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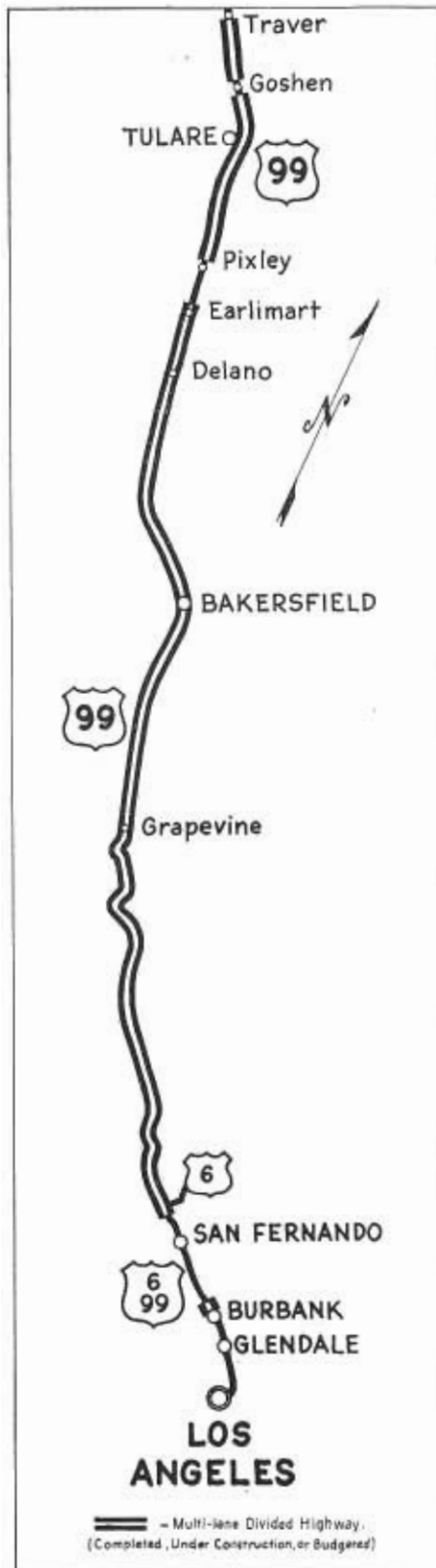
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CALIFORNIA HIGHWAYS AND PUBLIC WORKS
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Multilane Sections

Report of Progress . . .
Los Angeles to Sacramento



On US 99

THE HEAVIEST traveled portion of US 99, California's great north-south, border-to-border inland highway, is the section between Los Angeles and Sacramento.

This 388-mile stretch, known as the Golden State Highway, bears the brunt of the heavy year-round passenger and commercial traffic traveling between the south state areas beyond the Tehachapi Range and the cities and communities lying along the floor of the Great Central Valley.

The work of converting this section of US 99 to a divided, four-lane expressway or full freeway, which was started before World War II, has been accelerated by the recent increase in the highway user taxes voted by the Legislature.

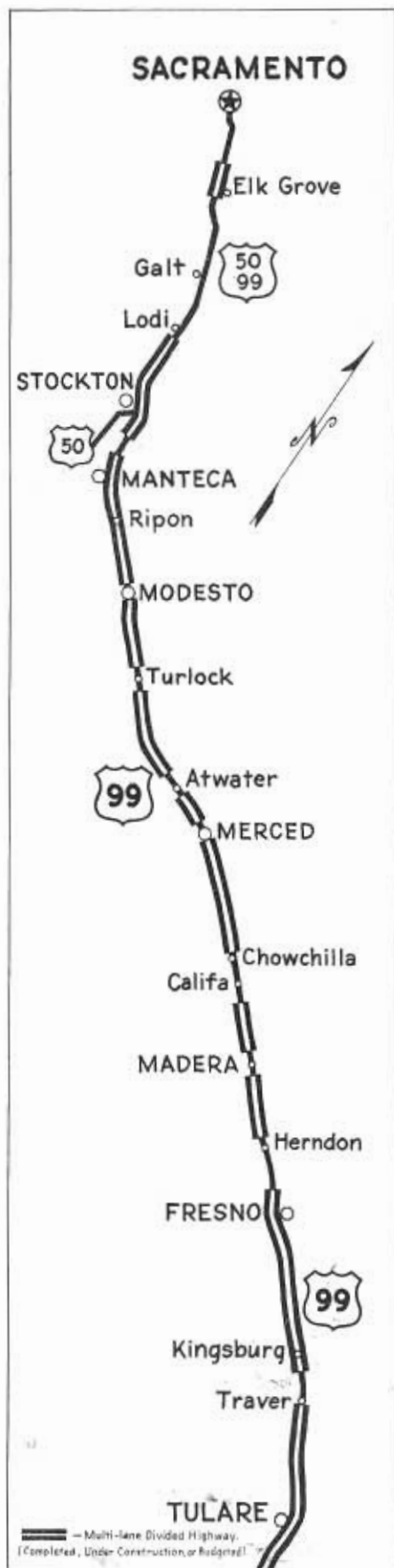
More than three-fourths of the route either has been or is being constructed to four-lane expressway standards, with much of it as full freeway initially in the larger urban areas and on some mileage in rural areas.

North of Sacramento

US 99 merges with other interstate routes east and south of Los Angeles as far as Indio, with full freeway (Ramona) constructed, under contract or planned in the built-up areas, and expressway in the Riverside County desert sections. North of the Sacramento area, the highway divides into 99E and 99W, both of which are being improved either to freeway standards or as modern two-lane facilities with provision for future expressway



LOWER: Heavy construction on US 99 near Tunnel Station, northwest of San Fernando. View is southeast toward US 6 Junction. CENTER: Looking north across parallel structure of Oildale Overhead north of Bakersfield. UPPER: Looking south along Tulare Bypass Freeway; Route 134 interchange in foreground.



development, as far as Red Bluff. From there to the Oregon border, improvement of US 99 is continuing steadily on both a two-lane and four-lane basis, with sections of freeway and expressway completed or under construction in the area north of Redding and north of Dunsmuir.

During the past 15 years, the Division of Highways has spent more than \$50,000,000 in bringing many portions of the Los Angeles-Sacramento section of US 99 up to modern standards with another \$14,750,000 worth of work now under construction or scheduled to begin soon on additional expressway and freeway projects.

Los Angeles to San Fernando

At the Los Angeles end, which claims some of the heaviest traffic counts on the entire highway, plans are under way for the eventual construction of a new US 99 freeway from downtown Los Angeles to San Fernando. The routing already has been adopted by the California Highway Commission and right-of-way acquisition has been started.

A mile-long section of multilane, divided highway has already been constructed near the entrance to the Lockheed Air Terminal in North Burbank.

A few miles north of San Fernando, at Tunnel Station, begins the longest stretch of continuous divided, multi-lane highway in the State. This section, which includes the Ridge Route over the Tehachapis, extends for 117 miles to the Delano Underpass, just south of the Tulare County line.

Additional construction now under way or soon to begin will extend this continuous section another three miles south of Tunnel Station and another 12 miles northward through Delano and as far as Earlimart in Tulare County.

Tulare Freeway

One of the recent major completions along US 99 is the eight-mile

→
 LOWER: Looking north through Fresno from south end of city, with start of new US 99 freeway curving toward left and clearing for future construction. CENTER: Typical mid-valley section of expressway, looking south from near Turlock. UPPER: Looking northwest toward Manteca on newly completed four-mile section of full freeway; Jack Toole Road Overcrossing in foreground.



Tulare Freeway completed in December, 1953, which takes through traffic well to the east of the old route which was along the business district of the city.

Completion of this freeway means that Tulare County now has a continuous strip of divided, multilane full freeway and expressway from north of Pixley to the Visalia Airport Interchange, a distance of more than 25 miles, and an additional 6.3 miles from north of Goshen to Traver.

In Fresno County a 22-mile section of expressway from south of Kingsburg to south of Fresno is already completed. Through the City of Fresno construction now is under way on the freeway route.

From the Fresno-Madera County line to Modesto, a distance of 70 miles, much of the highway outside of cities already has been reconstructed as divided, multilane expressway.

The Highway Commission recently announced its intention to take under consideration the adoption of a freeway routing through Modesto, and a public hearing was held in that city on September 24th.

Modesto to Manteca

The completed 10-mile expressway section between Modesto and Ripon was extended northward to just south of Manteca by a recently completed 4½-mile full freeway, while construction of the full freeway bypass of the City of Manteca, which got under way in July, 1954, will extend the divided, multilane mileage still another 4½ miles to the north.

Work on converting US 99 to a multilane, divided highway between south of Stockton and Lodi was begun shortly after the end of World War II and completed in 1950. Included in this series of projects was an expressway bypass of the City of Stockton itself which has greatly facilitated the movement of through and local traffic.

US 99 between Stockton and Sacramento also carries US 50 traffic traveling between the San Francisco Bay area and the foothill and high Sierra regions to the east.

Between Lodi and Sacramento plans are now well along for the conver-

sion of the existing two-lane sections to divided, four-lane full freeway.

In Sacramento County, work is scheduled to begin soon on constructing five miles of full freeway between Elk Grove Road and two miles south of Florin Road. This project will connect with the future South Sacramento Freeway for which rights of way are now being acquired.

Long-range Planning

Thus, the long-range planning and the many construction projects of the past decade devoted to the progressive improvement of US 99 are beginning to connect up. The growth of traffic on the more heavily traveled portions of the route have required development of these four-lane divided highways. Until very recently, in the light of available funds as well as traffic needs, most of the construction has been on an expressway basis, with limited private access and with separation structures provided only at the major intersections.

At the same time, it was recognized in the planning and right-of-way acquisition phases of this development that the ultimate need from the standpoint of the safety, convenience and free flow of future traffic on this vital artery would be for a full freeway, with no private access, no left turn movements, and no crossovers at grade. Where intersections at grade have been constructed, provision has been made in recent plans and through right-of-way acquisition to convert these intersections to separated crossings when warranted by traffic needs and permitted by available funds.

There is accordingly foreseeable in the not too distant future a 388-mile continuous ribbon of multilane freeway between Los Angeles and Sacramento, with interchange connections to the valley cities along the route, as a fitting culmination to a portion of California's gigantic highway construction and modernization program which, a bare 15 years ago, was little more than a dream.



LOWER: Completed section of US 99 through Weldon Canyon, at southern end of Ridge Route in Los Angeles County. CENTER: Completed structures and grading for freeway interchange at Visalia Airport, north of Tulare; view is south. UPPER: Looking north along the Stockton Bypass; structures are the US 50-99 separation (lower) and the Main Street Overcrossing.



Development of *Improvement Is Being Stepped Up* Historic US 50

FOR VARIETY of scenery, the 238-mile California section of US 50 stands second to no other stretch of highway in the State.

Beginning in historic San Francisco, it passes across the world-famous San Francisco-Oakland Bay Bridge, through the East Bay area, the Great Central Valley of California, the foothill region of gold rush fame, and the spectacular high Sierra country.

For more than a century the route followed by US 50 through the mountains has served as an important connecting route between California and points to the east, and today it is among the few trans-Sierra highways kept open to traffic during the winter months. Sections of US 50 in the East Bay area carry as many as 44,000 vehicles a day. On the portion west of 7,382-foot Echo Summit summer traffic counts run as high as 7,600 a day.

Program Stepped Up

Small wonder, then, that the recently stepped-up highway construction program resulting from the increased highway user taxes voted by the California Legislature has also meant a marked speed-up in the modernization of US 50.

A total of more than \$36,000,000, much of it post-World War II, has been spent or obligated thus far on US 50 to construct some 76 miles of divided, multilane highway, plus modern two-lane stretches in the Sierra foothill and mountain area.

On the section between US 101 in San Francisco and the East Bay Distribution Structure (this portion is also the western end of US 40) several projects totaling some \$10,000,000 now are under way.

Two Current Jobs

Two current jobs totaling nearly \$5,000,000 are for constructing freeway approaches to the west end of the San Francisco-Oakland Bay Bridge between Eighth Street and Third Street in San Francisco. Design provision has been made for tying-in these approaches with the proposed elevated Embarcadero Freeway which will connect with the Golden Gate Bridge (US 101).

On the Bay Bridge itself, several contracts either recently awarded or scheduled to be advertised during the next few months cover construction of additional ramps on Yerba Buena

Island to facilitate the movement of traffic to and from the bridge; the installation of a system of signals on the lower or truck deck of the bridge; and widening and other improvements to the Toll Plaza, involving construction of a new line of on-side toll booths north of the present one and extension of the Port of Oakland overhead structure.

San Francisco-Oakland Bay Bridge

The East Bay Distribution Structure also is undergoing major improvements. A third level and new ramps are being constructed at a cost of more than \$4,000,000, to eliminate all cross-weaving traffic.

In the East Bay Metropolitan area surveys are being made and studies are well advanced which will aid in determining a future freeway route for US 50 through Oakland. The California Highway Commission has scheduled a public hearing for November 19, 1954, on a portion of this routing as recommended by the State Highway Engineer.

On US 50 southeast of Oakland a two-mile freeway through Castro Valley was completed in September,





LEFT: East Bay Distribution Structure, showing pier construction for additional ramps under way; Bay Bridge toll plaza in background is also being improved. CENTER: Looking east toward Dublin Canyon on newly opened Castro Valley Freeway former US 50 Route curving toward left. RIGHT: Looking easterly along route of Placerville expressway, showing construction operations.

while farther east in Alameda and western San Joaquin Counties the final work of paving a 7½-mile expressway from the Altamont Pass to just west of Tracy now is under way.

Sacramento-Lodi Freeway

Completion of the Altamont-Tracy job will mean a continuous stretch of multilane, divided highway from west of Dublin to Tracy, a distance of 31 miles. East of Tracy, there is an expressway section four miles long between Grant Line Road and the San Joaquin River at Mossdale.

US 50-99 from Stockton north to Lodi already has been constructed as divided, four-lane highway, including an expressway bypass of the City of Stockton.

Between Lodi and Sacramento plans are being prepared for converting the existing two-lane sections of US 50-99 to a four-lane full freeway.

South of Sacramento work is scheduled to begin soon on constructing five miles of the route as a four-lane full freeway between one-half mile south of Elk Grove Road and two miles south of Florin Road. This project will tie into the proposed South Sacramento Freeway, for which some rights of way are now being acquired.

East of Sacramento, the seven-mile Folsom Bypass, completed in 1949, has shortened the traveling distance by nearly three miles.

Sierra Foothills

In the Sierra foothill region to the east, work was recently started to eliminate five miles of curve-filled road along US 50 between Clarksville

and Shingle Springs in El Dorado County. Although initially to be constructed as a modern, two-lane highway, provision has been made in the design and enough right of way acquired so that a second parallel roadway can be constructed sometime in the future to convert the highway into a divided, four-lane expressway.

In historic Placerville, work also is progressing rapidly on the freeway through the city. This mile and a half of divided highway, with five vehicular and pedestrian separation structures, will, after its completion next year, facilitate the movement of both through and local traffic.

The two-mile section from Placerville east to Five-mile Terrace was straightened and widened in 1951.

Among mountain sections of US 50 slated for future improvement as soon as funds are available is the three-mile portion between Five-mile Terrace and Camino, for which an improved routing was adopted and declared a freeway by the Highway Commission in July, 1954.

Old Tahoe Wagon Road

For 60 years or more the general route followed by US 50 east of Placerville was the main road for travelers crossing the Sierra. Some construction work was begun by the county in the late 1850's. In the early sixties the route was improved and operated by several private toll road companies until it was purchased by the county around 1880. Long known as the Tahoe Wagon Road, the route became California's first state road on February 28, 1895.

In the high Sierra many of the major improvement jobs along US 50 since World War II, have been forest highway projects constructed by the U. S. Bureau of Public Roads.

These include the widening and straightening of three miles of highway between Pollock Pines and Fresh Pond, completed in 1947; the construction of a new highway replacing the old horseshoe curves on Meyers Grade east of Echo Summit, also completed in 1947; and a six-mile widening and straightening job between the foot of Meyers Grade and Tahoe Valley, completed in 1950.

To date, including projects prior to World War II, the U. S. Bureau of Public Roads has expended more than \$2,500,000 of forest highway funds on improving 42 miles of US 50 between Pollock Pines and the Nevada state line.

Expressway relocation of US 50 looking easterly toward Tracy, nearing completion. Delta-Mendota Canal of Central Valleys Project in foreground.



US 40

New Route in Contra Costa County Will Cost Millions

THE DIVISION OF HIGHWAYS is advertising for bids on construction of nearly five miles of six-lane freeway on a new route for the Contra Costa County portion of US 40.

The state highway budget carries an allocation of \$6,000,000 for the work, the largest budgeted amount for a single project in Northern California highway history.

Bids have been asked for grading, paving and structures on 4.8 miles of full freeway from Santa Clara Street about 0.2 mile southerly from Jefferson Avenue to south of County Road 24 to take US 40 traffic off a portion of crowded San Pablo Avenue now carrying an average traffic volume of over 35,000 vehicles daily.

Two Structures

In addition to the work now being advertised, a \$355,000 contract is nearly completed for two structures on the freeway route, one an overhead crossing of the Santa Fe Railway tracks at 47th Street in Richmond and the other a crossing of San Pablo Creek near the north city limits of San Pablo. The railroad overhead will provide two 36-foot roadways sepa-

rated with a 12-foot median strip. San Pablo Creek will be crossed on a 530-foot long reinforced concrete arch culvert providing a waterway area 20 feet wide and 19 feet high.

Starting on the existing highway at Santa Clara Street, the freeway construction project will extend through Richmond, a portion of El Cerrito and San Pablo and swing around the Rollingwood and Willart Subdivisions to south of County Road 24 near the Standard Oil Company tank farm.

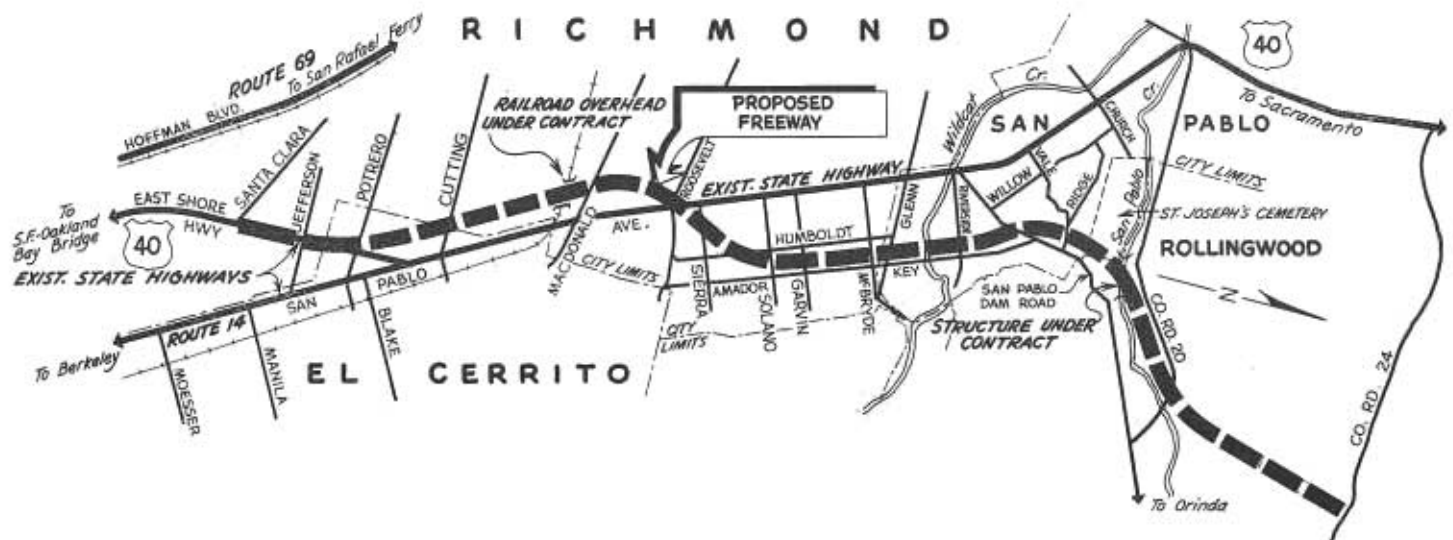
Runs Just West of San Pablo

From the beginning of the project to Roosevelt Avenue the freeway will run just west of and parallel to San Pablo Avenue. At Roosevelt Avenue the alignment curves across San Pablo Avenue, which will be spanned with a box girder structure and connected to the freeway with traffic interchange ramps, and extends to Key Boulevard.

