment bureau in San Diego. The contract was awarded by Mr. Kelly on January 17, 1934.

The completed section extends from the San Diego city limits to the old Spanish lighthouse. At the lighthouse a large surfaced parking area has been provided so that the public may conveniently view the unexcelled seascape from this vantage point.

9,152,382 MILES OF HIGHWAYS IN WORLD. U. S. HAS ONE-THIRD

A survey just completed by B. P. Root of the Department of Commerce shows that the United States has one-third of the total highway mileage of the world.

His survey covers 145 countries and political subdivisions and shows a total of 9,152,282 miles and 3,042,789 for the United States.

Russia is second with 1,682,109 miles of highways recorded. Japan is third with 635,399 miles of highway.
EL CAMINO CABRILLO is the historic name of the new highway just completed along the bluffs of Point Loma through the National Monument Park to the old Spanish lighthouse at the entrance to San Diego Bay.

OFFICIAL DEDICATION GROUP at the opening of Point Loma Highway. Left to right: Supervisor Ed Hastings of San Diego County; Congressman George Burnham; Director Earl Lee Kelly of the Department of Public Works; President John L. Fox, San Diego Chamber of Commerce; Frank Forward, master of ceremonies; Col. George Ruhlen, U. S. A., commanding officer of Fort Rosecrans; Assistant Superintendent D. T. Tobin, National Park Service; Mayor John Forward of San Diego and Supervisor Tom Hurley.

OLD SPANISH LIGHTHOUSE at the extreme end of Point Loma. The new highway provides wide parking areas where motoring visitors can enjoy a striking panorama of sea and coastline.
Santa Monica Coast Highway Widened to 80 Feet Eliminating Bad Bottleneck

A dangerous "bottleneck" on the Santa Monica coast boulevard was eliminated on July 23 when with picturesquely ceremonies Director Earl Lee Kelly formally dedicated and opened to public use the newly widened and paved link or State Highway No. 60, extending from Santa Monica Canyon along the Palisades Beach to the California Avenue incline, approximately a mile in length.

The traffic on this highway is the greatest of any in the State, with a count of 53,000 cars in 16 hours just westerly of Channel Road at the mouth of Santa Monica Canyon.

On the old 20-foot pavement traffic was hemmed in between the beach cottages and club houses on one side and the little used Pacific Electric right of way and tracks along the base of the Palisades. The improved highway is 80 feet wide with two pedestrian tunnels giving safe access to the beach.

The paving and widening of the artery cost approximately $280,000 in which the State, Los Angeles County and the city of Santa Monica shared. The work required three months and 400 men were employed.

The improvement consists of 40 feet of 8-inch thick asphalt concrete pavement laid adjacent to the old 20-foot pavement on the northerly side. From the edge of this asphaltic concrete pavement, 13 feet of 4-inch asphaltic concrete was laid to the gutter line. The gutters are 3 feet wide and a 4-foot sidewalk is provided on the north side.

This project has been under discussion for a great many years, but it was not until the latter part of 1932, when the Pacific Electric Railroad decided to abandon its car service on the Santa Monica Canyon line, that steps were taken to secure the necessary right of way.

At that time it seemed that railroad right of way would revert to the original property owners and be subdivided and sold in small lots. If this had been done the improvement of the highway would have had to be postponed indefinitely on account of the high valuation which would have been placed on these small parcels of land, so close to the beach.

(Continued on page 26)
FROM BOTTLENECK TO BOULEVARD—Improved link of State Highway No. 60 at Santa Monica along the coast below the Palisades, now a fine four-lane highway is pictured at top. The old 20-foot pavement with the widening operation under way is shown in center picture, and below are “before” and “after” views of the California Avenue Incline connection.
Power Essential to State Water Plan

(Continued from page 1)

Francisco by ordering the troops into that city during the recent strike.

It has been suggested that if we will drop the power development feature of the plan the PWA would probably grant funds necessary to carry out the immediate construction of the water conservation project.

But Director Earl Lee Kelly of the Department of Public Works and State Engineer Edward Hyatt, who has worked assiduously for ten years to bring this great plan to fruition, advise me that development and sale of electric power is absolutely essential to the success of the plan as a whole and that the water and power features cannot be divorced. And I have the fullest faith and confidence in the wisdom and judgment of these two able executives of the Department of Public Works.

WOULD HALVE REVENUES

Mr. Hyatt states that the elimination of the power feature would reduce the cost of the project by about 20 per cent, but would also reduce the revenues by as much as 50 per cent. A large amount of electric power will be necessary for pumping the water in San Joaquin Valley. If the cost of that power must be added to the other cost of amortization and operation of the plan in the sale of water, it would appear that the cost to the farmer purchaser would be prohibitive.

If President Roosevelt was correctly reported in his address made recently at the site of the $31,000,000 Bonnieville Dam Federal project in Oregon, I feel sure that we can get his support of our State Water Plan in its entirety. The President is reported as saying that "the principle of government needs yardsticks so that people in this country will know whether they are paying the proper price for the electricity of our time. I conceived the idea," he continued, "that the government could create yardsticks. One already has been started on the Colorado River [Boulder Dam]. Two other yardsticks have been undertaken—a Tennessee, and a Columbia project—and the fourth, the St. Lawrence, is going to be started."

The Central Valley Water Plan would be such a yardstick for California and one that is just as much needed and would be just as beneficial as those he mentions for other States in the Union.

I am sure, therefore, that we can rely upon the utmost consideration and cooperation from President Roosevelt in securing the eventual success of our plan, and I will, accordingly, use all the power and influence conferred on me as Governor to achieve for California the realization of the Great Central Valley Water Plan in its entirety with both water and power features included and carried into successful operation.

Furthermore, and of almost equal importance, is the employment that the building of this great project would give to thousands of our people. It is estimated by the engineers of the State Water Department that the construction of this project would provide directly and indirectly employment of 25,000 men for a period of approximately three years.

TWO NEW TOPOGRAPHIC MAPS OF COOPERATIVE SURVEYS AVAILABLE

New topographic maps covering the Los Viejos Hills and Kettleman City quadrangles in Kings County and the Halls Flat Quadrangle in Lassen and Shasta counties are now available.

The Los Viejos Hills Quadrangle was surveyed in 1930 by the U. S. Geological Survey in cooperation with the State of California. It is published on a scale of 1:31,680 with contour intervals of 5 and 25 feet and covers an area south and east of Murray.

The Kettleman City Quadrangle was likewise surveyed by the topographic branch of the U. S. Geological Survey in cooperation with the State of California. This is an advance sheet only and will later be published in final form in color. The scale is 1:31,680 and the contour intervals are 5 and 25 feet. It covers an area in and about Kettleman City.