Westerly of San Pablo Avenue the freeway will be elevated, and easterly of San Pablo Avenue it will be depressed until the crossing of San Pablo Creek. In addition to the San Pablo Avenue and railway separation structures, grade separations will also be

provided at Potrero Avenue, Cutting Boulevard, MacDonald Avenue and Barrett Avenue where local traffic may pass under the freeway and also have access to and from the freeway on interchange ramps. Through the area of the depressed freeway Solano Avenue, McBryde Avenue and San Pablo Dam Road will have overcrossing structures for local traffic which will also have access to and from the freeway on interchange ramps. After leaving San Pablo Creek the freeway crosses above County Road 20, which will be slightly realigned.

With the completion of construction the portion of the freeway from Santa Clara Street to the interchange at San Pablo Avenue will be opened to through traffic and the portion easterly of San Pablo Avenue to County Road 20 opened to local traffic. Opening of the entire construction to through traffic will depend on the availability of future state highway funds for construction of the necessary link to connect the new freeway with the existing highway northeasterly between Hercules and Rodeo.



Hollywood Freeway

Project Is Truly
Cooperative Effort

By A. D. GRIFFIN, Assistant District Engineer, District VII *

ACTING UPON the recommendation and certification of George T. McCoy, State Highway Engineer, that the last major construction unit of the Hollywood Freeway, a portion of State Highway Route 2 (US 101) covering work between Hollywood Boulevard and Pilgrimage Bridge had been completed under contract with the Bongiovanni Construction Company of Los Angeles, Frank B. Durkee, California Director of Public Works, on August 5, 1954, accepted this contract in the name of the State of California.

One might say this writes "finis" to this 10-mile \$55,000,000 freeway extending from Vineland Avenue in Fernando Valley to Spring Street in the Los Angeles Civic Center and brings to a close a cooperative project of first magnitude that represents the consummation of joint effort on the part of many governmental agencies, civic organizations and individuals.

Future Work

However, although the major construction on the Hollywood Freeway can now be regarded as completed, there will be further construction operations in progress from time to time in the future as may be found necessary. Erosion control planting, some of which is now in progress, remains to be carried out, some additional signing and lighting may be required, and the customary state highway maintenance must continue indefinitely. So it is impossible to say that the work on the Hollywood Freeway is even now completely finished and that we can go away and forget about it.

While many fine comprehensive stories about the Hollywood Freeway have ap-



A. D. GRIFFIN

peared in newspapers and magazines, and technical reports have been written covering special features, it is perhaps now in order that an informal final report be made to cover the project as a whole and bring together in one place salient features and factual information concerning this freeway.

No one can question the importance of the Hollywood Freeway because recent traffic counts, indicating some 168,000 vehicles per day using the section between Vermont Avenue and the four-level interchange structure, show it to be the most heavily traveled traffic arterial in the world. Anyone traveling this freeway today gains the impression from the broad right of way upon which he is traveling that this project did not involve too many problems. Those, however, who have seen the progress through all phases from beginning to end realize that there were many difficulties involved. It is quite probable, however, that even these citizens do not fully comprehend the tremendous cooperative effort required to bring a project of this nature to full completion. This

is an attempt to pay tribute to those who have had some part, be it large or small, in making this project possible.

Historical

The pressing need for a new highway arterial between the Los Angeles downtown area and the San Fernando Valley to supplement the existing congested city streets was quite generally recognized even some 30 years ago, when a diagonal route roughly paralleling the present route of the Hollywood Freeway was included as a unit of the Major Traffic Street Plan of the City of Los Angeles. This program was submitted to, and approved by, the voters, at the general election in 1924.

One of the first published reports that served to focus attention on the great need for freeways in the Los Angeles area was the "Traffic Survey, Los Angeles Metropolitan Area," released by the Engineering Department of the Southern California Automobile Club dated April 16, 1937. The concept of freeways as we know them today was generally described in this report, although the freeway type of highway arterials as proposed were called "motorways."

Later under date of December 7, 1939, a more comprehensive report was made to Mayor Fletcher Bowron and the City Council of Los Angeles by the City of Los Angeles Transportation Engineering Board.

Report on Transit Program

In this report entitled, "A Transit Program for the Los Angeles Metropolitan Area," a new highway arterial between the San Fernando Valley and the Los Angeles downtown area was mapped and referred to as the "Hollywood Parkway." Another proposed new highway arterial in this report was described as the "Santa Monica Parkway." The "Hollywood Freeway," as we know it today, follows in a general way the routing proposed

* One of the oldest engineering employees from standpoint of service with District VII, his name first appearing on the pay roll as a maintenance crew laborer in 1915, A. D. Griffin has been requested to write this roundup story of the Hollywood Freeway, because he has been with District VII continuously since 1921, through the entire period during which this freeway was undertaken.



Looking southeasterly along Hollywood Freeway from Wilton Avenue Bridge showing Hollywood Boulevard Overcrossing

in this report for the "Hollywood Parkway" from Vineland Avenue to Vermont Avenue, and for the "Santa Monica Parkway" from Vermont Avenue to the Los Angeles Civic Center. It is to be noted that in this report credit is given to the cooperating agencies as follows: Los Angeles Traffic Association, Central Business District Association, Los Angeles County Regional Planning Commission, and the Auto Club of Southern California.

Another important publication which emphasized the importance of early completion of the Hollywood Freeway, was the report by the Los Angeles Metropolitan Parkway Engineering Committee dated March 30, 1946, entitled, "Inter-regional, Regional, Metropolitan Parkways." This report gave valuable information to Senator Randolph Collier's *Joint Fact-finding Committee on Highways, Streets and Bridges of the California Legislature*. This report listed as cooperating agencies the following: County of Los Angeles, Cities of Los Angeles County, Automobile Club of

Southern California, Los Angeles Traffic Association, California State Chamber of Commerce, Los Angeles Chamber of Commerce, Central Business District Association, and the Downtown Business Men's Association.

The recommendations in this report and the facts and statistics printed therein were of great value to the California Legislature in its deliberations prior to the adoption of the Collier-Burns Highway Act of 1947, the passage of which greatly increased

state highway funds available for freeway construction. Without the additional funds provided by this act, the Hollywood Freeway would not stand completed today.

Freeway Becomes State Responsibility

The Collier-Burns Act discontinued as such the one-fourth cent of gas tax previously allocated to state highway routes through cities. In the over-all additional financing which it provided, it passed the complete responsibility to the State of California for constructing and maintaining all state

View of four-level grade separation structure taken at night. On the lower level the light streaks on the right are approaching headlights and the fainter light streaks on the left are receding tail lights.



highways through all cities within the State.

Collier-Burns Money

When money first became available under the Collier-Burns Highway Act of 1947, due to the freeway agreements in effect between Los Angeles City and the State, Charles H. Purcell, then Director of Public Works, expressed the desire not only for the early completion of the Hollywood Freeway, but also the completion at the same time of the portion of the Harbor Freeway extending from the four-level interchange structure to Olympic Boulevard. He felt that this portion of the Harbor Freeway should be completed at the same time, or if possible, at an even earlier date, because this unit was of vital importance in the distribution of Hollywood Freeway traffic to and from the Los Angeles downtown area. The Hollywood Freeway and this portion of the Harbor Freeway would also have, by means of the four-level interchange system, direct connections with the Arroyo Seco Freeway, the Santa Ana Freeway and the Ramona Freeway.

Mr. Purcell requested that a detained program of construction for the Hollywood Freeway and the unit of the Harbor Freeway from the four-level structure to Olympic Boulevard be prepared, assuming that adequate funds would be available for construction just as soon as plans could be completed and rights of way obtained. A similar program was requested, taking into account the availability of financing as finally provided by the Collier-Burns Highway Act of 1947. It is interesting to note that these two studies revealed the important fact that had there been unlimited financing, only one year's time could have been saved in getting this part of the freeway system completed and in use by public traffic.

Tribute to Cortelyou

From the start of the planning for the Hollywood Freeway, the main responsibility for securing agreement of all the interested people and getting the work underway fell on Mr. Spencer V. Cortelyou, retired Assistant State Highway Engineer who was

in charge of District VII from its inception in 1912 to his retirement in 1949. Mr. Cortelyou well merited the title of "Father of the Hollywood Freeway" graciously bestowed on him by civic groups.

In 1947 when Paul O. Harding was first transferred to this area as a district engineer, one of his first undertakings of an administrative nature was the negotiation of a three-way cooperative agreement between the City of Los Angeles, County of Los Angeles and the State, for the grading of the Civic Center area between Main Street on the east, Grand Avenue on the west, Sunset Boulevard on the north, and Temple Street on the south. This was followed by a four-way agreement with the Pacific Electric Railway Company added as the fourth party to cover the abandonment of the old railway tunnel between Temple Street and Sunset Boulevard and changes in operation of the Pacific Electric.

Cooperative Agreements

These cooperative agreements called for grading of a portion of the old Ft. Moore Hill, the removal of the Broadway Tunnel, removal of the Pacific Electric Railway Tunnel, and provided for the necessary excavation to carry the Hollywood Freeway through the Civic Center. This was the contract that required the hauling of one million yards of excess excavation over city streets to the Bishops Canyon disposal area that had been previously purchased by the State so that it would be available when needed for disposal of excess excavation from freeway construction. The costs were shared about one-third each by the State of California, the City of Los Angeles and the County of Los Angeles, in proportion to the benefits received. The State obtained the cleared area for the Hollywood Freeway, the city secured new and improved locations for city streets and the county got sites for future buildings and parking areas.

In 1949, Harding was appointed the Assistant State Highway Engineer in full charge of District VII and from that time on he and his staff had the

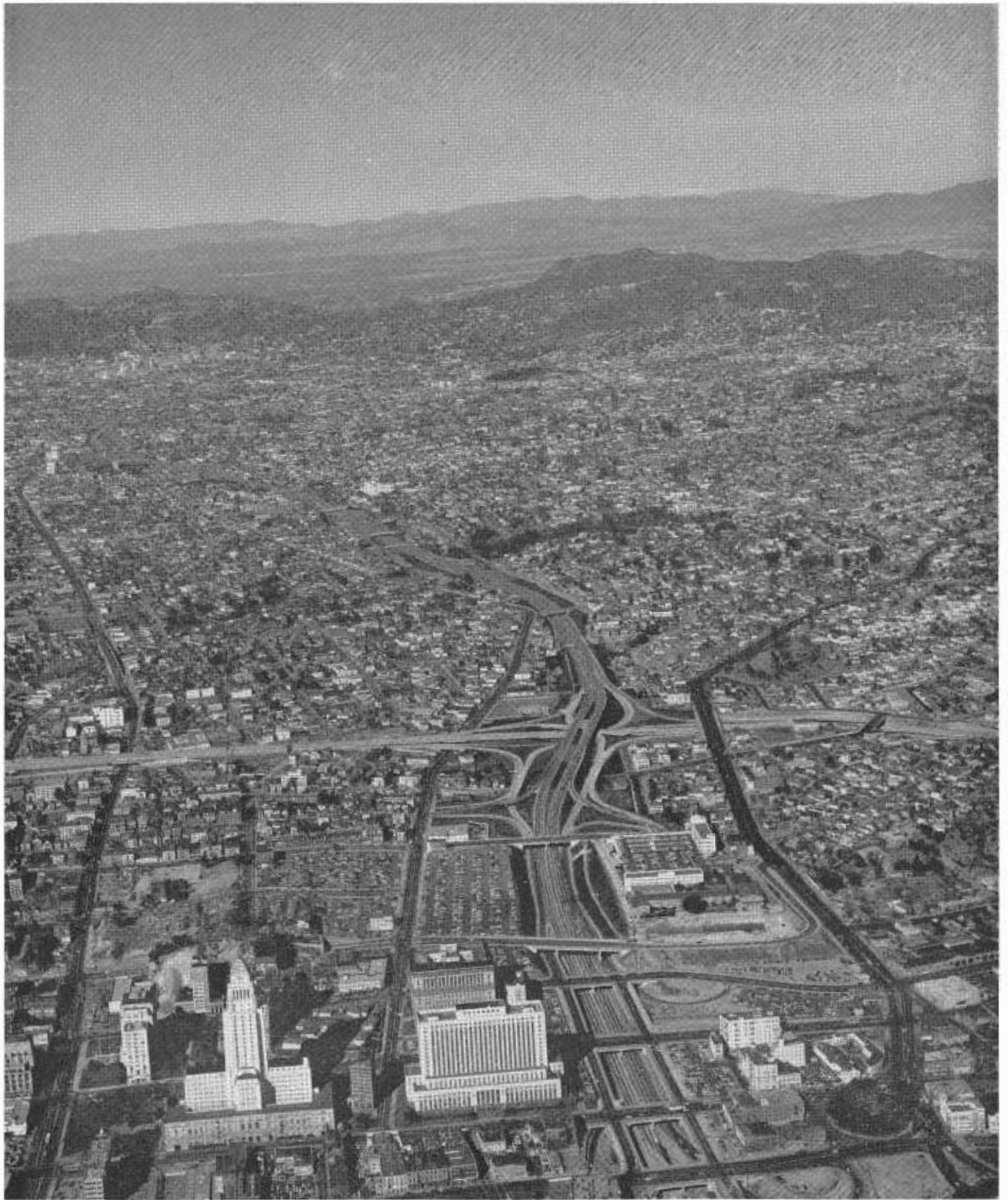
responsibility for advancing the Hollywood Freeway to completion.

Location and Design

The Bureau of Engineering of the City of Los Angeles during the early years of World War II cooperated with the State Division of Highways in establishing the general routing for the Hollywood Freeway. Aerial mosaic photographs of the entire route were studied extensively in order to establish the center line of the Hollywood Freeway so that it would be as direct as possible and yet clear expensive structures that would have greatly increased the cost of right-of-way acquisition. As a result of these joint studies between engineering staffs of the city and the State, the late C. H. Purcell, then State Highway Engineer and later State Director of Public Works, presented a portion of the Hollywood Freeway route for consideration of the California Highway Commission. Later, the remainder of this freeway was presented to the commission for consideration, and on the dates January 27, 1941; May 25, 1943; January 20, 1944, and October 18, 1945, the Highway Commission adopted various sections of the Hollywood Freeway as portions of State Highway Route 2 in the City of Los Angeles. These actions by the Highway Commission made it possible for the State Division of Highways to go forward with detailed engineering plans to proceed with right-of-way acquisition and to advertise and award construction contracts.

Freeway Agreement

Following freeway route adoptions by the Highway Commission, state law requires that before actual construction is started the State shall enter into a freeway agreement with the city in which the freeway is located. This freeway agreement sets forth that the State and the city are in accord as to the proposed changes in the existing city street pattern because of the freeway. In the case of the Hollywood Freeway, the first freeway agreement was executed two days before Pearl Harbor on December 5, 1941, following its approval by the Los Angeles City Coun-



Looking westerly along Hollywood Freeway with Civic Center in foreground, San Fernando Valley in background. Arroyo Seco Freeway extends to the right from the four-level structure and the Harbor Freeway extends to the left.

cil. The council has always been very cooperative in expeditiously handling all matters concerning the construction of freeways by the State within the city. Its freeway-mindedness is shown by the fact that it adopted an official freeway plan for the City of Los Angeles in 1946 which included the Hollywood Freeway in its entirety as well as other state highway freeway routes.

The State, County and Federal Affairs Committee of the City Council is the official liaison unit of the city council with all other public agencies involved with which the city deals. This committee was most helpful in all of the negotiation phases and in many design and construction problems attendant on a project of this magnitude.

First Units

Because of the limited availability of engineering personnel during World War II it was agreed that design responsibility for certain portions of the Hollywood Freeway would be undertaken by the Los Angeles City Engineer's staff. Under the direction of Aldrich, the City Engineer's Office prepared complete contract drawings for later state construction, for the unit of Hollywood Freeway between Barham Boulevard and Vineland Avenue and another unit through the Civic Center from Grand Avenue to Los Angeles Street including the Grand Avenue, Broadway, Spring Street, Main Street and Los Angeles Street bridge separations.

It should be noted here that during the years 1937 to 1940 the City of Los Angeles prepared plans and carried out the construction contract to build the first unit of the Hollywood Freeway through Cahuenga Pass from Highland Avenue to Barham Boulevard. This construction was jointly financed, with the city providing a major portion of the funds with contributions by the State and the Federal Public Works Administration. This one-mile section was completed and opened to traffic during December, 1940. The design of all other units of the Hollywood Freeway was the responsibility of the District VII, Division of Highways, with

the City Engineer's Office handling the design details of city street rearrangement, and appurtenant city facilities.

First Design Problem

Perhaps it is in order to say that the planning of the crossing for the Hollywood Freeway with the Arroyo Seco Freeway to the north and the Harbor Freeway to the south presented the first most serious design problem. Many possible solutions were investigated including various types of clover-leaf and three-level designs which all were found to require larger areas for rights of way and involved very considerable amounts of additional travel distance for vehicles making interchange between the freeways. The late W. H. Irish, then District VII Location Engineer, is credited with suggesting the four-level structure and interchange roadway system that was finally developed and built. The structural details for the four-level interchange structure were worked out in the Sacramento Office of the Division of Highways Bridge Department. This was true with all of the bridge structures except those previously mentioned as having been designed by the Bureau of Engineering, City of Los Angeles.

Echo Park Area

Another major project of location and design was through the Echo Park playground area. Solution of the problems presented at this location required that the State reconstruct a baseball diamond, tennis courts and other playground facilities that were interfered with by the freeway and the construction of a pedestrian subway to connect the main portion of Echo Park playground with the area that had been severed. The next problem of interest was the Edgeware Road Fire Department fronting on Temple Street. This situation was met by moving the fire station several hundred feet northerly, turning through an angle of 90 degrees so that it now fronts on Edgeware Road. The design at Sunset Boulevard was influenced by the proximity of the freeway to the then newly constructed KTTV television station.

The design finally adopted for the Hollywood Freeway at the crossing with Vermont Avenue was influenced by the contemplated future construction of the Santa Monica Freeway and also the possibility of rail rapid transit facilities being installed on the future Santa Monica Freeway. This required the lengthening of the Vermont Avenue Bridge and other bridges in the vicinity. The added cost providing for future rail rapid transit facilities was financed by the City of Los Angeles from city funds. Similarly financed from city funds were the bus transfer facilities at Alvarado Street and Vermont Avenue and Western Avenue.

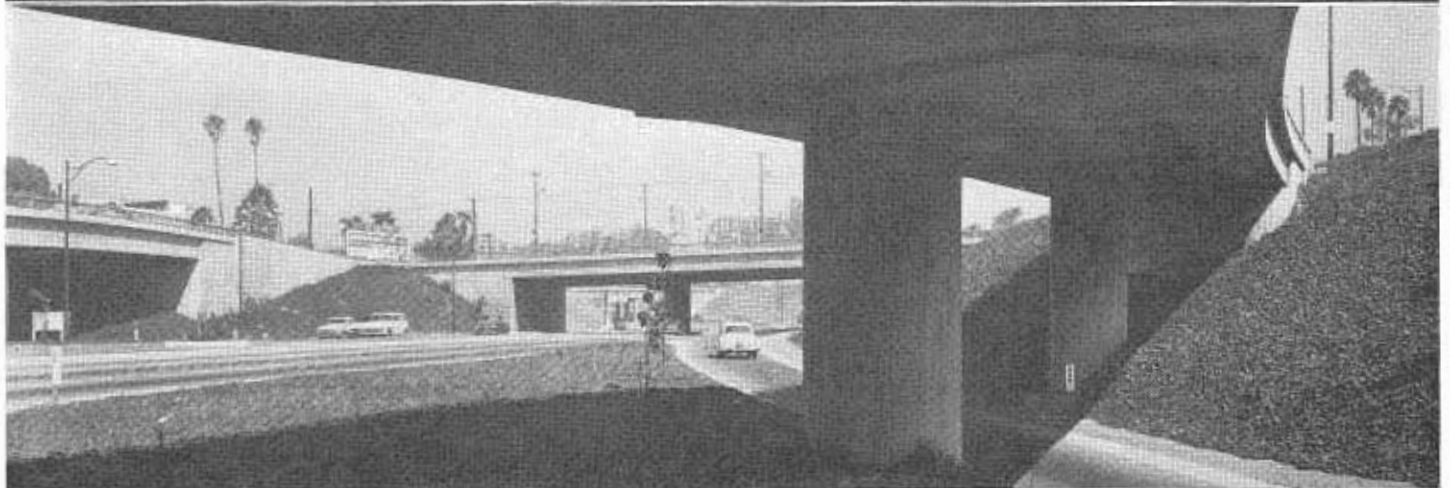
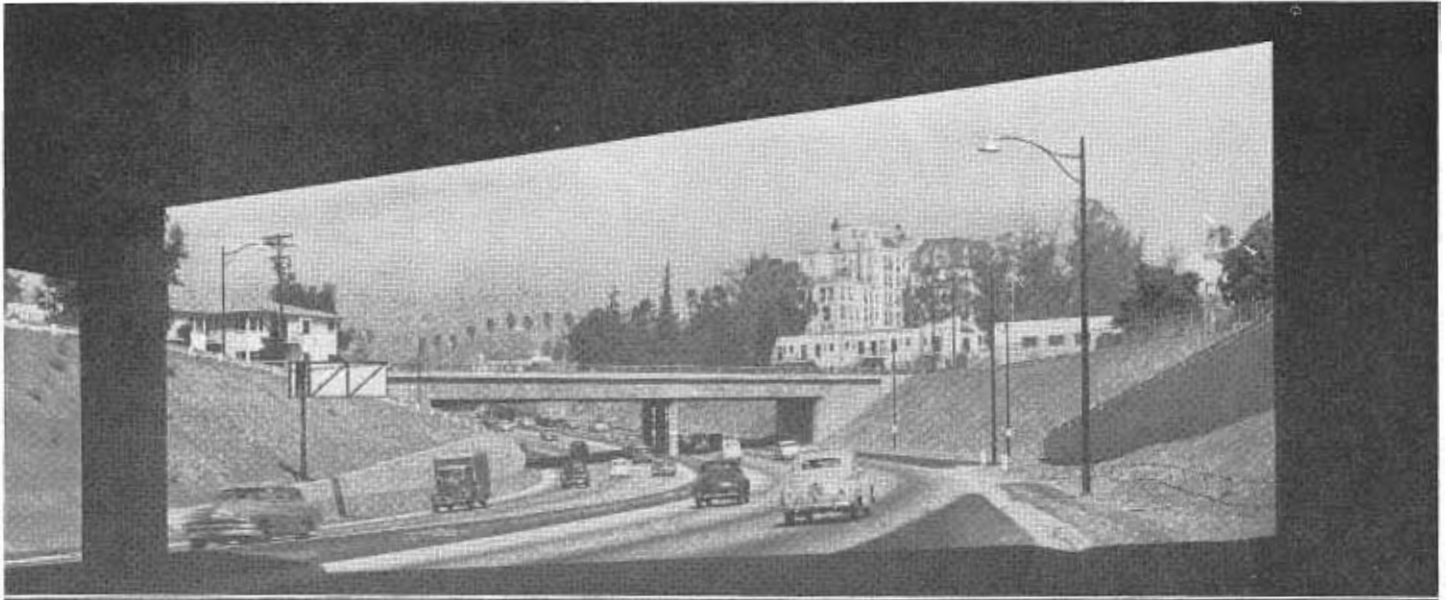
Design Complicated

From Hollywood Boulevard to Cahuenga Boulevard the design was complicated by the necessity for avoiding interference with the First Presbyterian Church of Hollywood on the one hand and the Towers Apartment Hotel on the other. In this same area it was necessary to cross Franklin Avenue, a major city street, decidedly substandard in width and having grades in excess of 15 percent. Design studies indicated that it was practicable to reconstruct Franklin Avenue to modern standards and at the same time secure a more economical freeway design. As a result of these studies a cooperative agreement for the improvement of Franklin Avenue as part of the freeway construction was entered into between the City of Los Angeles and the State of California.

Greatest Center Line Cut

It was interesting to note that in passing through the Whitley Heights area between Cahuenga Boulevard and Highland Avenue the greatest center line cut on this project of 60 feet was made. Whitley Heights is one of the fine old residential sections of Hollywood, and many beautiful homes had to be taken by the freeway. Among these was the "Falcon's Lair" formerly owned and occupied by the late Rudolph Valentino, one-time silent movie star.

Just westerly of Whitley Heights lies the Hollywood Bowl where during summer months "Symphony Un-



UPPER—Looking northwesterly along Hollywood Freeway from beneath Hollywood Boulevard Bridge showing Wilton Avenue Overcrossing in center. CENTER—Looking southeasterly along Hollywood Freeway from beneath Hollywood Boulevard Bridge showing Hollywood Boulevard on-ramp overcrossing for in-bound traffic. LOWER—Looking northwesterly along Hollywood Freeway from beneath Hollywood Boulevard off-ramp overcrossing bridge.

der the Stars" programs are given every year. The effect of traffic noises that might develop because of the freeway being so close was a matter of grave concern not only to the Hollywood Bowl Association and its patrons but also to the officials of the City of Los Angeles and the State Division of Highways. An acoustic study of the relation of the freeway to the Hollywood Bowl was made by Dr. Verne Knudsen, Professor of Physics and Dean of Graduate Division of the University of California at Los Angeles. Dr. Knudsen, in his report, made certain definite recommendations as to how construction should be carried out on the freeway, and the extent to which landscaping and planting would be needed to reduce possibility of traffic noises reaching the bowl. His recommendations have been followed.

The Hollywood Freeway is now carrying a full load of traffic, and during the current summer season of bowl concerts no complaints have arisen as to adverse effect of the freeway traffic on the bowl concerts even though the final planting program has not yet been carried out. This work is now in progress.

In the design of an extensive freeway project such as the Hollywood Freeway, extending over a period of more than a decade, at one time or another a large number of persons on the engineering staffs of the State Division of Highways and the City of Los Angeles, cooperating together, have been actively engaged on this project.

Right of Way

The first right-of-way acquisition by the State Division of Highways on the Hollywood Freeway dates back to 1942, and since that time an enormous program of negotiations for property has been carried out by the District VII right-of-way staff.

One of the early right-of-way acquisition problems involved the securing of property for the freeway through the Los Angeles Civic Center, the grounds of the Los Angeles City Board of Education, and the Fort Moore Hill area. This right of way was acquired during the war years when there was a critical housing shortage in the Los Angeles metropolitan area. Because of critical hous-

ing conditions people could not be evicted from their homes, and the right-of-way area cleared of buildings until new quarters were found for them.

The Hollywood Freeway through the Fort Moore Hill area involved the acquisition of many large and small apartment buildings occupied by people in the low income brackets. The clearing of these improvements out of the right-of-way area so that construction could proceed presented many problems in the securing of other accommodations for the hundreds of people that were affected. The state right-of-way agents were of material assistance in helping these people secure other accommodations within their means, so that evictions by legal processes were avoided.

An important phase of the work of the Right of Way Department is that of handling renting of buildings that are tenant-occupied between the time the property is acquired by the State for right-of-way purposes and the moving or demolition of buildings in advance of construction operations.

Many Buildings Moved

All types of property were acquired for this freeway such as single family residences, large multiple-unit apartment buildings, commercial buildings, and church and school properties. In the right-of-way acquisition activities on the Hollywood Freeway it was necessary to demolish 90 buildings and to move 1,728 buildings.

Before the district right-of-way agents start negotiations with property owners for areas that are needed for rights of way for freeways or other types of state highways the fair market value of each parcel is determined. The appraisal of property is conducted in a detailed, comprehensive manner not only ascertaining all of the salient features of each particular piece of property but also making an extensive search of the records to determine the sale price of comparable or similar properties in that particular neighborhood. It is in this painstaking and careful manner, with the review and approval of the Sacramento headquarters office, that the fair market value of each parcel is determined.

Legal Procedure

If the right-of-way agents after opening negotiations with property owners are unable to reach a satisfactory settlement with them, it is then necessary for the State to resort to condemnation proceedings. Were it not for the right of eminent domain now exercised by governmental authority, public improvements would bog down and many times be impossible to carry out. The right of eminent domain is an important right of the people and its exercise is very necessary in order that state highway projects and freeway projects go forward, otherwise one recalcitrant property owner could hold up a project indefinitely. When a condemnation suit is instituted, the issue is not to determine if the property shall be taken but only to determine how much shall the State pay for it. The necessity for the legal taking of private property by condemnation is certified to by the State Highway Commission in the passing of resolutions to that effect. In the case of the Hollywood Freeway, condemnation proceedings for necessary rights of way were first started in 1942 and continued through the years that followed.

Final Phase of Legal Work

The ribbon-cutting ceremony at the Pilgrimage Bridge April 15, 1954, not only signified the completion of the last link of the Hollywood Freeway but also was coincident with the final phase of all legal proceedings which had spanned a decade.

In 1942 when the acquisition of the necessary rights of way for this project commenced, the State Highway Law Department in Southern California was in truth and fact a one-man organization. During the succeeding years, with cessation of hostilities of World War II and with the passage of the Collier-Burns freeway program, added impetus was given to right-of-way acquisition for the network of our metropolitan freeways, including the Hollywood project.

Since the Hollywood Freeway was instituted, a total of 1,595 parcels were acquired representing a total outlay of \$24,918,186.46. Of the total par-



Looking southeasterly along Franklin Avenue in Hollywood showing Franklin Avenue-Argyle Avenue Undercrossing

cels acquired, 74 were involved in litigation either by way of stipulated judgments or contested trials, representing total awards of \$1,215,263.92. Thus it may be seen that, aside from numerous legal problems involved, the total litigation represented approximately 5 percent of the number of parcels acquired and approximately 5 percent of the total cost of the right of way.

Utilities

The public utility reconstruction problems along the Hollywood Freeway were unique in that the adopted route intercepted some of the heaviest and most expensive utility installations that can be found in any city in the Country. The State has had excellent cooperation from the Pacific Telephone and Telegraph Company, the Southern California Gas Co., the Pacific Electric Railway Company, the Los Angeles Transit Lines, Los Angeles City Department of Water and Power, and other public utility companies. In District VII the handling of arrangements for moving and reconstructing utilities such as pipelines,

power lines and telephone lines is the responsibility of a subdivision of the Right of Way Department called the Right of Way Clearance Section.

When World War II came to a close, permitting construction to get under way, it was decided the areas along the Hollywood Freeway where bridges could be built should be cleared as speedily as possible. Therefore in April, 1945, the first formal notices were sent to the various utilities requesting that reconstruction be carried out in accordance with the state plans where bridges were planned separating the freeway from city streets.

Relocation Work

Prior to the Collier-Burns Act becoming law on January 1, 1948, practically 100 percent of all relocation work by public utilities on the Hollywood Freeway was at the utility's expense. After January 1, 1948, all publicly owned utilities in the freeway area prior to route adoption and freeway declaration were relocated at the State's expense. Correspondingly, privately owned public utilities without

contractual obligation to relocate at their own expense were reimbursed by the State for the full cost of relocation.

There were public utility installations of considerable magnitude on many of the important streets crossed by the freeway. On Vermont Avenue where the plans called for a bridge some 600 feet in length over the Hollywood Freeway, there were water, power, telephone, gas and a number of incidental facilities to be temporarily detoured about the proposed structure before construction started. After the bridge reached a certain stage of construction, they were installed permanently in the bridge deck. Of these facilities, the most important and costly were those of the Pacific Telephone and Telegraph Company, amounting to 15 lead-covered cables with corresponding ducts to hold them. Among these were a number of cables over four inches in diameter containing 1,200 pairs of wires.

The work of temporarily relocating during construction was begun about a year and a half prior to the start of



the actual bridge work. The water and power relocations were much a routine operation. The telephone project, however, was unique. The move from the existing location in Vermont Avenue to a position clear of construction was accomplished by splicing in an additional 100-foot length in each of the cables. Then, after breaking away the existing tile duct from around the cables, they were moved by hand, using a crew of about 20 workmen, from the locations in the street to temporary locations beyond construction. Each cable was thus individually moved by hand a distance of about 50 feet laterally throughout the entire length of the bridge excavation.

These various telephone installations included both exchange and toll cables, the toll lines being to points north and east and carrying, among other things, radio and television programs. The splicing operation, both for the temporary move and for the permanent relocation, took about four months to perform, working around the clock. Many of these same cables, including all of the toll cables,



UPPER—Looking southeasterly along Hollywood Freeway from Sunset Boulevard overcrossing bridge. In center is shown the Van Ness Avenue Overcrossing. LOWER—Hollywood Freeway looking southeasterly from Hollywood Boulevard Overcrossing showing Hollywood Boulevard off-ramp overcrossing left and Hollywood Boulevard on-ramp on right.

were encountered a second time at the Santa Monica Overcrossing bridge and again in the construction through Cahuenga Pass.

The approximate cost to the State at Vermont Avenue for utility relocation was \$185,000. The total cost of relocating all public utilities on the Hollywood Freeway was \$1,905,000. Of this amount the State contributed \$1,184,000 and the utilities bore the remainder of the cost, amounting to \$721,000.

Construction Program

Many changes have taken place in Cahuenga Pass and in the valleys at both ends during the 44 years since the old Ventura Boulevard through the pass was first paved. The original pavement constructed by Los Angeles County in 1910 was oil macadam built to a steep gradient and on the sharply curving alignment prevailing at that time. With the development of the San Fernando Valley and the phenomenal growth of Hollywood this original pavement which had been the source of much pride in 1910 became inadequate to carry the rapidly increasing traffic load. This area became a part of greater Los Angeles and it was under the engineering department of the city that the pavement through the Cahuenga Pass was rebuilt to improved standards about 30 years ago.

Then again 14 years ago the City of Los Angeles reconstructed the original road through the pass between Highland Avenue and Barham Boulevard converting it into what was then known as the Cahuenga Freeway. This one-mile section of modern eight-lane freeway has now become a part of the Hollywood Freeway for which the limits of completed construction now extend from Vineland Avenue in San Fernando Valley to Spring Street in Los Angeles Civic Center.

First Major Contract

The State Division of Highways awarded its first major construction contract in the development of the Hollywood Freeway on May 28, 1947. This construction provided for the extension of this freeway in a northwesterly direction for 1.8 miles from Barham Boulevard to Vineland Avenue of the eight-lane freeway previously constructed by the city under a city contract. Following this initial freeway construction by the State Division of Highways other contracts have been awarded, making a total of 58 construction contracts. On these state contracts the construction engineering and supervision of contractor's operations have been carried out by resident engineers and their associates.

As will be noted from photographs accompanying this story, bridge structures play a very important part on the Hollywood Freeway. The outstanding structure is the four-level traffic interchange bridge at the junction of the Hollywood Freeway with the Arroyo Seco Freeway and Harbor Freeway. The preliminary investigations for this structure were conducted by the Southern Section of the Bridge Department which has headquarters in Los Angeles.

The other bridge structures on the Hollywood Freeway, excepting those in the Los Angeles Civic Center and in the Cahuenga Pass area that were handled by the City of Los Angeles, were also designed in the Sacramento Office of the State Bridge Department. The local staff of the State Bridge Department worked in close cooperation with the Los Angeles City Engineer's Office in determining the design of bridge structures to fit in with the existing city street pattern and to secure coordination of alignment and grade systems.

Special designs were executed when unusual conditions were faced such as occurred on the Highland Avenue on-ramp overhead for the Hollywood Freeway near the Hollywood Bowl. Instead of open steel railings this bridge was provided with solid para-

View looking northerly along Hollywood Freeway from Pilgrimage Bridge showing Highland off-ramp overcrossing center left. The cleared space between the two main freeway roadways is the strip of land 48 feet wide recently acquired from the Pacific Electric Railway after abandonment and track removal. This additional area will be available for future freeway improvement as needed.



pet walls lined with acoustical tile in order to reduce traffic noise.

The Hollywood Freeway was developed during the regime of three governors who, both in and out of office, were enthusiastic in their hearty support in the furtherance of this freeway. The Hollywood Freeway was initiated during the term of Governor Culbert L. Olsen; was designed and built during the administration of Governor Earl Warren, and finally completed under Governor Goodwin J. Knight.

Great credit is due the nonsalaried members of the California Highway Commission for their continuity of effort in budgeting funds to provide for detailed programing of all phases of this freeway development.

The Hollywood Freeway is a portion of U. S. Highway 101 and the Federal Aid System and special acknowledgment is in order for the co-operation extended by the U. S. Bureau of Public Roads throughout the years in all phases of location, planning, design and construction and for the assistance provided by federal aid funds.

During the time that the Hollywood Freeway plans were being developed and financing arranged, valuable contributions toward the project were made by many civic and governmental organizations, among which should be mentioned the Los Angeles County Regional Planning Commission, the Los Angeles County Road Department, the Los Angeles County Board of Supervisors, the Los Angeles City Council, Los Angeles County Section of League of California Cities, the Los Angeles Metropolitan Traffic Association, the Central Business District Association, the Downtown Business Men's Association, the Los Angeles Traffic Advisory Board, Los Angeles Section of National Safety Council, the California State Chamber of Commerce, the Hollywood Chamber of Commerce, and the Metropolitan Traffic and Transit Committee of the Los Angeles Chamber of Commerce. The Los Angeles chamber was particularly active in the furtherance of the Hollywood Freeway and general matters pertaining to the state highway program.

The Hollywood Freeway has been a cooperative project of great magnitude. Many civic-minded groups and individuals have made the Hollywood Freeway an actuality. Limitation of space makes it impossible to mention all of those who had a part in this accomplishment.