The Halls Flat Quadrangle is a Federal sheet published at present in advance form only. It will later appear in final form in color. The advance sheet is on a scale of 1:96,000. The final sheet will be published on a scale of 1:125,000 with a contour interval of 50 feet. It covers an area south of Fall River Mills and east of Hat Creek.
POST-BANQUET SMILES—In this official group that assembled after the barbecue at Lakeport are, front row left to right: Simeon Chapman, President Lake County Chamber of Commerce; Supervisor Frank Noel; Secretary John Howe; Ex-Mayor Herbert V. Keeling; Highway Commissioners Timothy A. Reardon, Philip A. Stanton, Harry A. Hopkins, chairman, and Dr. W. W. Barham; Director of Public Works Earl Lee Kelly. Rear row: Assemblyman E. C. Crowley; Secretary George Cock; Supervisors E. L. Herring, W. T. Smith, and J. S. Kelzay; Editor W. J. Bolce; J. M. Paige, Ontario; E. W. Spencer, Pomona; District Engineer J. W. Vickrey; L. V. Campbell, Engineer, City and Cooperative Projects; Supervisor L. L. Burger; A. Dalton, Chairman Redwood Highway Counties Committee.

Highway Commission Meets in Lakeport

Highway Commission Meets in Lakeport

At the request of the Lake County bureau of information, chamber of commerce, board of supervisors and other civic bodies, the California Highway Commission held a meeting in the city of Lakeport on July 18th.

A parade of representatives of the nine counties of the Redwood Empire Association escorted the commissioners from Sacramento via Napa, St. Helena, Calistoga, Middletown, Lower Lake and Kelseyville.

On arrival in Lakeport the party was greeted by a reception committee composed of Chairman J. A. Younggreen, Mayor H. G. Crawford and W. W. Prather, who escorted the officials to a beautiful spot on the shore of Clear Lake, where a bountiful barbecue feast was served. Former Mayor Herbert V. Keeling acted as toastmaster and master of ceremonies at the barbecue program, which included musical selections and speeches by Harry A. Hopkins, chairman of the commission, and Commissioners Philip A. Stanton, Timothy A. Reardon and Dr. W. W. Barham. Director Earl Lee Kelly of the Department of Public Works brought a message from Governor Frank P. Merriam, and Chairman A. E. Dalton of the Redwood Empire Association Nine Counties Committee spoke on road matters.

COMMISSIONER REARDON PRAISED

Chairman Hopkins, in behalf of the commission, expressed deep appreciation for the hospitality of the people of Lake County, and explained the reasons for the postponement of the original plan to meet in Lake County on July 6th and 7th.

Director Kelly lauded the good work that Commissioner Reardon has been doing in behalf of Lake County, which lies in this district that he represents on the board. Commissioner Reardon replied that the present Highway Commission had done much to take off the shackles of the people of rural northern California in many sections where for lack of roads they were virtually shut-ins.

Ernest C. Crowley, the blind Assemblyman, who represents Lake, Napa and Solano counties, concluded his remarks by stating that he felt that the Highway Commission would cooperate in every way to help in the up-building of that district.

COMMISSION MEETING HELD

Following the barbecue, a regular meeting of the commission was held in the superior courtroom in the county courthouse and was attended by a large number of people. Chairman Hopkins, in his opening remarks, stated that while the coming of the commission to Lakeport was much in the nature of a courtesy visit, the people could consider the meeting as a regular meeting of the board.

Commissioners Reardon, Stanton and Barham spoke on the highway work of the commission, as did also Director Kelly, who expressed his appreciation of the kindly cooperation of the board and called attention to the fact that the five members are business men who work for the State without pay and give many hours of their valuable time in behalf of highway matters.

After an opportunity had been given any person to bring any road matters before the meeting, Chairman Hopkins again expressed the appreciation of the commission for the hospitality shown them and particularly thanked the ladies' committee for the beautiful floral decorations of the courtroom.

Upon adjournment of the meeting, the commissioners were most graciously entertained by Mr. and Mrs. Herbert V. Keeling at their beautiful home on the lake shore and later were guests of Dr. W. R. Prather of Adams Springs for dinner.
GOVERNOR FRANK F. MERRIAM, escorted by Chief Engineer C. H. Purcell on July 24th, led a score of leading California citizens, members of the Financial Advisory Committee of the San Francisco-Oakland Bay Bridge project, through the pioneer drift, which has pierced Yerba Buena Island, the bridge stepping stone in the middle of San Francisco Bay with a hole 12 feet square and 540 feet long.

The Governor and visitors were guests of Admiral Thomas J. Senn at a luncheon in the Admiral's quarters, prior to the inspection of the tunnel.

When the visitors arrived, because of the presence of the Chief Executive of the State of California, they were met by a Marine color guard of 30 men. The Governor's arrival was heralded with a fanfare of bugles and a salute of the regulation "nineteen guns." The same salute marked the Governor's departure.

URGES UNEMPLOYMENT RELIEF

At the east portal of the tunnel Joseph R. Knowland of the Financial Advisory Committee introduced Governor Merriam, chairman of the California Toll Bridge Authority, who said:

"I have been a member of the Toll Bridge Authority since the inception of this project, and I have loaned my efforts to the best interests of the transbay bridge, not alone because it will aid the counties of Alameda and San Francisco, but because it will give work to so many men.

"This bridge will bind together in commercial and spiritual unity the cities of both sides of the bay and, although they may retain their political entities, they will be one great city in spirit and in commerce.

"Now is the time for us to plan for employment in the winter. I want to bring this especially to the attention of those in charge of the work on the San Francisco-Oakland Bay Bridge to the end that the work may be pushed forward as much as possible at this time so that a maximum number of men may be given work this winter.

"Please consider with all seriousness the winter employment problem and plan your work now so that as large a number of men as possible may be given work at the time when our people in California will need it most.

PLEAS'D WITH PROGRESS

"I am pleased with the progress that has been made on the bridge, and I trust it will go on without interruption."

Frank C. MacDonald, State labor leader, declared that the bridge was doing inestimable good in supplying jobs for thousands of men.

Admiral Senn spoke for the Navy, and Chief Engineer Purcell pledged the Department of Public Works engineers to the task of speeding up work so that the maximum number of men may be employed during the winter season.

The small pioneer tunnel that the official party passed through is the first of two parallel pilot bores, each 12 by 12 feet, that has been drilled through. Three more of these small tunnels will be driven through the hill and then the five will be broken into one large tunnel 76 feet wide by 58 feet high, which will be the largest bore tunnel in the world.

After inspecting the work on the island, the Governor was taken to Pier W-3, a half mile east of San Francisco, where the Governor guided to position the first base plate upon which Pier W-3 will be erected.

Those accompanying the Governor on the inspection of the bridge work were Harrison S. Robinson, Joseph R. Knowland, Leland W. Cutler, E. B. De Golia, E. Clarence Holmes, Frank C. McDonald, John P. Synes, Charles O. Conrad, R. H. Glassley and James Quinn of the Financial Advisory Committee. In addition there were present W. N. Burkhardt, C. E. Baen, E. J. Schneider, Albert Huber, E. L. Turkington, Justus F. Craemer, secretary to Governor Merriam, Mrs. Justus Craemer and Mrs. Thomas J. Senn.