Just released by the Engineering Department of the Automobile Club of Southern California is a report entitled, "An Appraisal of Freeways v. Surface Streets in the Los Angeles Metropolitan Area." This report describes practical test runs made by this organization on freeways and on surface streets. From data accumulated on these test runs it has been determined that the average cost of automobile operation on the freeways is 4.021 cents per mile whereas the average cost on surface streets is 8.215 cents per mile.

Page 16 of the report contains the following analysis applicable to the Hollywood Freeway:

North Hollywood to Civic Center		
	Cost	Time— Min.
A. Via Freeway		
10.0 miles freeway @ 4.021¢	40.2¢	12.38
2.0 miles streets @ 8.215¢	16.4¢	6.14
Total	56.6¢	18.52
B. Via Surface Streets		
13.0 miles @ 8.215¢	106.8¢	39.90
Saving one-way	50¢	21.4
Saving round trip	\$1.00	42.8
No. one-way trips per day	101,000	
No. one-way trips per year	36,865,000	
Saving one way	50¢	21.4
Saving per year	\$18,432,500	

Considering that the total cost of the Hollywood Freeway was \$55,000,000 then the computed savings of \$18,432,000 per

year would indicate that traffic use will pay for the total cost of the Hollywood Freeway in three years time.

In addition to the direct benefits that can be evaluated as money savings for motorists using the completed Hollywood Freeway, there are many indirect benefits of great value that should not be overlooked. The Hollywood Freeway has taken very large percentages of the traffic from existing overcrowded city streets, and the motorists now using these existing city streets are greatly benefited on that account. The freeways also provide motorists with safer driving conditions. Accidents, injuries and deaths are greatly reduced. These items, while of tremendous value, cannot be estimated in dollars and cents.

There are other methods by which the economic worth of a major traffic facility like the Hollywood Freeway may be evaluated. It would appear, however, that the Automobile Club of Southern California has taken a direct and practical approach in making its evaluation of this freeway and that their conclusions are fair and conservative. A large capital investment such as the Hollywood Freeway that pays itself off within three years and continues to pay large dividends throughout the years to come is certainly a project in which the people of California, who are cheerfully paying the costs through gasoline and other taxes and fees, can take justifiable pride.

There have been unavoidable delays in getting the Hollywood Free-

Looking northwesterly showing in foreground Ivar Street underpass with Cahuenga Boulevard eastbound on-ramp over it and with the Franklin Avenue off-ramp above. This constitutes a three-level interchange.



STATE CONSTRUCTION CONTRACTS—HOLLYWOOD FREEWAY

Limits and description	Awarded	Completed	Const. cost	Contractors
Benton Way, overcrossing.....	2- 4-46	9-16-47	\$169,500	Byerts & Sons, Los Angeles
Diamond St. to Sunset Blvd., drainage.....	10-24-46	6- 7-47	197,800	Chas. T. Brown, San Fernando
Silver Lake Blvd., undercrossing.....	11-14-46	4-27-48	461,000	Guy F. Atkinson, Long Beach
Grand Ave., grade separation.....	12-19-46	2- 6-48	259,000	Oberg Bros., Inglewood
Barham to Vineland, 6-lane divided highway.....	5-28-47	2- 9-49	1,735,100	Peter Kiewit Sons Co., Arcadia
At Harbor Freeway, 4-level structure.....	6-24-47	8-17-49	1,183,700	Jas. I. Barnes Const. Co., Santa Monica
Alvarado St., undercrossing.....	10-20-47	10- 6-48	362,700	Guy F. Atkinson Co., Long Beach
Virgil, Hoover and Rosemont, grade separations.....	1-20-48	2- 3-49	607,300	Spencer Webb Co.
Figueras St., grade separation.....	2-27-48	10-19-49	1,059,500	C. Bongiovanni, Los Angeles
Boston St.....	4-22-48	7-19-48	16,900	McClain Const. Co., Hawthorne
Vendome St. and Coronado St., undercrossings.....	4-26-48	5- 9-49	351,000	Chas. MacClosky Co., San Francisco
Beaudry St. and Bonnie Brae St. grade separations.....	5-14-48	5-19-49	452,200	J. E. Haddock Ltd., Pasadena
Barham to Vineland, lighting.....	6-29-48	4-12-49	41,200	Tri Cities Elec. Serv., Los Angeles
Vermont Ave. and Melrose Ave., grade separations.....	9- 2-48	2-10-50	999,000	Spencer Webb Co.
Santa Monica Blvd. and Normandie Ave., grade separation.....	11-16-48	3-22-50	618,700	J. E. Haddock Ltd., Pasadena
Western Ave., overcrossing.....	12-15-48	6-15-50	708,300	Oberg Bros., Inglewood
Glendale Blvd. to Echo Park Ave., grade separations.....	1- 6-49	2- 1-50	497,600	J. E. Haddock Ltd., Pasadena
Heliotrope Dr., undercrossing.....	2-17-49	4-25-50	521,600	Chas. MacClosky Co., San Francisco
Civic Center, grading, and Broadway, overcrossing.....	1-18-49	1-19-51	1,038,300	Guy F. Atkinson Co., Long Beach
Virgil to Glendale, 8-lane divided highway.....	6- 9-49	2-13-51	1,438,000	N. M. Ball, Sons, Berkeley
Glendale to Grand, 8-lane and 6-lane divided highway.....	6-24-49	2-16-51	1,032,700	N. M. Ball, Sons, Berkeley
Hollycrest Dr. to Vineland, illuminated directional signs.....	10-31-49	11-25-49	4,300	Elect. & Machin. Serv. South Gate
Edgeware Rd., overcrossing.....	3- 1-49	12- 5-49	125,300	J. E. Haddock Ltd., Pasadena
Normandie Ave. to Alexander Ave., outer highway.....	4- 8-49	7-11-49	32,400	McClain Const. Co., Hawthorne
Boston St., extension.....	4-14-49	6-10-49	17,500	Dragline Rentals Co., Wilmington
Barham to Vineland, landscaping.....	11-19-48	8- 5-49	28,600	Henry C. Soto Corp., Los Angeles
Heliotrope-Santa Monica, inbound grade separation.....	12-13-49	4-30-51	528,100	Chas. MacClosky Co., San Francisco
Hill St., overcrossing.....	1-26-50	6-11-51	448,700	Webb & White, Los Angeles
Western to Virgil, 8-lane divided highway.....	5-11-50	10-15-51	1,470,600	Griffith Company, Los Angeles
Sunset Blvd., overcrossing.....	5-25-50	9-27-51	333,300	Lars Oberg, Los Angeles
Fountain Ave., overcrossing.....	5-25-50	7-16-51	327,400	Oberg Bros., Inglewood
Virgil to Grand, lighting and signs.....	6-20-50	5-16-51	149,200	Newbery Elect. Corp., Los Angeles
Hobart to Western, drainage.....	6-29-50	4- 3-53	136,600	J. E. Haddock Ltd., Pasadena
Wilton Pl., overcrossing.....	6-20-50	7-20-51	336,000	Peterson & Baker, Los Angeles
Van Ness, grade separations.....	11-27-50	12-18-51	341,600	J. E. Haddock Ltd., Pasadena
Western to Virgil, lighting and signs.....	12-13-50	9-27-51	62,200	Fischback & Moore
Beaudry to Grand, roadside planting.....	12-22-50	9-12-51	47,200	Jannoch Nurseries, Altadena
Virgil to Beaudry, roadside planting.....	1-11-51	12-27-51	53,200	Jannoch Nurseries, Altadena
Parkman to Grand, roadside planting.....	5-23-51	6-18-52	40,100	Jas. E. Boothe, Compton
Holly Dr., undercrossing.....	1-19-51	1- 3-52	300,100	Peterson & Baker, Los Angeles
Grand to Spring, 8-lane freeway and outer highway, overcrossing.....	1-26-51	1-24-52	679,200	Webb & White, Los Angeles
Belmont Ave., pedestrian overcrossing.....	9-19-50	3- 6-51	35,400	Byerts & Sons, Los Angeles
Hollywood Blvd., overcrossing.....	2-20-51	7-15-52	350,000	Fredericksen & Kasler, Sacramento
Hill St., relocation, Sunset-Temple.....	4- 2-51	2-11-52	208,000	Webb & White, Los Angeles
Cahuenga Blvd., undercrossing.....	3-30-51	5- 5-52	300,900	Oberg Bros., Inglewood
Cahuenga-Gower, freeway and 5 bridges.....	5-31-51	7-30-53	1,864,000	Winston Bros. Co., Monrovia
Bronson to Gower, 2 bridges and drainage.....	6-21-51	12-31-53	958,700	Peterson & Baker
Lighting and signs at Harbor Freeway.....	6-28-51	7- 9-52	120,500	Ets-Hokin & Galvan, Wilmington
Cahuenga-Gower, lighting and signs.....	7-27-51	8-14-53	40,200	C. D. Draucker Inc., Los Angeles
Hollywood-Western, 8-lane Freeway.....	12-28-51	6- 2-53	1,460,400	Webb & White, Los Angeles
Hollywood-Western, lighting and signs.....	1-16-52	4-23-53	62,200	Westates Elect. Const., Los Angeles
Franklin Ave. at Vine and Argyle Sts., lighting.....	2- 6-52	5-14-53	3,900	Ed Seymour, Long Beach
Mulholland-Cahuenga and Gower-Hollywood Blvd., 6-lane freeway and 5 bridges.....	2- 1-52	7-16-54	2,497,400	Bongiovanni Const. Co., Los Angeles
Mulholland-Cahuenga and Gower-Hollywood Blvd., lighting and signs.....	3-12-52	6-15-54	159,300	Elect. & Machin. Serv. Inc., South Gate
Virginia-Spring, roadside development.....	6-27-52	7-28-53	110,100	Henry C. Soto Corp., Los Angeles
Hollywood Blvd.-Santa Monica Blvd., roadside development.....	8-10-53	5- 4-54	77,300	Jannoch Nurseries, Altadena
Cahuenga to Gower, Planting.....	2- 3-54	11-19-54	49,400	Jannoch Nurseries, Altadena
Gower to Hollywood Blvd., planting.....	8- 3-54	2-15-55	20,000	Floyd Mathews Co., Pasadena
		Est.		
		Est.		
Total.....			\$27,527,700	

way completed. However, the time interval between the ribbon-cutting date when the main traffic lanes were opened to the public and the time of official completion on August 5, 1954, does merit explanation. During the course of this final contract the construction work between Hollywood Boulevard and Pilgrimage Bridge required that public traffic be threaded hither and thither through and around construction, sometimes in what appeared to be a very confusing manner. Actually there were 18 separate stages of detours that were necessary during the two years time that this complicated construction work was in progress. It was not until the main traffic lanes were made available to the traveling public throughout the limits of this contract that the contractor was then able to step in and complete all the work required along the sides of the main freeway on the traffic interchange ramps and frontage roads.

A final word of commendation to the long-suffering traveling public which has had to utilize the Hollywood Freeway during the construction period. The cooperation of these motorists and their patience and forbearance under very trying conditions represents the final and not the least important phase of the over-all cooperative effort required to make the Hollywood Freeway a reality.

AMERICAN ROAD BUILDERS' DIRECTORY

The new 1954 directory of Highway Officials and Engineers has been issued by American Road Builders' Association. It contains the following useful information: more than 1,500 names, titles and addresses of administrative engineers and officials in the 48 state highway departments and the District of Columbia; administrative personnel of the Bureau of Public Roads, including the heads of its division offices; engineers and administrative personnel of toll road authorities; officers and directors of ARBA, its seven organized divisions, and its Washington headquarters staff; a tabulation by states showing highway funds expended during 1953, as well as an estimate of expenditures for



UPPER—Looking southerly along Hollywood Freeway from Pilgrimage Bridge showing Highland Avenue on-ramp undercrossing in center and Whitley Heights in background. LOWER—View looking northwesterly along Hollywood Freeway from Whitley Heights showing multiplicity of outer highways and interchange roadways necessary at this location.



HURRY IS DANGEROUS

Hurried driving is a great cause of accidents. The reason is that a sense of being in a hurry clouds a driver's judgment and often causes him to take chances.

Early axle grease was made by the natives of early day New Mexico, according to the National Automobile Club, by mixing tallow with tar obtained from the roasting of green pine branches.

highway construction and maintenance during 1954; a tabulation of states having legislative authority to construct toll roads.

As in previous years, the directory is available at \$1.00 per copy.

LEFT TURNS MORE DANGEROUS

Turning left is one of the most dangerous maneuvers in the whole field of driving.

Last year's nation-wide statistics show 2,200 persons were killed in accidents involving an automobile which was making a left turn. This is more than were killed as a result of skids.

Ground Breaking

Governor Launches Two
Major Freeway Projects

GOVERNOR GOODWIN J. KNIGHT emphasized the progress being made in California highway construction when he participated in ground-breaking ceremonies for two major freeway projects in the Los Angeles area in late September.

On Monday, September 20th, the Governor addressed a gathering marking the start of work on the new Sunset Boulevard overcrossing of the proposed 73-mile Sepulveda Freeway. The following Wednesday, September 22d, he broke ground in El Monte for construction of another four miles of the Ramona Freeway between Rosemead Boulevard and the San Gabriel River.

Groups of civic leaders, businessmen and residents of nearby communities attended both ceremonies.

Highways Necessity

Highways are no longer a luxury, but a necessity to move goods and people, the Governor told them. To construct and improve these highways the State is spending nearly \$1,000,000 every working day out of gasoline and other highway user tax funds. They will be better, safer highways, he said. The Governor pointed out that comparable highways in the East are being built as toll roads.

Governor Knight described the need for and benefits of the projects which were getting under way, and the progress on related highway construction and financing. Also, he said, U. S. Highway 99 between Los Angeles and Sacramento and U. S. Highway 101 between Los Angeles and San Francisco were being converted to four or more lanes divided throughout.

Sunset-Sepulveda

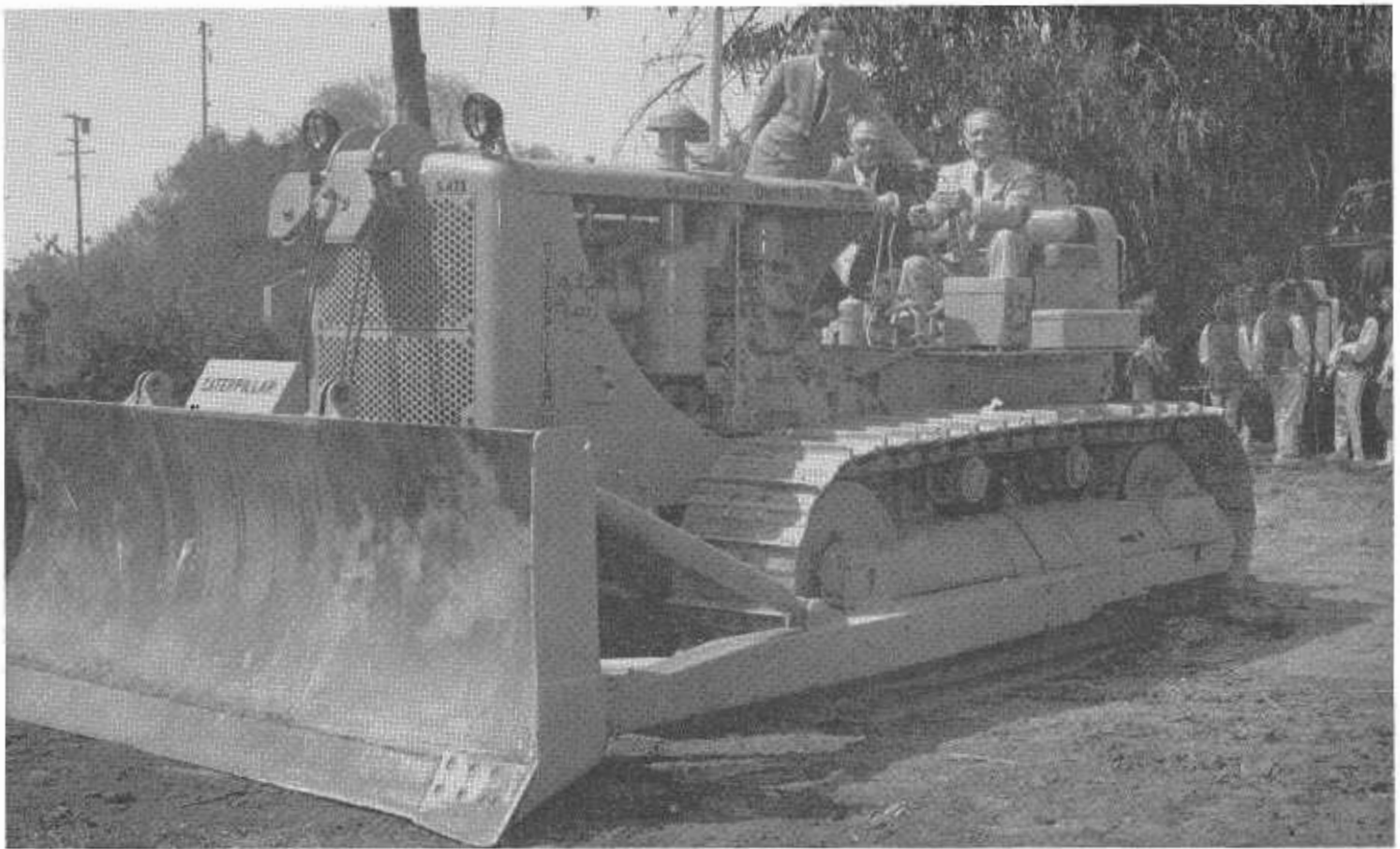
The ceremony marking the start of construction on the Sunset-Sepulveda separation took place near the intersection of the two boulevards. Robert E. McClure of Santa Monica, member of the California Highway Commission, was master of ceremonies and introduced the Governor.



Ralph B. Bronson (center), business manager of the International Union of Operating Engineers, A.F.L., examines Governor Goodwin J. Knight's union membership card before the governor climbed aboard a bulldozer for groundbreaking ceremonies for an overhead crossing of Los Angeles' proposed Sepulveda Freeway. The card was in order. Looking on at right is Jack W. Baker, of Peterson and Baker, the contractors who will build the structure.

The project will consist of four bridges, with ramps and frontage roads. The main structure involved is the one which will carry Sunset Boulevard over both the proposed Sepulveda Freeway and existing Sepulveda Boulevard. Another structure will carry Ovada Place under the Sepulveda Freeway. The contract was awarded by the Department of Public Works September 14th to George W. Peterson and Jack W. Baker on their low bid of \$722,657.

Governor Knight pointed out that portions of this project will be of immediate use on completion and will constitute necessary preliminary work for a project to provide as soon as possible a useable portion of the Sepulveda Freeway from Waterford Street to Casiano Road. Although funds for this work from Waterford Street to Casiano Road had not been budgeted at the time of the ceremony, the plans are nearly complete and right-of-way acquisition is well advanced.



Robert E. McClure, member of the California Highway Commission, left, and Mayor R. C. Miller of El Monte watch as Governor Knight manipulates the controls of a bulldozer used to break ground for a new section of the Ramona Freeway in Los Angeles County

Importance of Freeway

Early development of the Sepulveda Freeway is of importance to the west and south coastal sections of the Los Angeles metropolitan area as well as to afford traffic relief on existing highways and streets through the San Fernando Valley leading into and through central Los Angeles, the Governor stated.

He also noted that traffic from the north on US 99 and from the west on US 101 which does not desire to enter the central area of Los Angeles will be able to use the Sepulveda Freeway.