Hotel Guest—Table ready for a party, eh? But why have you set the plates and tableware five feet apart?

Proprietor—It's an angler's association dinner and we always like to give each guest room to tell his fish stories.
MORE JOBS FOR WORKERS must be provided this winter Governor Merriam told engineering executives of the San Francisco-Oakland Bay bridge, urging them to plan accordingly, as he was greeted by the men employed in boring the first pilot tunnel through Yerba Buena Island.

TWO PILOT TUNNELS each 12 by 12 feet have been bored through Yerba Buena Island, the first of which was completed on July 24th when Governor Merriam led a party through it. Three more small bores will be driven and all broken into one large 58 by 76 foot tunnel—Photo courtesy San Francisco Examiner.
Roads and Prosperity

Some one once said, "The prosperity of a nation is measured by its roads."

That is as true today as it was 1000 years ago, and recognition of this fact was given by President Roosevelt in his signing of the Hayden-Cartwright Act, June 18, authorizing $522,000,000 for highway construction.

As civilization progresses the extent and variety of the means of transportation grow. In America today, approximately 25,000,000 motor cars and trucks, several million horse drawn vehicles, and a smaller number of tractors and other highway using machines must find roads on which to travel.

Palliative for Employment

Deression or no depression, the need for more and better roads has never been questioned. Whenever unemployment has become a difficult problem—from time immemorial—public works have been resorted to as a means of providing work for the idle, and this work has usually taken the form of public highways. The famous Roman stone roads were built, in part, to take up the slack in employment and at a time when hard surface roads were considered an unnecessary luxury.

Long before the automobile came into being the beautiful winding paved highways of western Europe had been built.

It was no wonder then that when the worst economic dislocation in history descended upon the United States, public works were immediately utilized for the purpose of reducing unemployment and stimulate industrial activity. And highways—highways 16 feet wide to super highways 100 feet in width—were advocated as the most necessary contribution to the Nation's needs.—The United States News.

Work Put Under Way
During Past Month
Totelzd $2,729,600

WORK ORDERS issued for construction and maintenance and outstanding advertisements for bids on construction in the total sum of $2,729,600 indicate the progress made by the Division of Highways in getting work under way during the past month up to July 27th.

The following tabulation sets forth the segregation of the amounts accumulated in this total:

<table>
<thead>
<tr>
<th>CONSTRUCTION</th>
<th>Projects Advertised</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contracts Awarded and Pending Award</td>
<td>$1,773,000</td>
<td>$1,933,000</td>
</tr>
<tr>
<td>Minor Improvements</td>
<td>62,000</td>
<td>62,000</td>
</tr>
<tr>
<td>Day Labor Construction</td>
<td>96,000</td>
<td>96,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MAINTENANCE</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Maintenance</td>
<td>$438,000</td>
</tr>
<tr>
<td>Specific Maintenance</td>
<td>91,900</td>
</tr>
<tr>
<td>Betterments</td>
<td>29,600</td>
</tr>
<tr>
<td>Oiling Program</td>
<td>69,800</td>
</tr>
<tr>
<td>Miscellaneous Maintenance</td>
<td>81,000</td>
</tr>
</tbody>
</table>

| Total | $2,729,600 |

The amount of work which the Division of Highways had under way is represented by the 202 going contracts in force with the Department of Public Works as of July 27th.

Of these contracts 159 were for road construction, oiling and maintenance covering 196.4 miles and 43 for the construction of bridges and grade separations at a total estimated cost of $1,865,400.

REPORT ON SOUTH COASTAL BASIN WELLS IN 1933 ISSUED

State Engineer Edward Hyatt announces the release of Bulletin No. 39-B issued by the Division of Water Resources. This is a mimeographed report giving the records of water levels at a large number of wells in the South Coastal Basin for the calendar year 1933 and also precipitation records for the seasonal year 1932-33 in the same area.

Bulletin 39-B is the second supplement to printed Bulletin No. 30 which summarized all records of similar nature prior to the time of its issuance early in 1922. The bulletin contains 144 pages of data, and may be obtained through the Supervisor of Documents, Bureau of State Printing, Sacramento.

Angry Wife: "Now that I have an electric refrigerator, see what you can do about getting a mechanical secretary."—National Motorist.
Edward J. Neron is Appointed to the Deputy Directorship of Public Works

Edward J. Neron of San Diego, Past Department Commander, Veterans of Foreign Wars, is the new Deputy Director of Public Works, appointed by Governor Merriam upon the recommendation of Director Earl Lee Kelly.

Mr. Neron served throughout the World War as a lieutenant in the United States Navy, resigning at the end of the war to engage in the advertising business in San Francisco.

After a period of three years in business life he was called East by a death in his family and decided to reenter the U. S. Naval service. He spent six more years in that service and upon retiring went to San Diego to take a position in the office of the district attorney of that county, where he handled special investigation work.

Filled High Office

He has been active in veterans' organizations, including the Veterans of Foreign Wars and the American Legion, for the past ten years. For two years he was commander of the "Commanders' Council" of all veterans organizations in San Diego County, having some fifty-two units, representing some ten thousand veterans and their families.

He later became California and Nevada Commander of the Veterans of Foreign Wars of the U. S. A., representing some forty thousand members in the two States. He resigned from the district attorney's office of San Diego to accept his present office with the Department of Public Works.

Mr. Neron was born and raised in Minnesota, was educated in the public schools and attended St. John's University of Minnesota. Shortly after leaving college, his love for travel and a keen desire to see something of the world before entering business life prompted him to enlist in the United States Navy as an apprentice seaman and he continued in naval service for seven years.

MOTOR VEHICLE OWNERS PAID $309,110,436 U. S. EXCISE TAXES

During the fiscal year ending June 30, 1934, the Federal government collected approximately one-eighth of its entire tax revenue from the variety of excise taxes on motor transportation, according to figures made public by the National Highway Users Conference, of which Alfred P. Sloan, Jr., president of General Motors, is chairman.

The Conference tabulations are based on returns to the Treasury Department for the complete fiscal year and show that the motor vehicle owners of the country paid $309,110,436 through the excise taxes on gasoline, lubricating oil, passenger cars, trucks, tires and tubes, parts and accessories, and pipe line transportation of oil.

WORK BEGUN ON ALL-AMERICAN CANAL

The first shovelfuls of dirt were turned on the all-American Canal the week of July 23d as a Los Angeles company began preliminary work on its rock excavation contract at Pilot Knob. SERA headquarters in El Centro sent out several engine operators to the job, the first men in a great construction army which will find employment on the canal during the next two and a half years.
The simplification of highway directional service by the use of route numbers has been demonstrated throughout the country by the U. S. numbered highways. Plans have now been developed to coordinate the main State routes in California in a similar way. To this end, routes have been decided upon, numbers have been assigned, the design of the State route sign adopted, and sign surveys are under way to determine the number and location of the signs required. Routes will be signed as fast as available funds will permit.

Considerable study has been given to the selection of routes and to the system of numbering. In a section of the country where roads run mainly east and west and north and south, the matter is simple. In California, however, with the Coast Range, the Tehachapis and the Sierra Nevada Mountains, the topography and, consequently, the main road locations vary. There is sometimes doubt as to whether a certain road should be classed as north and south or the reverse. Under the system adopted, the routes classed as east and west are given even numbers and the north and south routes the odd numbers. State numbers are not given the U. S. numbered routes as there could be no object in such duplication. Some numbers have been omitted to provide for contingencies due to future developments of the highway system.

NUMBER SYSTEM EXPLAINED

In the selection of numbers, preference in assigning the smaller numbers has been given to the more heavily traveled roads in the vicinity of Los Angeles and San Francisco. In the combination of sections of roads under a single route number, consideration has been given to established traffic habits, so far as known, to provide the most direct route between important termini. Numbers have not been given to short sections of roads which are more or less local in character, even though such sections are important traffic arteries.

The whole purpose of road signing is to provide information for the stranger or occasional visitor. Naturally, the local traffic is acquainted with and takes full advantage of the routes it prefers.

The design of the sign as adopted has been given a good deal of thought. A large number of designs were worked out and abandoned. It is essential that a sign for this purpose be of distinctive shape, simple, and easily read. The design finally adopted was worked up by the Division of Architecture.

The signs will be black figures on white background. The material will be porcelain enamel on 18-gauge steel.

It is anticipated that three signs per mile will be required on an average and that approximately 2000 will be placed this year.

There follows a list of the numbered routes as shown on map printed on adjoining page:

2. Santa Monica via Santa Monica Blvd. to Jct. Route 18 at Lake Arrowhead, via Arroyo Seco and Cajon.

(Continued on page 22)
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS

MAP SHOWING
STATE SIGN ROUTES
1934

LEGEND

U.S. NUMBERED ROUTES
STATE SIGN ROUTES
COUNTY ROADS
PROPOSED STATE ROUTES
BEGINNING AND END OF ROUTES
a second camp was established near Bidwell about six miles above Oroville. These two organizations have operated continuously, each occupying three different camp sites. Each have operated two one and one-quarter cubic yard power shovels with the necessary supplemental equipment in the way of compressors, trucks, tractors and graders, except that for the last year three shovels have been operated in the lower camp.

Each of these camps is a well-organized unit supplied with a well-balanced equipment layout for handling hard rock excavation. Efficiency studies pointed the way for a better-balanced equipment layout which is completed and functioning.

**BIG ROCK YARDAGE**

During the past five months, notwithstanding the fact that excavation was mostly rock, the average production of the two camps was 105,000 cubic yards of excavation. During a period of seventy-three months these two camps have moved a total of about 3,900,000 cubic yards.

During the six-year period eleven contracts have been completed, six of which were for bridges and five for grading.

The four major bridges are the Feather River Bridge, about four miles from Oroville, the West Branch bridge, ten miles farther on, the North Fork Bridge at Pulga and the Spanish Creek Bridge near Keddie. The first two are concrete arch structures. The bridge at Pulga is a deck steel arch and is unique in that it crosses the river directly over the Western Pacific Railroad bridge. The Spanish Creek Bridge is a high structure of the steel viaduct type.

The gross expenditures during this period were $3,250,000 for work done by the convict camps and $1,700,000 for contract work. Approximately $1,000,000 additional will be spent during the current fiscal year, and another million will be required during the next biennium to complete the grading.

**COMPLICATED CONSTRUCTION PROBLEM**

The problems of location and construction common to all roads are intensified here by the fact that natural difficulties presented by the topography are further complicated by the existence of a transcontinental railroad, a power plant and three high tension transmission lines.

From the beginning an intensive study has been made of the location through the canyon in order that the required high standards of grade and alignment might be secured with maximum economy, and with minimum disturbance to the existing development.

A third complication is imposed by the regulations of the Federal Power Commission, functioning under the Federal Power Reserve Act regarding future possible although highly improbable development of power by private interests.

**TUNNEL THROUGH GRIZZLY DOME**

Some of the most difficult work is encountered in the six miles extending westerly from Rock Creek. Two and one-half miles of this distance crosses the bare rock areas designated as Grizzly Dome and Arch Rock. Grizzly Dome is a bare, dome-shaped mass of granite rising precipitously from the water's edge to terminate with gradually flattening slopes in the ridge several thousand feet above. It is separated from the Arch Rock area by Grizzly Creek.

At Grizzly Dome it is necessary to construct at an elevation approximately level with the Western Pacific Railroad to comply with the regulations of the Federal Power Commission regarding future power development in the river.

About four hundred fifty feet of the roadway through the steepest part of the dome will be in tunnel. The remainder will be supported on a ledge cut into the solid face of the rock with some retaining wall construction at critical locations where height of cut or cost of construction would otherwise be excessive.

The Arch Rock area is about 1.75 miles in length and gets its name from an arch-like formation in one of the partly broken surface layers of rock. In general, the road across this area will be built close to high water, supported partly on a niche cut into the solid face and partly on a fill of blocky granite extending into the river channel. Aside from a slight effect on the hydraulic grade of the river, this channel encroachment is not

(Continued on page 31)
The irrigation districts are making good progress in their plans for refinancing outstanding bond obligations under agreement with the Federal Reconstruction Finance Corporation. One district has already received $1,334,768 from the Federal Government and the District Securities Commission has authorized the voting of bonds, by six other districts, to be issued by the R. F. C. in the total sum of $931,210.

The flow of the Sacramento River at Sacramento had dropped to 1200 second feet on July 15th and a conservation program has been inaugurated to supervise waste prevention measures throughout the Sacramento Valley. Other activities of the Division of Water Resources relative to flood control, applications for reconstruction of dams and salinity measurements, etc., are given in the monthly report of State Engineer Edward Hyatt as follows:

**IRRIGATION DISTRICTS**

Inspection was made of the work proposed under the $311,000 loan and grant to the Turlock Irrigation District by the Federal Emergency Public Works Administration. South Fork Irrigation District, Modoc County, at an election held on June 25th voted $165,000 in bonds, which are to be used in support of a Federal loan that has been granted the district for the construction of a storage dam on West Valley Creek, a branch of the South Fork of Pit River.

The La Mesa, Lemon Grove and Spring Valley Irrigation District, San Diego County, has received $1,334,768, the total amount of the refinancing loan granted by the Federal Reconstruction Finance Corporation, and has called in its original bonds from all holders who have deposited under the refunding plans of the district. This is the first California irrigation district to begin liquidating its outstanding bond obligations under a refinancing agreement with the Federal Government. The La Mesa District has also received aid from the Federal Government in the loan and grant of $500,000 for the reconstruction of its main conduit.

**FLOOD CONTROL AND RECLAMATION**

Maintenance of Sacramento Flood Control Project.

On July 25th, from 60 to 100 men from the Federal Transient camps located in District 1500 and District 1660 started the clearing and grubbing of timber growth in the Tisdale and Sutter bypass.