More than \$6,000,000 has been expended to date for rights of way on the Sepulveda Freeway between the Long Beach Freeway and the San Fernando Reservoir, and additional funds are available for right-of-way purchase. The entire route, said Knight, has been adopted by the California Highway Commission. It extends from US 99 at the San Fernando Res-

ervoir to a connection with US 101 in the vicinity of El Toro in Orange County.

El Monte Ground-breaking

Ground-breaking for the new section of the Ramona Freeway was preceded by a luncheon in El Monte Civic Auditorium sponsored by the El Monte Lions Club, at which Governor Knight also spoke.

On the route of the freeway, at the site of the old Gay's Lion Farm on Valley Boulevard just south of Peck Road, Governor Knight mounted a big bulldozer, which made a symbolical cut of earth with its massive blade. Music was provided by the El Monte High School Band.

At this gathering, the Governor said that time would be saved through the letting of a single contract for all phases of construction on the freeway through El Monte. Even so, he said, it would take more than a year and a half for completion.

The contract for the El Monte work was awarded by the Department of Public Works on September 13th to the Peter Kiewit Sons Co., on a low bid of \$5,960,421. It is the largest single state highway contract ever awarded to date. Included is all of the grading, structures and paving to complete the four-mile, six-lane section of the Ramona Freeway from Rosemead Boulevard to the San Gabriel River.

A \$3,813,436 contract awarded July 1st to the Griffith Company is in progress on a 3.3-mile section of six-lane freeway adjoining the newly started job on the east, from the San Gabriel River to West Covina.

Construction is nearing completion on the sections through the Ontario-Upland and Pomona-Claremont areas, and the Highway Commission has allocated \$3,630,000 for construction of 4.2 miles through West Covina from the west city limits to Citrus Avenue. Bids on this work will be received in Los Angeles October 21st.

At Last

New Highway in Alpine And Mono Counties Opened

By A. L. TSCHANTZ-HAHN, District City and County Projects Engineer

COMPLETION of 17½ miles of new highway which connects by a more direct route the county seats of Bridgeport in Mono County and Markleeville in Alpine County was celebrated by the boards of supervisors of the two counties with a dedication ceremony at the Mono-Alpine county line Sunday, September 12th, when the new road was opened formally to traffic.

Governor Knight was represented by Director of Public Works Frank B. Durkee, Chairman of the California Highway Commission.

Arranged by the boards of supervisors of the two counties, with Sheriff Orrin Brown of Alpine County as master of ceremonies, the dedication was in two parts, the first a ribbon-cutting, the second a barbecue at pine-shaded Bagley Flat in Markleeville.

Invited to snip a blue and gold ribbon stretched across the highway at the Alpine-Mono County line, Durkee called upon his wife, Wanda, to do the cutting, surrounded by state and county officials and their wives while some 200 persons watched.

The county line is at an elevation of 7,910 feet, slightly lower than the nearby summit of the highway on the shoulder of 8,985-foot Leviathan Peak.

In the brief ceremony, Sheriff Brown said the highway represented a gate opened in the fence between two good neighbors, and Hubert B. Burns, Chairman of the Alpine County Board of Supervisors, and Gene Crosby, Chairman of the Mono Board, shook hands across the ribbon and exchanged compliments. Durkee praised the two counties for their efforts and cooperation with the State toward completion of the highway.

Preceded by a historical resume of the highway presented by Grant Merrill of Woodfords, Alpine County, Durkee brought the greetings of Governor Knight to an estimated 600 persons at the barbecue.

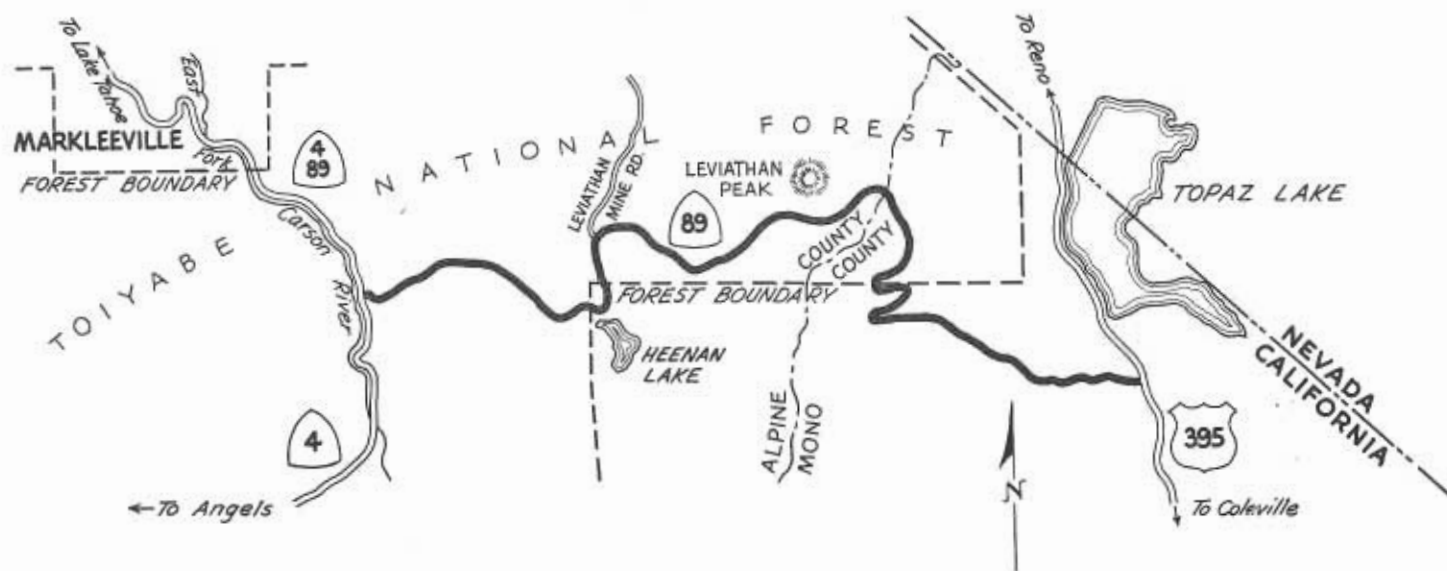
The new highway, built over tortuous mountain terrain, extends from US 395, north of Coleville in Mono County, to the Ebbetts Pass Highway, south of Markleeville in Alpine County. Locally known as the Markleeville-Coleville Highway, it has been designated a portion of State Sign Route 89.

New Route Much Shorter

Hitherto, the only feasible route between Bridgeport and Markleeville was via Minden, Nevada, 25 miles longer than the new route. In addition to providing an all-California road between the two county seats, the new highway will provide more direct access from Southern California to the recreational areas in the vicinity of Markleeville and Lake Tahoe.

It was pointed out by Durkee that linking of the county seats carries out a mandate of the Highway Act of 1909, which established the State Highway System and provided the first bond issue for highway construction.

That act contained a provision to the effect that county seats must be connected by highway routes. As far as Markleeville and Bridgeport were concerned, this connection existed only on paper, since it was obviously impossible with the limited funds available to construct a highway in the sparsely populated, mountainous area until more pressing state-wide needs had been met.

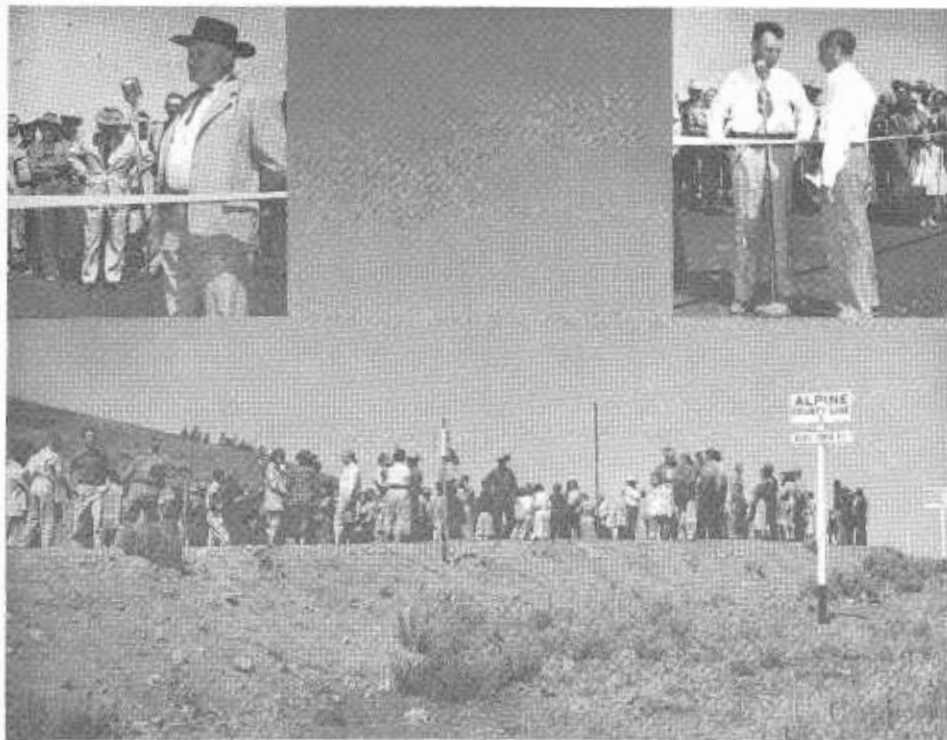


Counties Contribute Funds

Alpine County, 1950 population 241, and Mono County, population 2,115, acting jointly, sought to close the gap by use of federal aid secondary funds in a series of projects, in which technical assistance was given by the State Division of Highways. The counties also contributed funds of their own.

At an expenditure of approximately \$394,000 over a period of five years, the counties completed surveys and grading to federal aid secondary standards over most of the route, and in 1952 the California Highway Commission adopted it as a state highway route. This action was followed by the budgeting of state highway funds for grading a remaining gap of 3½ miles and surfacing the entire 17½ miles of highway. A \$509,000 contract for this project was let in early 1953, and the work was completed in July, 1954. In addition to the cost of construction, a total of \$61,100 was

Dedication scene. INSET LEFT: Senator Swift Berry, Placerville. INSET RIGHT: Supervisor H. B. Burns, Alpine County; Supervisor Gene Crosby, Mono County.

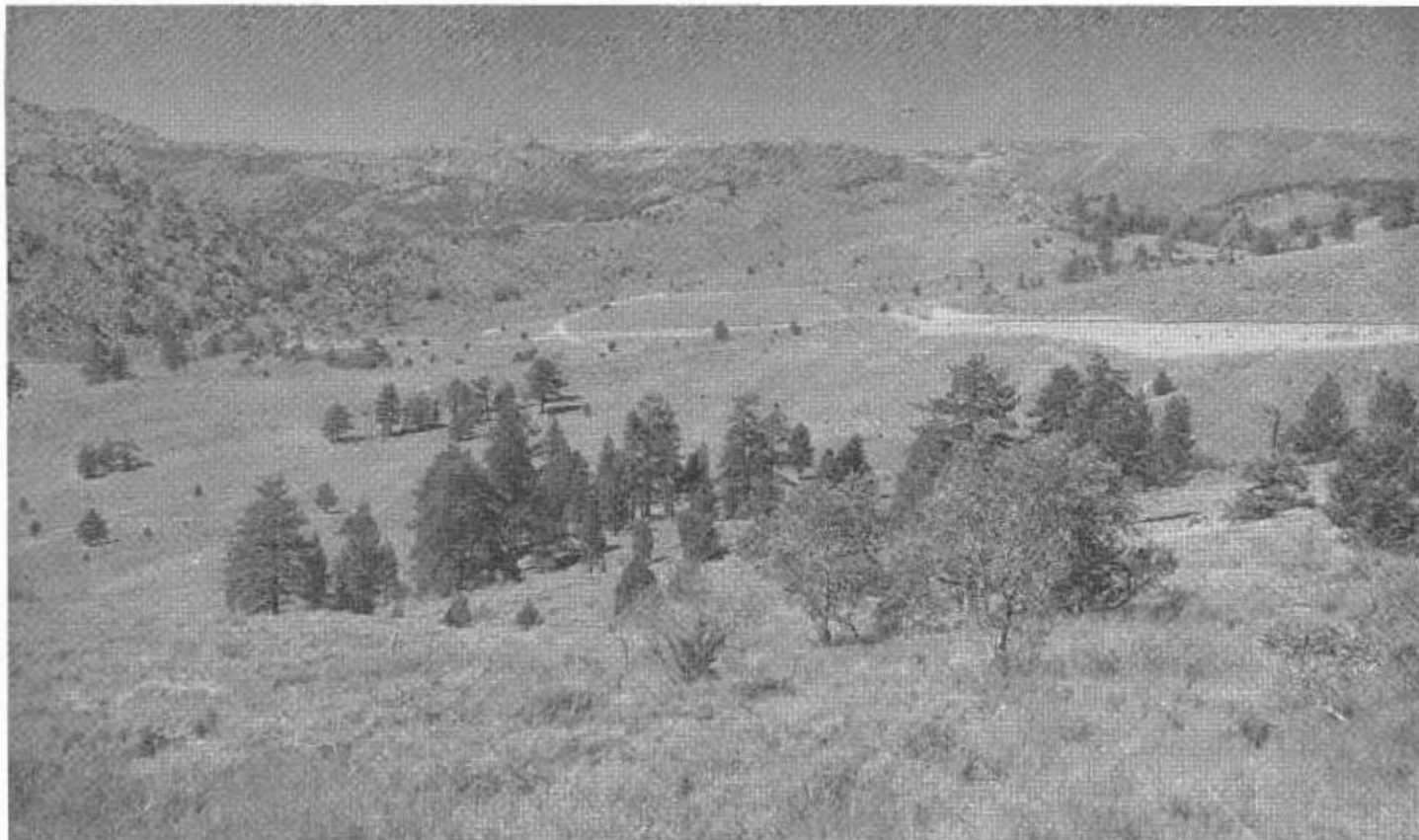


Mrs. Wanda Durkee snips ceremonial ribbon. LEFT TO RIGHT: Assemblyman Francis C. Lindsay, Loomis; Director of Public Works Frank B. Durkee, Mrs. Durkee, Mrs. Milton Harris, wife of District Highway Engineer Harris, Bishop.

expended for preliminary and construction engineering.

Of the approximate total of \$965,000 expended on this new road, which figure includes preliminary and construction engineering costs, the distribution by agencies and funds is as follows:

	Alpine County	
FAS funds	_____	\$159,100
CHAA funds	_____	60,000
Chapter 20 funds	_____	106,400
County funds	_____	45,600
	Subtotal	\$371,100
	Mono County	
FAS funds	_____	\$93,200
	Subtotal	\$93,200



State of California	
FAS funds _____	\$102,400
SH funds _____	398,300
Subtotal _____	<u>\$500,700</u>
Grand Total _____	<u>\$965,000</u>

As a start for one of the few completely new California highways built in recent years, Alpine and Mono Counties had about 5½ miles of dirt road in two separate locations. One road extended along Monitor Creek from Sign Route 4 (Ebbetts Pass Highway) south of Markleeville to the vicinity of Heenan Lake. On the opposite end, a Forest Service road ran its half mile up Slinkard Canyon from US 395.

Rugged Terrain

The 12-mile stretch in between was virgin country, accessible only on foot or horseback, in high terrain where a highway would have to skirt Leviathan Peak, which rises to a height of 8,985 feet. Although about



UPPER: New highway looking from just west of Alpine county line. LOWER: Looking east on new road.

half the 15 miles is in Alpine County, Mono County in 1947 contracted with a consulting engineer to make a

survey of the whole contemplated route.

... Continued on page 30

Portola Overhead

FAS-County Funds Finance
Plumas Road System

By F. L. O'ROURKE, Road Commissioner

AS THOUSANDS of people all over the Nation celebrated Labor Day, 1954, the people of Portola in Plumas County were realizing "the fruits of their labor" through the formal dedication of their 20-year dream, namely the Portola Overhead. At 10.30 a.m. on that day, the sorely needed overpass was opened to the use of the public.

Those who joined in the ribbon cutting ceremony as speakers were Assemblywoman Pauline Davis, Supervisor Clair Donnenthirth, and two representatives of the Division of Highways, H. B. LaForge, Engineer of Federal Secondary Roads from Sacramento, and J. W. Trask, District Engineer from Redding. Other county officials present were Supervisors J. C. Cloman (Chairman of the Board), E. J. Humphrey and J. F. Flanagan, and County Engineer Joe Watson.

The City of Portola was represented by Mayor Ira C. Baldwin and Councilmen Ray Ross, George Conant and Bernard Guzenske. The master of ceremonies, L. C. DeArmond, introduced the Portola High School Band, and midst the band playing and fanfare came the happiest moment of all when Miss Joan Alorza, this year's Plumas County Fair Queen, snipped

the ceremonial ribbon, thus officially opening the project to traffic.

This project was first proposed in the early twenties when Portola was an unincorporated town. Businessmen tried to undertake this work under the Public Works Administration, but before all were in agreement with the location of the overpass, the Public Works Administration no longer existed. Again in 1935, this project was proposed but little progress was made at that time. In 1945, the county placed a \$25,000 capital outlay in the budget for this project, and this amount was increased in 1949 to \$50,000. It was through the tireless efforts of County Supervisor Donnenthirth and the present board of supervisors that in 1953, with the assistance of federal aid secondary highway funds plus state highway matching funds and help from Western Pacific Railroad, the project materialized at a cost of approximately \$325,000.

The Portola Overhead consists of two steel girder bridges with concrete slab decks, one of 225 feet in length spanning the middle fork of the Feather River, and the other 196 feet long overpassing the tracks of the Western Pacific Railroad.

The completed project will expedite the flow of vehicular traffic, which sometimes numbers 5,000 per day, and people will no longer be compelled to use the inadequate bridge and train crossing which created a great human hazard, especially when ambulances, fire engines and police cars were halted sometimes for periods of 13 minutes at a time.

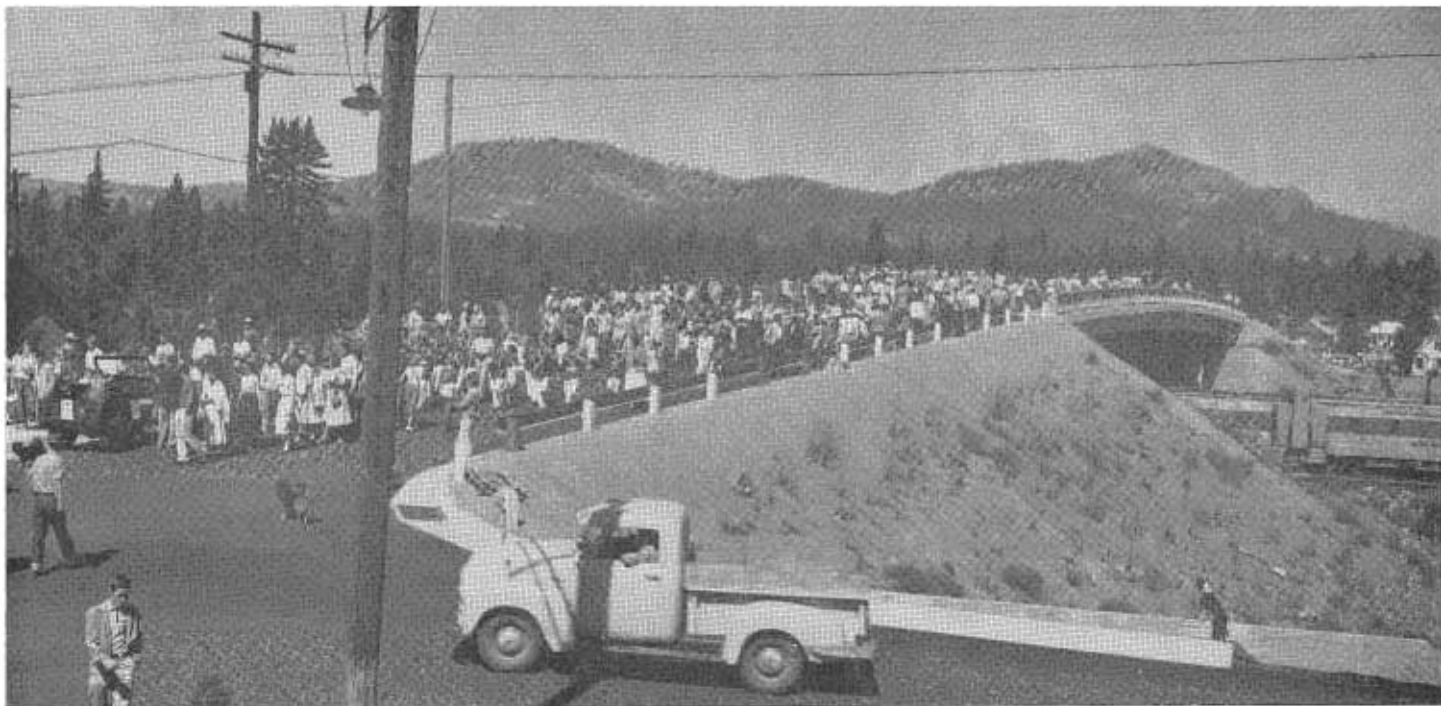
Not only was there cause for celebration in this little mountain city because of the completion of the Portola Overhead, but simultaneously the Plumas County Road Department completed the reconstruction of the Portola-McLear Road, County Road 114. This scenic county road was designed and constructed to modern standards for a distance of eight miles. It connects State Highway Route 21 (U. S. Sign Route 40 Alternate) with State Highway Route 83 (State Sign Route 89) and will serve the people of eastern Plumas County.

The Plumas County Board of Supervisors, as well as the writer, are very grateful for the cooperation shown by the Division of Highways, the Bureau of Public Roads and the Western Pacific Railroad.

Photos on following page

Old narrow bridge over the middle fork of the Feather River and grade crossing over Western Pacific tracks are replaced by new modern bridge and overhead. This long-needed improvement at Portola in Plumas County is accomplished under the federal-aid secondary highway program.





UPPER: First traffic over Portola overhead consists of Labor Day parade. LOWER: Assemblywoman Pauline Davis lends moral support to ribbon cutter Joan Alorza, queen of Plumas County Fair. Others in photo are (Left to Right): Ray Ross, Portola City Councilman; Harold B. LaForge, Engineer of Federal Secondary Roads with the Division of Highways at Sacramento; Ira C. Baldwin, Mayor of Portola; J. W. Trask, Division of Highways District Engineer at Redding; E. J. Humphrey, J. F. Flanagan and Clair Donnenwirth, members of Plumas County Board of Supervisors; J. C. Cloman, Chairman of the Board; and F. L. O'Rourke, Plumas County Road Commissioner.

Road Contrasts

An Engineer Sees Highways
in South American Countries

By GEORGE F. WINSLOW, Associate Highway Engineer

ONE HAS ONLY to travel outside the confines of California to appreciate the splendid highways our State possesses. This truism again was impressed upon me by my latest trip beyond the borders of our commonwealth—this time a visit to South America.

My wife and I celebrated our twenty-fifth wedding anniversary by taking our two children on a trip to South America—down the West Coast; up the East Coast. We boarded the Norwegian freighter *M. S. Grenanger* at San Francisco, June 18th and made stops at Hueneme and San Pedro.

Leaving California, our first stop was Buenaventura, Colombia. This very active seaport is surrounded by dense jungles. While there we took a side trip through the jungles and Colombian Andes to the interior City of Cali. Orchids, banana trees, rubber plants, waterfalls, and other interesting sights were plentiful along the way. This narrow two-lane road winding through the mountains has some concrete and asphalt paving near the two cities and the remainder is waterbound gravel. Even though they have so much rain, the only poor subgrade effect that we noticed was in the concrete section. Our ship's cargo included a large supply of asphalt for this area. Truck traffic is large for this type of road.

We were quite intrigued with the way they drive in South America. While they are fast drivers and pass on blind curves, they have relatively few accidents. The slightest accident calls for a social meeting of the drivers, passengers, and all who are blocked by the vehicles which are left parked in the middle of the road. While the horn is an essential part of their equipment and used frequently, it is only as a warning and not as a claim for right of way or a protest for being blocked. Roadside shrines, for people who have been killed, are



Escarpment section of divided express highway from Santos to Sao Paulo in Brazil

numerous along the roads with fresh flowers and burning candles. Another revelation was that when motor vehicles meet at night they turn their lights to dim or parking lights until they pass, both in the mountains and in the cities.

After leaving Buenaventura, our next stop was Guayaquil, Ecuador. This port, about 40 miles inland, is only accessible to large ships during high tide. Here, as well as elsewhere in South America, most of the streets are narrow and restricted to one-way traffic. Sidewalk merchants are numerous and busier than the adjacent stores.

On to Peru where we stopped at the seaports of Paite, Haucho, Callao, Cerro Azul, and Pisco. While Peru is situated along the west slope of the Andes Mountains, the Pan-American Highway has been completed from the Ecuadorian border to the Chilean border and laterals are planned to connect with Brazil and the Amazon River area.

We left the freighter at Tocopilla in northern Chile and traveled by taxi over 100 miles through the foothills of the Andes and the coastal plains to the airport of Antofagasta. The only vehicle encountered in the entire distance was the stage,

Due to the lack of good roads and the long distance between cities, airplane travel is well developed in South America. Even the school children, going to and from home during vacations, travel by plane. As we were flying from Antofagasta to Santiago on the Chilean Air Line, the Andes were so close to the coastline that we crossed spurs and saddles of the mountains where the wings of the plane just cleared the ground.

We had planned on crossing the Andes to Buenos Aires by train as we had heard interesting stories about the rail line but, due to shortage of time, it was necessary to fly across. We passed over the famous Statue "Christ of the Andes" on the Chilean-Argentina border. During their summer, an automobile road is open across the mountains at that location.

Buenos Aires, Argentina's main port is about 170 miles inland from the coast and is the point where we boarded the United States passenger ship *Del Sud* headed for the U. S. A. Buenos Aires has many beautiful parks and what is reported the widest street in the world below which is the largest underground parking for vehicles in the world. Florida Street, a narrow street of renown is Buenos Aires' Mecca for sou-

venir hunters. During shopping hours, no vehicles are permitted and the street is crowded from wall to wall with pedestrians.

Our next port was Santos, the main coffee shipping port of Brazil. From this port to the inland city of São Paulo is a multiple-lane express highway which would compare very favorably with any highway in the U. S. A. This 35-mile highway, started in 1940 and completed about six years later, cost about 12 million United States dollars. There are three distinct sections to the construction, the coastal plain, the abrupt rise of 2,400 feet of granitic escarpment called the "Serra," and the plateau. The coastal plain with its boggy areas required sand drains similar to those used on various highway projects in California. The plateau section involved bridging portions of the Rio Grande Reservoir. The "Serra" section with side slopes up to 60 percent, rains averaging 170 inches a year, and dense vegetation involved special engineering. It was found better to construct separate two-lane highways for the ascending and descending grades at different levels but somewhat parallel. It required about eight miles of switching back and forth to climb to the plateau section.

Structures for the highway consist of five curved tunnels, three large bridges, 20 viaducts and 47 large culverts. Speed limits are set at 47 miles per hour on the grade and 65 miles per hour on the leveler sections top



Lone vehicle on 100 miles of road between Tocopilla and Antofagasta in Northern Chile

and bottom. Busses are required to check in at both ends of the highway and have a minimum time limit of 52 minutes to make the trip. Prior to constructing the highway, and still in use, the railroad was the main connection between the cities. The railroad cars (passenger and freight) had to be raised and lowered over the face of the escarpment by cable.

São Paulo is probably the fastest growing city in the world. Eight years ago it averaged 12,000 building permits a year and it now claims an average of one new building being completed every 40 minutes. São Paulo district produces more coffee than any other place in Brazil. Not far from São Paulo is the snake farm at Butantan where rattlers and other poisonous snakes are milked of their poison for use as serums.

The next port visited in Brazil was Rio de Janeiro, the playground of South America. After sightseeing in various parts of the city, including

the Botanical Gardens, we took a winding road back to the city through dense vegetation and places where the road is cut out of the face of the cliffs to the top of Corcovado where is located the Statue of Christ the Redeemer. This statue, over 100 feet tall, is covered over the entire surface with small pieces of marble imported from Italy. The statue is illuminated at night and can be seen far out to sea as a lighted cross up in the air when the lights of the city have been blocked from view.

We left Rio and traveled several days on the ship to Willemstad on the Dutch island of Curacao off the coast of Venezuela. This port with its colorful buildings and pontoon bridge is considered a free port and a shopper's paradise. While they produce practically nothing of their own manufacture, they have merchandise from nearly every country in the world.

As all vacations must have an ending we knew ours was nearly over when we rode into the mouth of the Mississippi River and up to New Orleans. Then by train back to California and home to Sacramento.

Jungle road between Buenaventura and Cali in Colombia blocked by minor accident



GREATEST NUMBER OF INJURIES

A total of 2,140,000 injuries, the greatest number in recorded history, were suffered in traffic accidents in the United States during the year 1953.

DON'T DANGLE ARM

Don't dangle your arm from the driver's window, advises the National Automobile Club. False signals can cause confusion on our streets and highways, and confusion can easily end in collision.

CONSTRUCTION STARTS ON SOUTHERLY END OF HARBOR FREEWAY



LEFT TO RIGHT: Councilman John Gibson, Assistant State Highway Engineer Paul O. Harding, Jack Yount, vice president of Vinnell Constructors, Inc., the contractors; Assemblyman Vincent Thomas; State Highway Commissioner Robert E. McClure; Howard Crandall, president of the Wilmington Chamber of Commerce; County Surveyor Burton Chace, E. R. Beck, president of the Harbor City Chamber of Commerce; Dr. E. C. Spires, president of the San Pedro Chamber of Commerce; and Harbor Manager Bernard Caughlin.

Ground-breaking ceremonies at the southerly terminus of the Harbor Freeway near Battery Street in the San Pedro area, Los Angeles County, celebrated the start of construction work by the Vinnell Company. This \$3,000,000 construction extending for 2.8 miles from Battery Street to Pacific Coast Highway was awarded by the Director of Public Works to the Vinnell Company on June 30, 1954.

An enthusiastic group of about 200 people gathered for the ceremony. They were undaunted by the fact that the contractor's huge bulldozers and power shovels were not available for breaking ground in the modern way so No. 2 long-handled shovels were passed around and the public officials present broke the ground the hard way as was customary some 50 years ago.

BAY BARRIER EXPERTS SEEK ANSWERS IN NORTH

The State Division of Water Resources is using ship locks on Puget Sound, near Seattle, as a guinea pig to find out how much salt water would get upstream from locks operated at salt-water barriers across San Francisco Bay. The study is being made as a part of the State's half million dollar

investigation of feasibility of building a salt-water barrier in San Francisco Bay.

State Engineer A. D. Edmonston announced that 12 scientists and technicians from the University of Washington have been employed by the division to measure salt-water en-

croachment from ship locks between Puget Sound and Lake Washington in Seattle.

Engineers of the State Division of Water Resources currently engaged in the study of the practicability of a barrier or barriers across San Francisco Bay have determined that salt water will literally flow uphill through ship locks between bodies of fresh and salt water. What they don't

... Continued on page 43

AT LAST

Continued from page 24 . . .

First Survey by Kearns

The first survey, made by N. H. Kearns, Alpine County Road Commissioner, produced a line for the highway from the vicinity of Heenan Lake to the Alpine-Mono county line, a distance of 5½ miles. A contract for grading this section was let in July, 1949, and pushed through to completion in September of 1950, with the construction engineering work being handled by Alpine County. The contractor on this section was Arthur B. Siri, Inc.

The next step was to survey the seven miles from the end of the Forest Service road in Slinkard Canyon at the eastern end of the proposed highway near US 395 to the Alpine-Mono county line. This survey was conducted partly by the State Division of Highways under agreement with Mono County and partly by Alpine County's Road Commissioner Kearns. As on the Alpine County section, this work also involved difficulty of access, and finally a camp was set up near the center of the line to save a daily walking time of four hours.

Mono Portion

The Mono County portion of the highway was graded in two sections, one by Westbrook and Pope, approximately 3½ miles in length, westerly from the end of the Forest Service road and the other by C. V. Kenworthy, approximately four miles in length, connecting the Westbrook and Pope project with the completed work at the Alpine-Mono county line and including the reconstruction of the one-half-mile Forest Service road. In Alpine County the easterly 5.5-mile section was graded in 1950 under the supervision of the State Division of Highways. In addition to the contract work, Road Commissioner Kearns of Alpine County reconstructed approximately one mile of the existing road in the vicinity of Heenan Lake in Alpine County during 1950 and 1951, by day labor, with county forces.

In Memoriam

CHARLES L. FLACK

Charles L. Flack, Associate Right of Way Agent of the State Division of Highways in District VIII, died on June 18, 1954, in San Bernardino, California, after a very brief period of illness and hospitalization.

Mr. Flack was born in Yazoo, Miss., on June 21, 1885. He went to San Bernardino with his father and mother when he was 12 years old. "Charlie," as he was affectionately known to all his friends throughout the State, went to work with the Atchison, Topeka and Santa Fe Railway Company in San Bernardino as a clerk in the Store-keeping Department, after which he was a shorthand reporter in the San Bernardino County Courthouse for 14 years. He was also in the real estate business for eight years preceding his entry into state service on January 26, 1931.

Charlie's entire 23½ years of service with the State was in the Right of Way Department, and he has been recognized by all as dean of all right-of-way negotiators.

He was a member of the Knights of Columbus, American Right of Way Association, a charter member of the C. S. E. A. and a past president of the local chapter, No. 7.

He is survived by his widow, Rose; two daughters, Lillian and Rosalind; and his son, Father John Flack.

This left an uncompleted section of 3½ miles, on which the Alpine County Road Department, under the direction of N. H. Kearns, made the preliminary location; the design and plans were completed by the State Division of Highways. Construction of this section was included in the overall grading and paving contract of the entire 17½ miles in Alpine and Mono Counties just finished by Claude C. Wood Co.-Macal Improvement Co., Inc. Work on this contract was started in May, 1953. Construction engineering was handled by state forces under the direction of Resident Engineer Ralph B. Weaver.

In Memoriam

WENDELL H. AMMON

Wendell H. Ammon, Associate Highway Engineer in District VIII, Division of Highways, passed away June 25, 1954, following an illness of several months.

Wendell was born April 11, 1904. He attended high school in Los Angeles, California, and later majored in Civil Engineering at UCLA. He entered state service in June, 1930, as a draftsman in Headquarters Office of the Division of Highways, and four years later, transferred to District IX as Assistant Highway Engineer. In May, 1938, he transferred to District X, where he spent the greater part of his state service. In February, 1951, Wendell transferred to District VIII, where he served in the position of Assistant Design Engineer until his death. He had a well-rounded experience in highway engineering, having served in construction, laboratory, maintenance, planning, and design.

Mr. Ammon is survived by his widow, Dorothy; a son, William D. Ammon; two daughters, Mrs. Patricia Walker and Carol Ammon; his parents; his sister, Mrs. William P. Ryan; and seven grandchildren.

Wendell was a member of Morning Star Lodge F. & A. M. and the Scottish Rite of Stockton. Funeral services were held June 28th, with the Rev. Richard M. Mussen of the First Presbyterian Church officiating, assisted by San Bernardino Lodge 348, F. & A. M.

Fifty years ago in August, according to the National Automobile Club, the first citation for speeding was issued in the United States. The driver was fined \$15 for going between 15 and 20 miles an hour and was later given a five-day sentence in the Newport, Rhode Island, County Jail.

California cities realize a higher total revenue from parking meters than municipalities in any other state. According to the National Automobile Club, the total fees collected in California exceed \$4,500,000.

ANATOL EREMIN GIVES ADVICE TO HAWAII

Anatol Eremin, Associate Bridge Engineer, Division of Highways, was on loan for four months this year to the Department of Public Works, Territory of Hawaii, to assist with preparation of plans for two single bore highway tunnels through the Nuuanu Pali. Arrangements for this assignment were made at the request of Ben E. Nutter, Territorial Highway Engineer. Eremin arrived in Honolulu on March 24, 1954, and completed his assignment the end of July.

Eremin has been with the Bridge Department for about 26 years. He is a native of Russia and received the equivalent of a B.S. degree in Civil Engineering from The Institute of Ways of Communications, Petrograd, Russia, in 1917. In 1924 he received an M.S. degree in Civil Engineering from the University of California.

From 1917 to 1920, Eremin worked on construction of railroads, bridges



ANATOL EREMIN

and buildings in Russia; from 1920 to 1922 he was resident engineer for building construction in Shanghai,

China; and from 1924 to 1928 he worked on design and construction of the Posey Tube, Oakland, California. Since 1928 he has been with the Bridge Department, Division of Highways.

WORK APPRECIATED

MR. GEORGE T. MCCOY
State Highway Engineer
Sacramento, California

DEAR MR. MCCOY: I want to thank you very sincerely for allowing Mr. Anatol Eremin, of your Bridge Department, to assist us in the design of the Nuuanu Pali Tunnel—a federal-aid highway project. He did a fine job and we are deeply appreciative.

I feel particularly grateful to the California Highway Department and to Mr. Eremin and yourself for providing us with that assistance.

Very truly yours,

BEN E. NUTTER

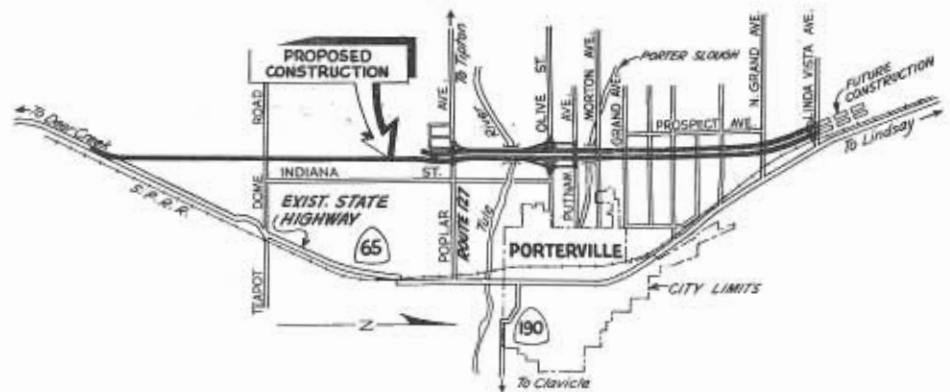
Superintendent of Public Works
Territorial Highway Engineer

NEW HIGHWAY PROJECT IN TULARE COUNTY

On August 25th, Director of Public Works Frank B. Durkee awarded to Fredericksen & Kasler, Sacramento, a contract for \$884,171 for structures and grading work on the 7½-mile relocation of State Sign Route 65 (Orange Belt Highway) in the vicinity of Porterville, Tulare County.