Sacramento Flood Control Project—Bank Protection.

Work on the State Federal cooperative program for permanent bank protection has been continued by the U. S. Engineer Office in Sacramento. Recently a Federal allocation of $100,000 was made available for this work for the fiscal year 1934-35, to which has been added $50,000 from State funds, making a total of $150,000 available for the year. The program for the expenditure of this money is now in preparation in cooperation with this office.

(Continued on page 27)
How Highway Development Aids in Increasing Attendance at State Fair

Wide, smooth highways will be as great an inducement as any of the many entertainment features in attracting exhibitors and visitors to the eightieth annual California State Fair which opens in Sacramento for ten days beginning Saturday, September 1.

On no other single occasion in the year are the people in every county of the State made so conscious of the benefits of a unified highway system which permits easy travel from every section of California right to the gates of the fair grounds.

Under the administration and control of the Division of Highways of the Department of Public Works and the California Highway Commission, the network of highways which focus in Sacramento has been brought to standards compatible with the development of modern motor vehicles.

While the motor car industry has evolved this means of transportation to its present high state of development, engineering practice in highway construction has expanded standards of alignment, grade and width of highway to provide adequate means for the ever increasing volume of traffic.

EXHIBITS ARE INCREASED

These present day standards of road construction, providing wide, well-built pavements, super-elevated curves of long radius and grades held to a low minimum, enable modern cars and trucks to safely travel the great distances from the far corners of the State to Sacramento in a relatively short time.

The advantages—and economies—of holding to these road building standards, will be revealed in a hundred different ways both before and during the California State Fair.

Easy transportation of exhibits is bringing a record increase in entries, especially from small individual ranchers and live stock men who can load their prize peaches or carefully groomed Hampshire hogs into a truck and transport them safely and quickly from their door to the exhibit pavilion at the fair grounds.

For every mile that improved highways have penetrated into some of the remoter rural sections of the State there has been a widening of competition in the hundreds of agricultural and live stock classes which make up the backbone of the fair.

LOW COST TRANSPORTATION

The increase in county displays this year from 26 to 46 has been largely induced by the low costs with which a distant county, using its own truck equipment and building crews, can install its exhibits.

Humboldt and Ventura counties, for instance, were the first two counties to be on the ground to install their displays. With little loss of time in traveling, each brought its men and materials right into the great horticultural building on its own trucks.

Constant freshening of displays with newly-picked fruits and flowers is planned by most of the counties through speedy motor deliveries.

EFFECT ON ATTENDANCE

The most marked effect of highway improvement, however, is in the increase in visitor attendance.

An impressive correlation is shown in the following figures on increase in highway construction for the ten year period 1924–1934 and the increase in fair attendance for the ten year period 1923–1933.

<table>
<thead>
<tr>
<th>Type</th>
<th>1924</th>
<th>1934</th>
<th>Per cent increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earth</td>
<td>1,523</td>
<td>4,056</td>
<td>163.9%</td>
</tr>
<tr>
<td>Untreated rock surface</td>
<td>734</td>
<td>390</td>
<td>119.7%</td>
</tr>
<tr>
<td>Bituminous treated rock surface</td>
<td>346</td>
<td>4,350</td>
<td>1,161.8%</td>
</tr>
<tr>
<td>Pavement</td>
<td>2,019</td>
<td>4,777</td>
<td>137.6%</td>
</tr>
<tr>
<td>Unimproved</td>
<td>1,778</td>
<td>501</td>
<td>187.6%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6,400</strong></td>
<td><strong>14,074</strong></td>
<td><strong>122.5%</strong></td>
</tr>
</tbody>
</table>

Over a comparable decade, State Fair attendance has grown almost as rapidly as the increase in improved highway mileage, and, according to Secretary-Manager Charles W. Paine of the State Fair, largely as a result of this highway improvement.

(Continued on page 27)
AROUND THE GROUNDS AT THE STATE FAIR—(1) Part of the parking area for 15,000 automobiles. (2) Cattle Pavilion, housing a fortune in blooded stock. (3) Horse Show arena. (4) Show horse barns. (5) Main grandstand, with food and home appliance exposition on ground floor. (6) Mile track, scene of fast running and harness races. (7) Infield, where nightly radio revue and fireworks will be presented. (8) Horticultural Building, housing colorful displays of California counties.
Sausalito Unit and
Cloverdale-Hopland
Highway Dedicated
(Continued from page 6)

County eliminates the former narrow and
twisting stretch from Waldo Point into Sausa-
rito with a four-lane, hard-surfaced standard
highway. Interesting figures concerning it
are as follows:

Length, 1.65 miles. Average traffic, 500 vehicles
daily; considerably more on weekends. Total cost
of reconstruction, $249,085, exclusive of rights of
way cost, which exceeded $100,000 additional. Old
road had 22 sharp curves, equaling 2 1/2 complete
circle turns. The new highway, with only six long
curves would save 460,000 vehicle miles or 46,000
hours of vehicle time per year, a saving of many
dollars annually to motorists.

CLOVERDALE-HOPLAND DATA

The Cloverdale-Hopland sector in Sonoma
and Mendocino counties is a major relocation
on the east shore of the Russian River, elimi-
nating 227 curves and steep grades of the old
road. The new sector is a wide, smooth, safe
highway 13.9 miles in length. Interesting
details of its construction, financed through
State and Federal appropriations, are as
follows:

Length, 13.9 miles. Total cost, $1,201,900, in
addition to rights of way cost.
The new road is over three miles shorter than
the old (18 per cent). It follows the grade of the
Russian River, thereby obviating seven summits
with a rise and fall of 3500 feet on the old road.
Nearly 33 complete circles eliminated.

INCLUDES PARKING AREAS

The new road is wide, high-standard highway,
with long tangents connecting up curves of large
radius, laid close to the river, and with right of
way widened to include many natural beauty spots
adjacent to the road and parking areas.

Work on this relocation has been underway
since February, 1932. The first contract called
for the moving of over 1,400,000 yards of dirt, to-
gether with small structures, the total cost exceed-
ing $672,000. Completed and accepted September,
1933.

Five major bridge structure contracts were
then let as follows: (1) Bridge spanning the Rus-
sian River at Preston; length 337 feet. (2) Over-
head railroad crossing at Preston, consisting of
one 63-foot steel girder span over tracks and 14
timber trestle approach spans. (3) Bridge span-
ing Russian River two miles south of Hopland;
length 1135 feet. (4) Overhead railroad crossing
near Hopland; length 341 feet, consisting of one
32-foot steel girder span on concrete piers and
15 timber approach spans. (5) Bridge across Felix
Creek at Hopland; length 344 feet. Surfacing,
bituminous treated surfacing on gravel subbase.

Santa Monica Link
Widened as Outlet
for Through Traffic
(Continued from page 12)

A friendly condemnation suit was therefore
instituted by the State against the Pacific
Electric and Southern Pacific railroads to
obtain the necessary right of way for widen-
ing this important traffic artery.

Surveys were started in 1933 and plans
were completed early in 1934. Bids were
opened in March, 1934, and the contract for
construction was awarded April 4, 1934.

UNDERPASSES REQUESTED

At this stage of the project request was
made by the Los Angeles Chamber of Com-
merce that pedestrian subways be constructed
across the highway at Santa Monica Canyon,
and also at the lifeguard station at Center
Street so that pedestrians could safely cross
this heavily traveled highway access to the
beach.

Negotiations were entered into with the con-
tractor to include the construction of these
two pedestrian subways.

Under this arrangement the contractor com-
pleted the paving of this section before July
4th so that the anticipated heavy crowds of
that date could be adequately taken care of
by the widened highway. These pedestrian
underpasses are 7 by 7 feet with adequate
stairs and will form a very convenient
outlet to the beach for people on the opposite
side of the highway.

The general purpose of the present im-
provement is to connect the already widened
pavement, which extends as far east as Chan-
nel Road, with Lincoln Boulevard in the city
of Santa Monica, making a satisfactory outlet
for through traffic along this boulevard,
as well as for local traffic coming to and from
the beach.

The dedication ceremonies began with a
luncheon at which Director Kelly and Mayor
William H. Carter of Santa Monica were the
chief speakers and Geoffrey H. Morgan was
toastmaster.

Following the luncheon, an automobile
parade moved to a barrier at the foot of Cali-
ifornia Avenue, where, after three Santa
Monica bathing girls had welcomed three
equestrian girls from Ventura County,
Director Kelly unlocked a huge padlock to
which was attached a garland barrier and
declared the highway open to the public.
Water Users Organize to Stop Waste

(Continued from page 23)

Sacramento Flood Control Project.

In connection with the preparation of right-of-way for the construction of the levee on the right bank of the Sacramento River above Colusa, this division has been requested by the Reclamation Board to raise the Packer warehouse, at an estimated cost of $3,000.

Mokelumne River.

It is expected that work will commence within the next ten days on an S.E.R.A. project for clearing the Mokelumne River By-pass between Reclamation District No. 1002 and the McCormack-Williamson tract, involving 4500 man-hours of labor with a crew of 20 men.

WATER RIGHTS.

Supervision of Appropriation of Water.

Forty applications to appropriate water were received during the month of June, 13 were denied and 14 approved. During the same period 3 permits were revoked and rights were confirmed under 25 permits by the issuance of license.

Adjudications.

Eagle Creek (Modoc County)—A stipulation for judgment has been signed by about four-fifths of the water users and is now being circulated among the remaining parties.

SACRAMENTO-SAN JOAQUIN WATER SUPERVISOR

The flow of the Sacramento River at Sacramento has dropped from 3000 second-feet on June 15th to about 1200 second-feet on July 15th. The corresponding flow on July 15, 1924, was about 870 second-feet and on July 15, 1931, practically zero. The flow of the San Joaquin River near Vernalis was about 400 second-feet on July 15th. On the corresponding date in 1924 it was also 400 second-feet and in 1931 it was 200 second-feet.

These data show that as far as summer stream flow is concerned the present season is somewhat better than in 1924 or 1931, the previous extremely dry years. However, water supply conditions have been such as to require that every effort be made to conserve water and the Permanent Committee of the Sacramento-San Joaquin River Problems Conference has initiated a conservation campaign throughout the Sacramento Valley. All of the larger projects diverting water from the Sacramento River have appointed conservation officers to supervise the waste prevention measures in their respective districts and to cooperate with the Water Supervisor on all water saving measures. In conjunction with this work the Water Supervisor's office is conducting the regular measurement of all divisions, stream flow, return flow, salinity, etc., as in past years.

The table given below indicates that salinity has advanced well up into the Delta, but the comparison shown for corresponding salinity in 1924 and 1931 reflects about the same relation between the present season and these previous years as above indicated for stream flow conditions.

Comparison of Salinity at Bay and Delta Stations on July 14, 1924, 1931 and 1934

<table>
<thead>
<tr>
<th>Station</th>
<th>1924</th>
<th>1931</th>
<th>1934</th>
</tr>
</thead>
<tbody>
<tr>
<td>Point Davis</td>
<td>124</td>
<td>120</td>
<td>120</td>
</tr>
<tr>
<td>Bullshead</td>
<td>1500</td>
<td>1389</td>
<td>1249</td>
</tr>
<tr>
<td>Collinsville</td>
<td>490</td>
<td>315</td>
<td>230</td>
</tr>
<tr>
<td>Emmaus</td>
<td>226</td>
<td>175</td>
<td>142</td>
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<tr>
<td>Three Mile Slough Bridge</td>
<td>430</td>
<td>290</td>
<td>186</td>
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<tr>
<td>Rio Vista Bridge</td>
<td>362</td>
<td>295</td>
<td>179</td>
</tr>
<tr>
<td>Isleton Bridge</td>
<td>114</td>
<td>146</td>
<td>211</td>
</tr>
<tr>
<td>Howard Ferry</td>
<td>350</td>
<td>178</td>
<td>138</td>
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<td>Adock</td>
<td>434</td>
<td>710</td>
<td>446</td>
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<tr>
<td>Webb Pump</td>
<td>465</td>
<td>245</td>
<td>75</td>
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<tr>
<td>Central Landing</td>
<td>68</td>
<td>60</td>
<td>25</td>
</tr>
<tr>
<td>Mokelumne Pump</td>
<td>42</td>
<td>27</td>
<td>17</td>
</tr>
<tr>
<td>Middle River Post Office</td>
<td>22</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>Williams Bridge</td>
<td>15</td>
<td>15</td>
<td>12</td>
</tr>
</tbody>
</table>

STATE FAIR ATTENDANCE INCREASED BY GOOD HIGHWAYS

(Continued from page 24)

This year improved highways are counted upon to put the fair attendance well over the 400,000 mark. Such special events as American Legion Day on September 2, the Wine Festival on September 5, the Farmers Day on September 7 and the three day Native Sons and Native Daughters Admission Day celebration on September 8, 9, and 10 will draw thousands of visitors who will want to make a quick one-day round trip by automobile.

Convenient highway transportation will also be used as a sales argument for the purchase of reduced-price State Fair scrip books by an army of 18,000 Future Farmers and 4-H Club members throughout the State. For the first time in its history the State Fair will have, through these junior agricultural organizations, advance representatives in every county in the State.

Not until the barriers of narrow, rutted roads, sharp curves, and steep grades had been removed has such a plan been possible.

The state-wide web of highways whose units tap even the most outlying sections, will thus draw a traffic flow to the wide arterial and laterals which traverse the State from Oregon to Mexico that will come to rest in but a few hours time in Sacramento.
M ORE than 2500 interested citizens of a
dozzen California counties gathered
at Rumsey, in western Yolo County,
on Saturday, August 4, to enjoy a barbecue
and witness the formal acceptance by Gov-
ernor Frank F. Merriam of the Rumsey-Clear
Lake State Highway. This new road, while
only 15.3 miles in length, opens up the western
end of Yolo County for the first time and
affords an outlet to Lake County and the
north coast region, connecting with the Tahoe-
Clear Lake-Ukiah State Highway at the Bear
Creek bridge, 18 miles west of Williams. It
shortens the distance between the lower Sac-
ramento Valley and the beautiful Clear Lake
area by approximately ten miles and its con-
struction cost the State nearly half a million
dollars.