Construction on the new route which will carry through traffic to the west of Porterville will begin 1½ miles north of Deer Creek. The new highway will continue due north as far as Linda Vista Avenue.

The southerly half of the project, from the junction with the existing highway to Poplar Avenue (State Highway Route 127) will be graded initially for a modern two-lane highway, although sufficient right of way has been acquired for future construction of two additional lanes and a dividing strip.



From Poplar Avenue north to Linda Vista Avenue, structures will be built and grading done for a four-lane divided highway. The structures include twin bridges over both the Tule River and Porter Slough and a traffic interchange at Olive Street where the local east-west traffic will cross under the divided highway. The project also includes surfacing of frontage roads.

The State Highway Budget for 1954-55 contains an allocation of \$1,110,000 for the grading and structures, which will require approximately a year to complete. A separate contract will be required for the paving of the highway.

Total cost of the new section, including the paving and the rights of way, is expected to approximate \$2,750,000.

BAYSHORE FREEWAY BRIDGE IS JUDGED BEST OF ITS KIND

The Ninth and Tenth Street viaduct on the Bayshore Freeway in San Francisco has been judged by the American Institute of Steel Construction to be the most beautiful Class II steel bridge opened in 1954.

Each year the American Institute of Steel Construction sponsors a competition for the most beautiful steel bridge opened to traffic in the United States or Alaska during the previous year. Class II is for bridges costing over \$500,000 and having no span over 400 feet. In making the award the institute said referring to the Bayshore Freeway structure:

"This bridge was acclaimed not only as a winner but as the most imaginative entry because it is an honest structural solution to a difficult and complex problem. There is great harmony in the structure even though both single and double columns are used in the supports. It exemplifies the strength, simplicity and integrity which can be accomplished merely by the use of steel alone."

The structure was designed by the California Division of Highways Bridge Department under Assistant State Highway Engineer F. W. Panhorst. Charles L. Harney, San Francisco, was the contractor and the steel was furnished and erected by Bethlehem Pacific Coast Steel Corporation.

This striking photograph shows the beautiful design of the Ninth and Tenth Street Viaduct on the Bayshore Freeway in San Francisco



Frank Escobedo Personnel Officer Of Public Works

After 2½ years absence during which he was Personnel Director for the City of Philadelphia, Frank J. Escobedo has returned to Sacramento and on September 1st accepted an appointment by Director of Public Works Frank B. Durkee as Departmental Personnel Officer of the Department of Public Works.

Escobedo is a graduate of University of California at Berkeley in Pub-

lic Personnel Administration. He completed a year of graduate work at University of California's Bureau of Public Administration and had 10 years' personnel experience in California state service, including five years as a personnel officer. He had 3½ years' personnel experience in the U. S. Army, in which his last assignment was battalion personnel officer and adjutant. For the past 2½ years as personnel director for Philadelphia his basic job was to organize, plan, and put into operation a civil service and personnel management program for the city's 25,000 employees.

YES, WE DO DRIVE

Californians, on the average, drive about 1,000 more miles per person every year than the rest of the Country's citizens. According to the California State Automobile Association, the figures are: Californians, 4,396; United States average, 3,426.

FREEWAY DRIVING

Don't think that because you're driving on a freeway you can relax your attention. Driving is a full-time job no matter what kind of road you're on.

Hewes Award

Arnold Carver Recognized
for Radio Communication

ARNOLD H. CARVER, Departmental Communications Supervisor for the Division of Highways, is the 1954 winner of the Dr. L. I. Hewes Award, according to an announcement by the Western Association of State Highway Officials.

Carver, who was nominated by State Highway Engineer Geo. T. McCoy, was presented with the award at the WASHO meeting at Sun Valley, Idaho, on September 18th, by James I. Ballard, president and publisher of *Western Construction* magazine.

The award, which is presented yearly for outstanding contribution to western highway development, also carries with it a cash prize of \$500.

Carver is the second Californian to win the award. James T. McWilliam, Assistant Highway Engineer in the Division of Highways Planning Survey, was co-winner with H. W. Humphres of the State of Washington in 1952.

Award Honors Dr. Hewes

The award was established in 1951 to honor the memory and achievements of Dr. Hewes, the late Western Regional Chief of the U. S. Bureau of Public Roads.

Carver's nomination for the Hewes Award came as a result of the leading part he has played in developing a state-wide highway radio communication system which includes 140 fixed installations and 650 mobile units. This system has made radio coverage available on every mile of the 14,000 miles of state highway in California which covers a wide variety of terrain and climatic conditions.

The system, which is one of the first to be developed in this Country, is being copied widely by other organizations and agencies.

Carver also played an important part in adapting two-way FM radio to Maintenance Department operations in the field.



Photo shows Arnold H. Carver, Communications Engineer for the California Department of Highways, standing on left, receiving the Dr. L. I. Hewes award at the Western Association of State Highway Officials convention from James I. Ballard, President of *Western Construction* magazine, back to camera. Others in the picture, left to right, are: Hal Hale, Executive Secretary of the American Association of State Highway Engineers; R. H. Baldock, Oregon State Highway Engineer; C. O. Erwin, New Mexico State Highway Engineer and president-elect of WASHO; Carver and Ballard; WASHO President E. V. Miller, Idaho State Highway Engineer; and W. A. Willey, Secretary-Treasurer of WASHO and Engineer of Economics and Statistics, Arizona Highway Department. (Idaho Department of Highways Photo).

As an additional service, road conditions which might affect traffic during storms or other unsettled conditions can be reported from any part of the State without delay and information concerning them passed on to the traveling public. During the winter months a daily road condition report compiled by the radio section is made available to newspapers, wire services, radio and television stations, transportation companies, automobile clubs, and other agencies concerned with giving out information to the motoring public.

Carver Prime Mover

Carver was assigned to the highway communications project in 1946 when the use of radio in connection with highway activities was first proposed, and he has been the prime mover in the design, construction, operation and maintenance of the system since that time.

For the past three years he has been Chairman of WASHO's Committee

on Radio and a member of the Radio Committee of the national organization, the American Association of State Highway Officials.

Carver was born in Boston, Massachusetts, and received his engineering education at Los Angeles City College. He came to work for the Division of Highways in 1938.

During World War II he served overseas as a captain in the 51st Engineer Combat Battalion, returning to state service in 1945.

Carver, who lives at 2580 Romany Road in Sacramento, is married and has one son.

THE SAFE SIDE AND SUICIDE

Many a life would be saved, and many a motorist would avoid the inconvenience and expense of a costly accident, if all who drive cars would make it an inviolable rule to use the car door on the side away from traffic.

San Fernando Pass

Story of Historic Gateway
To the San Joaquin Valley

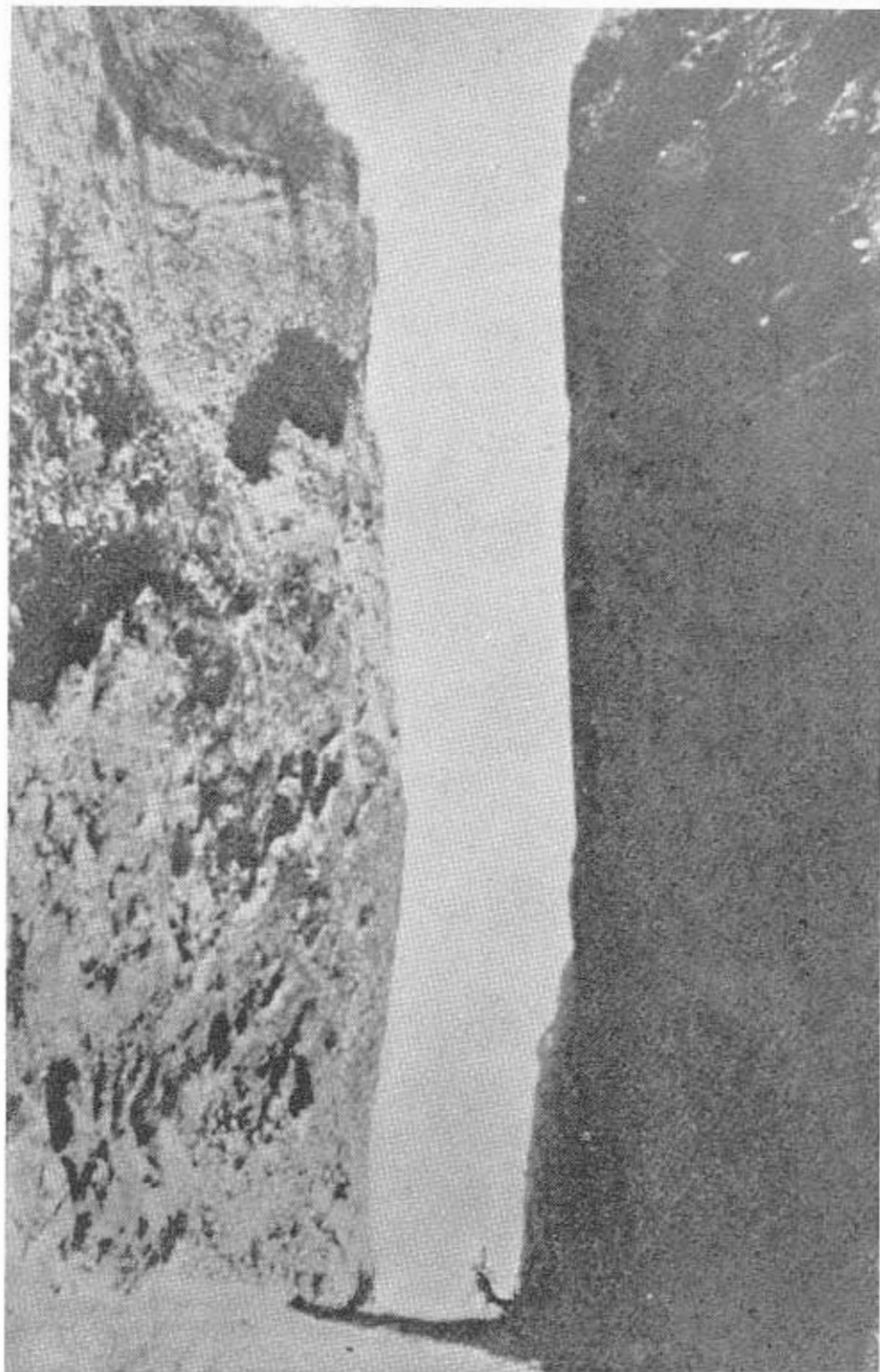
By ALICE FISHER SIMPSON

OF ALL California's mountain passes, perhaps none has played a more dominant part in the State's development than has the old, abandoned pass in the Santa Susana Mountains, a few miles north of San Fernando—within a stone's throw of the heavily traveled highway, US 6.

Once known as the Cuesta Viejo (the Old Grade), the historic pass has been called by various names: San Fernando Pass, Fremont Pass and the Old Newhall Grade. Its recorded history began in the year 1769, when Don Gaspar de Portola and his expedition, making their way up the coast in search of the Bay of Monterey, traversed the great plain that is now Los Angeles. By way of what is now Sepulveda Canyon, they passed over the hills into a great thirsty valley dotted with live oaks, and hemmed in by bleak mountains. From the friendly natives Portola learned that the only pass over the almost formidable barrier was an ancient Indian trail, where for centuries the bare feet of the aborigines had clung to holes gouged out of the rock in order to clamber over the steep ridge. Getting the overladen mules over the almost perpendicular rocky slope was a grueling, dangerous task; but with the help of the natives it was accomplished.

Twelve years later, with the founding of the Pueblo of Los Angeles by Felipe de Neve, Portola's route became the main highway for northbound travel through the Los Angeles region, and was known as El Camino Viejo (the Old Los Angeles Trail). The steep pass over which the expedition had made its way north was referred to as the Cuesta Viejo (the Old Grade), on the Camino Viejo.

Come September, 1797, the great sprawling valley lying at the foot of the Santa Susana Mountains became the site of the seventeenth Franciscan Station—Mission San Fernando Rey de Espana, named for the canonized King of Castile, Saint Ferdinand III. Found-



The famous Beale Cut on the San Fernando-Fremont Pass road—still in use as late as 1910

ing of the new mission called for an extension of El Camino Viejo, and by 1800 the route led from San Pedro to Mission San Fernando, through the well-nigh formidable pass over San Fernando Mountain in the Santa Susana Range, and into the valley of the Santa Clara River; thence over the Tejon Creek Pass, through the San Joaquin Valley to San Antonio (now East Oakland).

By way of El Camino Viejo and over the treacherous Cuesta Viejo, to the new Spanish settlements in the north, rumbled creaking ox-drawn carretas from the little Pueblo of Los Angeles. Over the same dangerous pass—the only means of reaching the Tejon Pass and the lush grazing lands of the Tulare Valley beyond—vaqueros drove the vast herds of lean, sharp-horned mission cattle. Bellowing fiercely as they stampeded their way over the abrupt slope of the steep, narrow grade, many of the animals were frequently crowded over the precipice, into the deep canyon below.

With the 1840's, California's languid pastoral era was slowly drawing to a close. History was on the march! Over the old Cuesta, in 1842, rode the excited Californian, Don Francisco Lopez, carrying from Placerita Canyon the first important gold discovery in California. Some of the nuggets from those first mines were taken over the old pass and sent to the United States Mint at Philadelphia.

With the accession of Don Pio Pico as Governor of Alta California, a grim crisis loomed: The United States and Mexico were at war! On July 7, 1846, Commodore John Drake Sloat raised the Stars and Stripes over the Custom House at Monterey. With 1847, Fremont and his California Battalion were marching on Los Angeles!

As the southern pueblo and the San Fernando Valley were destined to become the focal points in the conflict with Mexico, Fremont approached the Cuesta Viejo with the expectation of finding the enemy there in force. But the Californians had fallen back before his advance and the pass was undisputed. That the Cuesta Viejo was already known as the San Fernando Pass is borne out in Fremont's own description of a visit to the Mission of San Fernando. "It

is," he stated, "at the foot of a pass of its own name."

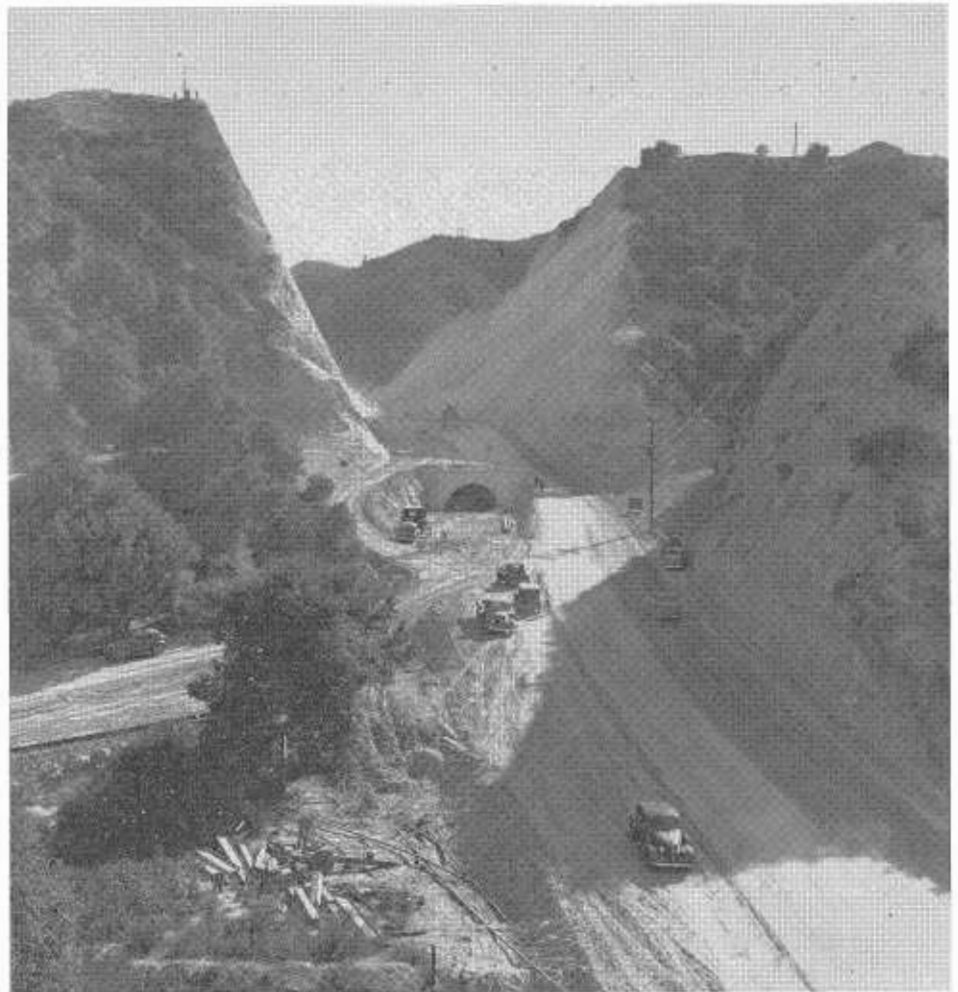
Over the years, the exact location in the rugged hill country, where the intrepid Pathfinder and his divided troops actually broke their way over the brush-covered ridge of hills, has always remained more or less a matter of conjecture. His advance on the Mission of San Fernando, however, and his junction with Stockton in the San Fernando Valley, which ultimately led to the signing of the Treaty of Capitulation at the old Cahuenga adobe, is of sufficient historical significance to have inspired the name—Fremont Pass. (A marker bearing the latter name was erected by the San Fernando Ebell Club on May 26, 1916.)

Undoubtedly, the name Fremont Pass, as well as the name San Fernando Pass, was applied to the Cuesta Viejo by the thousands of emigrants who made up the wagon trains that were to converge on California following

gold discovery on the American River in 1848.

From the Pueblo of Los Angeles north, all pioneer traffic passed over the main southern emigrant route, which lay across the Mojave Desert and over the Tejon Creek Pass to the Tulares. On the entire trip the greatest obstacle was the San Fernando or Fremont Pass; for while the existing trail over the precipitous grade was rather broad, it was so exceedingly steep that many a pioneer, contemplating the perils of the abrupt descent, was forced to lower his wagons over the mountain with a windlass or other contrivance.

By 1854, with the establishment of Fort Tejon in the Canada de las Uvas (Grapevine Canyon), about 15 miles southwest of the Tejon Indian Reservation, Los Angeles began to feel the urgent need of better communication with the outside world. Accordingly,



Newhall Tunnel, cut through the Santa Susana Mountain ridge in 1910, is shown as it appeared in 1940, while in the process of being transformed into an open cut highway

in the summer of that year, the supervisors of the County of Los Angeles voted to spend \$1,000 to open a wagon road over the mountains between the San Fernando Mission and the San Francisco Rancho. The most prosperous citizens of the pueblo, most of whom were carrying on various business enterprises from small adobe stores, were solicited for the remainder of the funds, and about \$2,900 was subscribed.

A new and shorter canyon on San Fernando Mountain was selected for the new road, a little to the southwest of the original Cuesta Viejo, where the grade was lower. As the job ahead promised to be a tough one, it called for a tough foreman; so Gabe Allen—a rough, seasoned frontiersman and former Indian fighter from Chihuahua, Mexico, was hired to direct a road-building gang of 20 men.

In an endeavor to lower the grade, a rather shallow cut was made in the solid rock at the top of the mountain, and a roadway was built down the steep slopes of the mountainside. Long before completion of the project funds were exhausted, and it became necessary for the citizens of Los Angeles County to contribute the balance—a responsibility which they readily accepted, since everyone realized that the new road was a boon to the entire county.