Some twenty years ago citizens of Lake,
Colusa and Yolo counties dreamed of a
shorter connection between the great recrea-
tional area around Clear Lake and the San
Joaquin and Lower Sacramento valleys. By
enactment on May 18, 1915, the California
State Legislature added to the State highway
system Route 50, to be known as the “Rumsey-
Lower Lake Road.”

CONSTRUCTION BEGAN IN 1920

However, no funds were provided for the
construction of the road and in the develop-
ment of the State road system it was some
years before the building of this short cut
along the precipitous walls of Cache Creek
and the more rolling hills of the Bear Creek
Valley. In July, 1930, the Division of
Highways established a camp along the route
and construction of the graded road commenced.

This work was continued until August, 1933,
and 8.7 miles of the new route were con-
structed along Bear Creek from a point 1.4
miles south of the Yolo-Colusa County line to
a connection with the Ukiah-Tahoe Highway.

On November 6, 1933, the Director of Pub-
lic Works awarded a contract for construction of
a graded roadbed through Cache Creek
Canyon between 2.2 miles north of Rumsey
and the southerly end of completed construc-
tion. At the same time State forces con-
structed a temporary steel and timber bridge
over Cache Creek and a graveled surface to

Rumsey. The temporary timber bridge will
be used only until funds are available for the
construction of a suitable permanent struc-
ture.

PROVIDES SCENIC ROUTE

The new highway is a wide artery with
no grades to negotiate and offers a beauti-
fully scenic route from Woodland west to the
junction of the Tahoe-Clear Lake-Ukiah High-
way. For the greater length of the road
Cache Creek tumbles over a rocky bed along-
side the highway. Three bridges cross the
stream, as it wends its way through the color-
ful canyon.

The celebration which marked the comple-
tion of the road was staged jointly by the
civic and service organizations of Yolo and
Lake counties, Jack Rickabaugh, represent-
ing the Western Yolo Chamber of Commerce,
was general chairman, and Robert G. Alder-
man, manager of the Woodland Chamber of
Commerce, served as general secretary. H.
W. McIntire, secretary of the Lake County
Information Bureau, was in charge of the
Lake County end of the program, which con-
tinued on Sunday, August 5.

LARGE OFFICIAL DELEGATION

Among those who attended the event were
J. G. Standley, principal assistant engineer
of the Department of Public Works; Timothy
A. Reardon, State Highway Commissioner;
Justus Craemer, secretary to Governor Mer-
riam; Supervisors Frank W. Noel and E. L.
Herrick of Lake County; Supervisors W. O.
Russell, W. J. Naismith and Frank B. Edson
of Yolo County; Supervisor C. J. Westcott
of Colusa County; Congressman Frank H.
Buck, State Senators Frank L. Gordon and
J. M. Inman, Assembymen J. H. O’Donnell
and E. C. Crowley, C. C. Cottrell of the Cali-
ifornia State Automobile Association, and
many hundreds of others, all of whom par-
ticularly enjoyed the delicious barbecued beef
and “the trimmings.” The Preston School
of Industry sent its band of 36 pieces to the
celebration.

Following the formal dedication of the high-
way a large caravan of cars traversed the new
road and continued on into Lake County for
the week end.
A REAL JUBILEE EVENT for the citizens of Yolo, Colusa and Lake counties occurred on August 4th when Governor Merriam officially opened and dedicated the new Rumsey-Clear Lake Highway affording a short cut through the mountains to the great recreational area of the Clear Lake region and the North Coast country. A portion of the scenic highway near Rumsey is shown above with Governor Merriam being assisted in the ribbon cutting by an octette of lovely girls of Yolo and Lake counties. At the left are three Clear Lake yachting girls led by "Queen" Vera Behrens of Kelseyville. At the right is "Queen" Wanda McGrew of Woodland representing Yolo County accompanied by Miss Davis, Miss Knights Landing and Miss Western Yolo County. After the ceremony a caravan of autos traversed the 15 miles of new road into Lake County.
Highway Bids and Awards

FOR JULY


KINGS COUNTY—Two timber bridges 23 and 25 miles south of Fresno. No. 1, 11-1/2" spans on pile bents. No. 2, 5-1/2" spans on frame bents. District VI, Route 125, Section E, John T. Bliss, Glendale, $15,666; J. W. Terrell and M. A. Jenkins, Sacramento, $15,578; Stroud Bros. & Seabrook, Bakersfield, $15,887; Bundesen & Lauritzen, and Delta Dredging Co., Pittsburg, $14,159; Ralph A. Bedell, Los Angeles, $14,685. Contract awarded to Robert D. Paterson, Santa Barbara, $15,745.

MONO COUNTY—Between 2.9 miles east of Diego, Eaton & Smith Co., San Francisco, $177,734; treated with fuel oil. with Harz with Sharp Kemper Construction Co., Emeryville, $5,500; Construction Co., San Francisco, $5,718; Dimmitt & Smith, Emeryville, $5,627; Bongiovanni Bridge Co., San Francisco, $12,440; George Hess, Los Angeles, $8,180.


SANTOYO COUNTY—Between 2.9 miles east of Madera and junction of route 125 and the county road to Bute, 14.6 miles oiling. District VI, Routes 125, 126. Sections B and C. W. Wood, Stockton, $9,150; Tiffany Construction Co., San Jose, $9,586; John Jurkovich, Fresno, $10,209; Stewart & Nuss, Inc., Los Angeles, $16,620; E. E. Belton, Berkeley, $15,000. Contract awarded to Granite Construction, Watsonville, $8,580.


CALIFORNIA HIGHWAYS AND PUBLIC WORKS
Odometers Suggested for all Trucks

(Continued from page 9)

The speaker called attention to the fact that some of the states have completed the seven per cent systems and others have extended them. In the extension, care should be used in the selection of the most important general use roads and consideration given to the expenditure of a certain proportion of the funds on the extension of the system into the urban sections.

OPPOSED TO DIVERSION

At the second day’s session, Stanley Abel, western vice president of the American Road Builders Association, spoke of the activities of that organization in consolidating the component parts of the entire highway industry into a working unit to support the highway programs. This association furnishes a clearing house on a national scale.

It was particularly active and very effective in presenting to the membership of Congress the ability of the State highway departments to meet the national emergency quickly and effectively in giving jobs to men on worth-while work in the unemployment emergency. The association has also conducted a concerted drive to prevent further diversion of motor license fees and gasoline taxes from highways—the one thing that will surely wreck the whole highway program if the money of motorists continues to be diverted to other than highway projects, highway maintenance and highway debt service.

James B. True, State Highway Engineer of Wyoming, stated that there has been $60,000,000 expended in the State of Wyoming during the past twenty years, of which $40,000,000 has been expended by the State and $20,000,000 by the counties. All of us who have journeyed over the excellent highways in Wyoming can certify to the wisdom of the expenditure of the $40,000,000 of State funds. Although a large state in the mountainous section, with many miles of roads, excellent progress has been made.

E. M. Whitworth, Superintendent of the Motor Vehicle Division of the Arizona State Highway Department, read a very interesting paper on the “Taxation of Motor Vehicle Fuel and Motor Carriers in the State of Arizona.” He called attention to the growing use of Diesel engines using a low grade fuel oil in motor vehicles, which presents a very important problem in taxation. Inasmuch as most of the State revenues are predicated upon gasoline tax, a change to a low grade fuel would jeopardize the present method of taxation.

Mr. Whitworth recommended that, pending a solution of the problem, vehicles using Diesel fuels be taxed on a flat tax commensurate with the tax paid by the gasoline-driven vehicles. It is a subject that has been given very little consideration, but one, in my opinion, that should receive the careful study of all highway officials and State legislators.

TRUCK ODOMETERS SUGGESTED

Mr. Whitworth also spoke of the methods of obtaining motor transportation fees either through toll-mile taxes or gross revenue taxes, both of which have many unsatisfactory phases and necessitate considerable expense in collection. It was Mr. Whitworth’s opinion that the toll-mile tax was the most equitable method and he suggested that locked odometers be installed on all trucks and that these be read at regular intervals by those charged with the enforcement of the Motor Transportation Act.

The members of the convention enjoyed the hospitality of the Seattle Chamber of Commerce at a luncheon, at which time an extemporaneous speech was made by Mr. Warden and a prepared paper read by President T. S. O’Connell on “What Federal Aid for Highway Construction Means to the West.” He spoke of the giant tourist industry which started in the West some years ago as a little, one-horse concern in Los Angeles, the chief commodities of which were climate and real estate. Inasmuch as these were not shipped to the consumer, the consumer must of necessity go to the source of supply in order to reap the benefit. The tourist crop of the West is a very profitable one and all of the western states have a great deal to sell to the tourist in the way of diversified scenery and climate.

At the business session the following officers were elected for the ensuing year: Preston G. Peterson, president; S. C. Durkee, vice president; R. H. Baldock, secretary and treasurer.

ROAD WILL TRAVERSE STEEP CANYON WALL

(Continued from page 22)

expected to have any effect since the rocks composing the fill will be too massive to be dislodged by the current.

TWO MORE TUNNELS REQUIRED

Two short tunnels will be required in this area through projecting points where open cutting would require removal of large masses, the disposal of which would fill the river channel.

The road is now completed from Oroville to Jarboe Pass, twenty-one miles, and from Keddie to Eelden, another twenty-one miles. Of the intervening twenty-nine miles, six miles near Pulga have been graded, and a contract is soon to be awarded for grading 2.5 miles between Rock Creek and Storrie, and other contracts for three bridges across the North Fork between Tobin and Rock Creek. The remainder of the road is being constructed.

Friend: “What did you do when you found out your husband was leading a double life?”

Wife: “Oh, I doubted.”
8. Stockton to California-Nevada State Line near Woodlands, via Jackson.
13. Santa Cruz to Jct. U. S. 101 at San Rafael, via San Jose, Mt. Eden and Oakland.
17. Jct. Rte. 19 near Artesia to Victorville, via San Bernardino and Big Bear Lake.
27. Vallejo to Upper Lake, via Calistoga and Lakeport.
34. Cambria to Yosemite Park, via Paso Robles and Fresno.
36. Redding to Lassen National Park, via Viola.
STATE OF CALIFORNIA

Department of Public Works

Headquarters: Public Works Building, Eleventh and P Sts., Sacramento

FRANK F. MERRIAM..............................................Governor
EARL LEE KELLY..................................................Director
EDWARD J. NERON...............................................Deputy Director

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PHILLIP A. STANTON, Anaheim
FRANK A. TETLEY, Riverside
DR. W. W. BAHAM, Yreka
C. H. PURCELL, State Highway Engineer, Sacramento
JOHN W. HOWE, Secretary

HEADQUARTERS STAFF, SACRAMENTO
G. T. McCAY, Assistant State Highway Engineer
J. G. STANLEY, Principal Assistant Engineer
R. H. WILSON, Office Engineer
T. E. STANTON, Materials and Research Engineer
FRED J. GRUMM, Engineer of Surveys and Plans
C. S. POPE, Construction Engineer
T. H. DENNIS, Maintenance Engineer
F. W. PANTHER (Acting), Bridge Engineer
L. V. CAMPBELL, Engineer of City and Cooperative Projects
R. H. STALNAKER, Equipment Engineer
E. R. HIGGINS, Comptroller

DISTRICT ENGINEERS

J. W. VICKERY, District I, Eureka
F. W. HASELWOOD, District II, Redding
CHARLES H. WHITMORE, District III, Marysville
J. H. SKEEGS, District IV, San Francisco
L. H. GIBSON, District V, San Luis Obispo
R. M. GILLIS, District VI, Fresno
S. V. CORTELYOU, District VII, Los Angeles
E. Q. SULLIVAN, District VIII, San Bernardino
S. W. LOWDEN (Acting), District IX, Bishop
R. E. PIERCE, District X, Stockton
E. E. WALLACE, District XI, San Diego

General Headquarters, Public Works Building, Eleventh and P Streets, Sacramento, California

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J. J. HALLEY, Jr., Administrative Assistant
HAROLD CONKLING, Deputy in Charge Water Rights

A. D. EDMONSTON, Deputy in Charge Water Resources Investigation
R. L. JONES, Deputy in Charge Flood Control and Reclamation
GEORGE W. HAWLEY, Deputy in Charge Dams
SPENCER BURGROOFS, Attorney
EVERETT N. BRYAN, Hydraulic Engineer, Water Rights
A. N. BURCH, Irrigation Investigations
H. M. STAFFORD, Sacramento-San Joaquin Water Supervisor
GORDAN ZANDER, Adjudication, Water Distribution

DIVISION OF ARCHITECTURE

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P. T. POAGE, Assistant Chief
W. K. DANIELS, Administrative Assistant

HEADQUARTERS

H. W. DELHAVEN, Supervising Architectural Draftsman
C. H. KROMER, Principal Structural Engineer
CARLSTON PIERSO, Supervising Specification Writer
J. W. DUTTON, Principal Engineer, General Construction
W. H. ROCKINGHAM, Principal Mechanical and Electrical Engineer

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HUGH K. MCKEYTT, Attorney, San Francisco
FRANK B. DURKEE, General Right of Way Agent
C. R. MONTGOMERY, General Right of Way Agent

DIVISION OF PORTS

Port of Eureka—William Clark, Sr., Surveyor
Port of San Jose—Not appointed