By January of 1855, notwithstanding several washouts during the winter season, the New San Fernando Pass Road was finished. The grand celebration came on July 4th in Los Angeles. On July 3d, the military band from Fort Tejon—dragoons resplendent in their colorful uniforms—presented a romantic picture as they rode up the pass and through the new cut in the rock at the summit. Although a considerable improvement over the Cuesta Viejo, it was still a tough climb and a veritable scramble for the sweating, panting cavalry horses.

Teamsters, too, often had a bad time of it, hauling heavily laden wagons to the Sebastian Indian Reservation and Fort Tejon. The greatest stumbling block was an almost perpendicular ledge of rock about four feet down, where Phineas Banning's stage went over the grade and Bishop Kip's

empty wagon took a similar plunge. At another time, Jacob Kuhrt was forced to use four yokes of cattle and a windlass to bring his team over the pass.

With the year 1857, through the narrow cut in the rocky summit, emerged one of the weirdest caravans ever to have been seen in California, when Lieutenant Edward Fitzgerald Beale led a United State Government camel train from San Antonio, Texas, to Fort Tejon, California, by order of Jefferson Davis, Secretary of War. It was a unique experiment on the part of the government to prove whether or not camels could be successfully used in transporting freight and supplies to the West and also in the construction of a wagon road across the southwestern desert to the Pacific.

In the long trek westward, crossing the Rocky Mountains had been difficult enough for small-hoofed beasts, geared for the heavy sand of the desert; but never had the clumsy, lumbering camels encountered anything quite as bad as the steep, rocky Pass of San Fernando. Gazing in profound wonderment, bewildered Indians stood spellbound as the huge awkward animals—their ugly necks outstretched—cautiously picked their way up the steep south slope of the pass, straining every nerve and muscle to scramble up the perpendicular rocky ledge. Once through the cut, the panting beasts paused for a moment, chewing their cud the while, and gazing dolefully at the steep, twisting slope before them, over which they would virtually have to slide their way down—heavy packs and all.

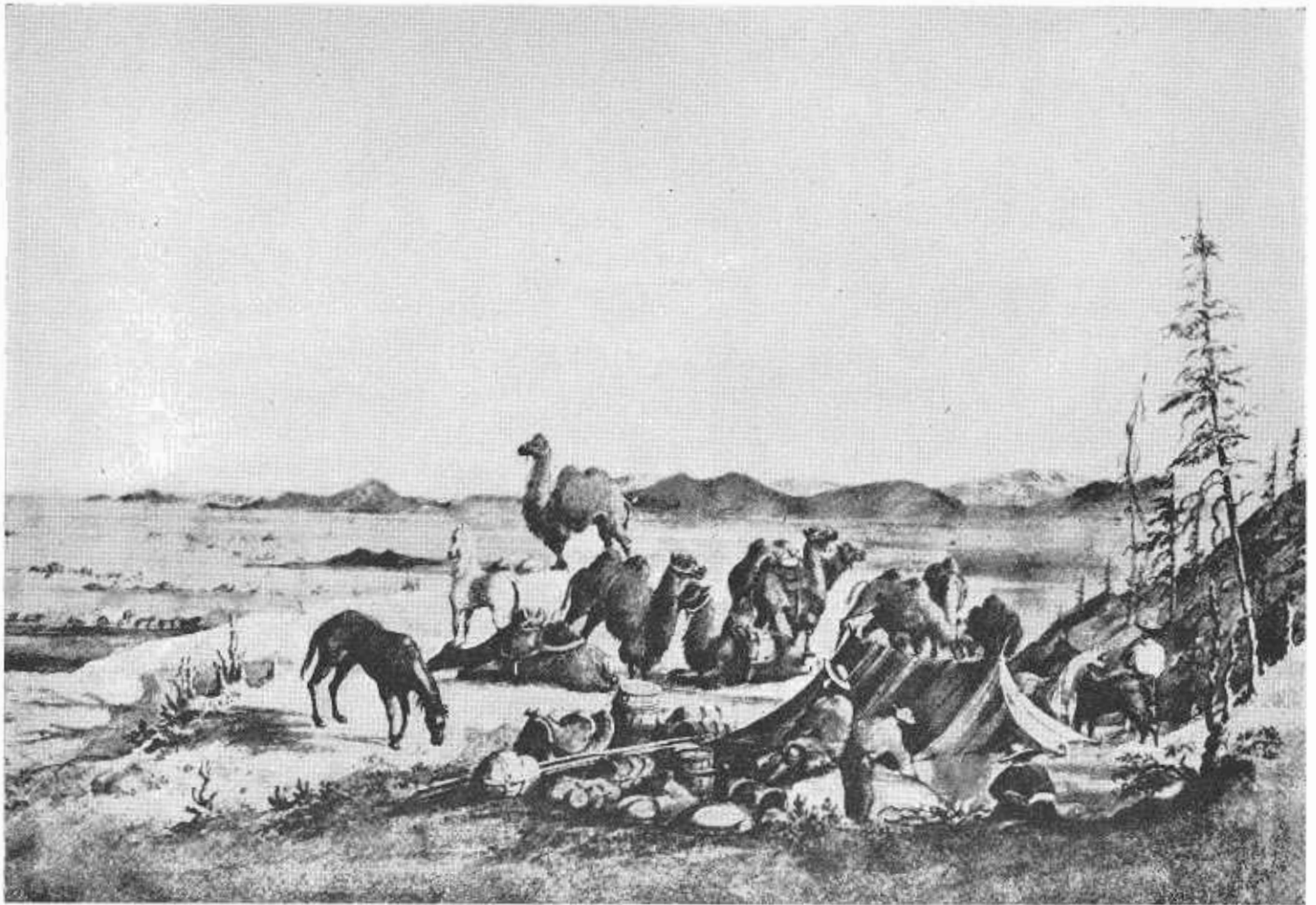
By 1860, Los Angeles businessmen were becoming exasperated by the endless struggle to move freight and supplies into the San Joaquin Valley. Shipping between the two points was at an all-time high; but between the market and the consumer stood that stubborn barrier of the Santa Susana Mountains—the San Fernando-Fremont Pass, practically useless during the rainy season, and so jammed with traffic at other times as to be virtually impassable for heavy teaming. Long trains of United States Government wagons from Fort Tejon were crowding the steep, narrow grade on their way over the Santa Susana Mountains for repairs. Wagon trains from Salt Lake and Fort Mojave were also clut-

tering the pass, waiting their turn to get through the narrow cut at the summit. In June of 1860, a bonanza gold strike at the Big Blue Mine (in the Sierra Nevada, on the North Fork of the Kern River) brought still more travel and confusion, along with the ever-increasing number of livestock that were being moved over the pass to the great plains of the southern Tulare Valley.

To add to the already complicated traffic situation, came the startling announcement that a telegraph line was to be built through the great empty stretches of the Tulare Valley, from Visalia south to Fort Tejon, thence from the fort over the mountains to Los Angeles. Plans called for huge loads of heavy, square redwood poles to be shipped from Northern California, by boat to San Pedro. From that port, Major Phineas Banning was engaged to transport the poles to the various points along the line. Fifty teams were made ready for the Herculean task and soon long lines of sweating horses tugged and strained to haul the heavy poles through the high cut in the San Fernando Mountain.

Throughout the years many changes had been proposed and some money had been appropriated for overcoming the serious traffic hazard; but little had actually been accomplished. With establishment of the Butterfield Overland Mail service between St. Louis, Missouri, and San Francisco, California, in 1858, the San Fernando Pass presented an almost impassable barrier for loaded passenger stages.

Cognizant of the serious impediment to overland travel, the County of Los Angeles, in June of 1858, appropriated money for improving the pass, both for widening of the road and deepening of the cut through the summit. By August, the Butterfield firm began running stages three times a week from San Francisco; but there were still times when frightened passengers preferred to get out and walk over the pass rather than risk being hurled over the grade. Meanwhile Los Angeles County continued the struggle to alleviate the traffic nuisance, spending considerable money in an attempt to build a tunnel through San Fernando Mountain; but like all the



Uncle Sam's Camel Train—one of the strangest caravans ever to travel the San Fernando Pass

other plans, this one too came to naught.

Then came the heavy winter of 1861-62, when California was lashed by some of the worst storms in her recorded history. Rampaging floodwaters poured down the steep slopes of San Fernando Mountain, completely washing away the road—thus severing all connections between Los Angeles and the San Joaquin Valley, with exception of the old trail over the precipitous Cuesta Viejo. The California Legislature promptly intervened, granting a franchise for a toll road across the pass to three Los Angeles citizens, one of whom was the former general of the California forces, Don Andres Pico—now a loyal American citizen. But once again nothing was done; and in 1862, the franchise, which called for cutting the pass down a distance of 50 feet, was turned over to Edward Fitzgerald Beale of camel fame, owner of the

extensive Rancho El Tejon, whom President Lincoln appointed Surveyor-General of California and Nevada in 1861. Beale was an experienced hand in surveying routes, exploring mountain passes and building roads over their summits. He had previously been appointed by Secretary of War John B. Floyd, to supervise the construction of a military road from Fort Defiance, New Mexico, to San Diego, California, and now mustered all his engineering skill for an attack on the stubborn sandstone walls of San Fernando Pass. The former Surveyor-General and his men accomplished a most remarkable feat of pioneer engineering. With little more than pick and shovel and dogged determination, the narrow defile in the solid rock at the summit of San Fernando Mountain had been widened to approximately 15 feet and lengthened to a depth of from 50 to 60 feet—thus providing the growing southland with a reasonably

safe, but still steep outlet with the north.

The new road through Beale's Cut, coupled with the new discoveries and developments which were to take place north of and around the San Fernando Valley, had a direct and profound bearing upon the phenomenal growth of the sleepy little Pueblo of Los Angeles. With discovery, in the late 1860's, of the famous Cerro Gordo Mines of Inyo County—rich in silver, lead and zinc, long lines of 10- and 12-horse teams pulled the heavy freighters back and forth between the Inyo mines and Los Angeles, with all traffic passing through Beale's Cut.

The development of the oil industry, which had its inception in February of 1865, with oil discovery in Pico Canyon, was another major factor responsible for the growth of Los Angeles, and likewise for the redevel-

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On-Job Training

Division of Highways Expands Courses on State-wide Basis

By A. C. DILDINE, Senior Equipment Engineer

THE ON-JOB TRAINING PROGRAM of the Equipment Department, as described in the May-June, 1953, issue of *California Highways and Public Works*, has been in effect since August, 1953, when the first classes were started for the mechanics at Headquarters Shop, Sacramento. The program is presently in full operation, providing training on a state-wide basis for as many employees of the Equipment and Maintenance Departments as practical. Co-operative response is being received in every location covered.

The present training course is concerned with lubrication. It is intended to extend the subjects offered to include simplified courses in mechanics, shop methods, equipment operation and care, and any other subjects deemed advisable.

The need for on-job training resulted from the expanded highway development program since the end of World War II. This expansion has reflected directly on the Equipment Department in the increase of highway maintenance equipment owned and administered. The expansion is graphically indicated in the accompanying Statistical Data Chart on a percentage of increase basis. It is noted that there has been a 70 percent increase, since 1946, in the number of units owned, while there is only a 55 percent increase in the number of employees for this same period. In addition, the equipment has increased in complexity, as the use of complicated and highly specialized equipment has been found advantageous for practical and economical reasons.

In order to keep pace with the increasing needs of proper servicing and preventive maintenance on this modern, complex equipment and hoping to decrease the need for repairs, the Equipment Department established the "On-Job Training Program" to take the instruction to the men. A classroom trailer was designed and

procured which seats 18 employees at one time. The trailer is equipped with many modern audio-visual training aids which include a slide projector, motion picture projector, a tape recording device, and other aids in the way of charts and graphs and various illustrations. The trailer classroom has an air conditioning system, and its own self-contained power unit. This enables the holding of classes in all types of weather and in remote locations where power usage is critical. The classroom chairs are comfortable and conducive to proper attention to the discussions.

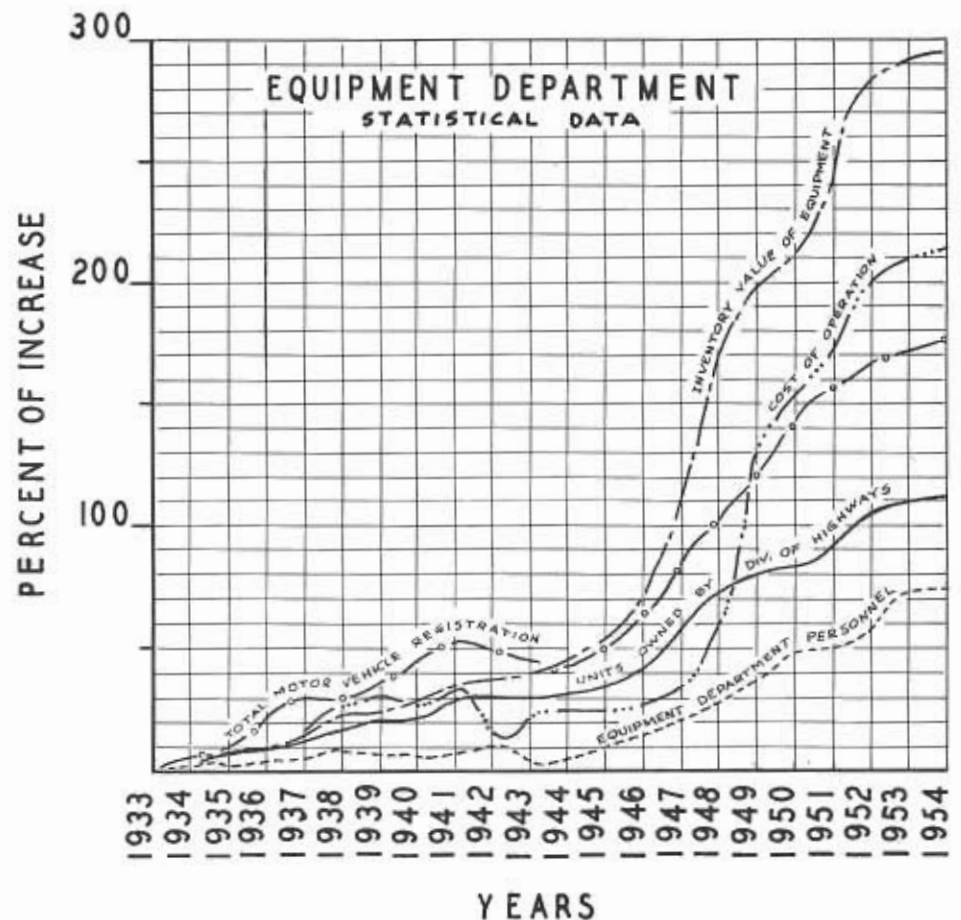
To date, two courses of instruction have been prepared. One is a five-unit course requiring a total of 16 hours of classroom instruction. The course

is in lubrication and includes friction type bearings, automotive engine lubrication and lubricating grease and gear lubricants. The second course also covers lubrication but is condensed and requires only eight hours for presentation to the maintenance personnel on the assumption that they are not so concerned with the theories behind lubrication.

Classes were started in August of 1953 and to date, 1,122 employees have attended. Instruction has been given at Headquarters Shop in Sacramento and in Districts V, VII, VIII, IX, XI and parts of III and VI. The classroom trailer is now in District I.

State-wide Program

It is the intention to continue this program on a state-wide basis, bring-



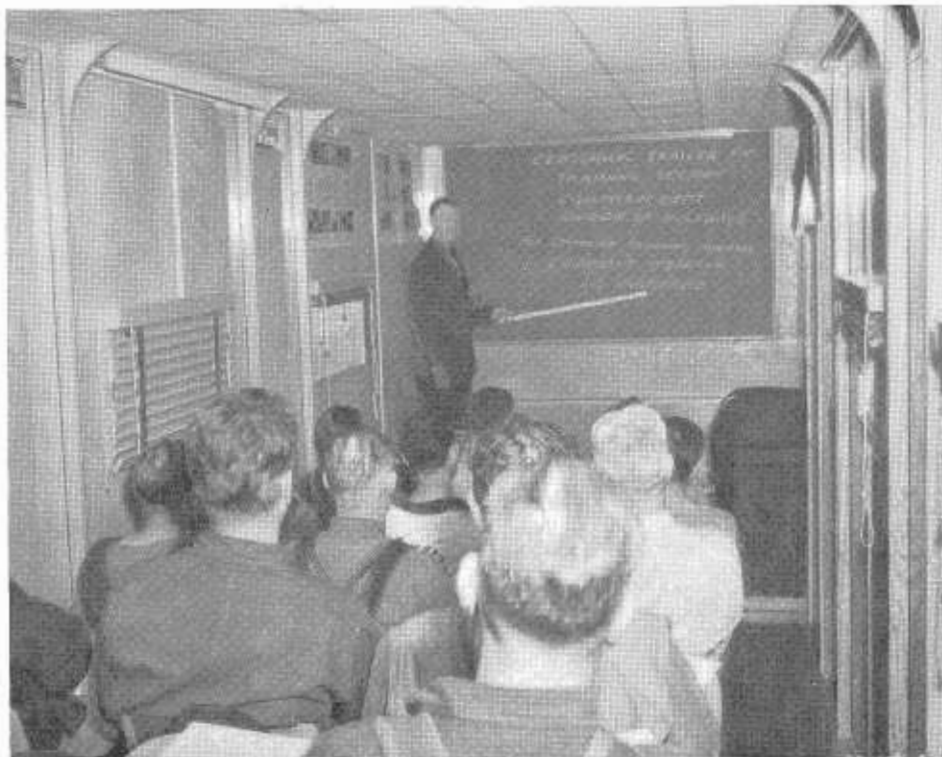
ing the trailer to each district and establishing the classes in various maintenance stations and Equipment Department shops, where employee-gatherings may be easily arranged. We estimate that there are some 1,800 employees who will benefit by attending the courses.

On the basis of the districts already covered, it is estimated that a year will be required for the classroom trailer to make a circuit of the State. When one circuit is completed, it will be followed immediately by another, with a different subject of mutual interest and advantage to all Equipment and Maintenance Department employees. To date, the classroom trailer has traveled a total of 1,743 miles for instruction purposes.

Examinations have been given to those men who have completed the short course in lubrication. The subject matter is being absorbed in a very satisfactory manner as the majority of the men are obtaining grades of 70 percent or better.

Increased Efficiency

It is anticipated that the results of this on-job training will be reflected in a reduction of repair costs and in an increased efficiency and output on the part of the operating forces because of better understanding of equipment capacities and preventive



Interior view classroom trailer. Facing front, Hilton F. Lusk instructing class of mechanics from Headquarters Shop.

maintenance. The loss in time due to equipment failures as the result of defective lubrication should be materially decreased. The Equipment Department maintains a constant check on repair costs to each individual unit by districts. The repair costs for all Division of Highways' motor vehicles and construction equipment in the

1952-53 Fiscal Year amounted to \$3,123,654.53. The possibilities of making a substantial saving as a direct result of the investment in a trailer classroom and time required by the employees to attend classes are well worth the effort. The Maintenance Department, which is the principal user of the equipment, should experience a monetary benefit in a reduction of "down time" and an increase in output of equipment due to a better knowledge of each unit and its working requirements.

Class receiving outdoor instruction from Lusk, kneeling in foreground



CALIFORNIA HIGHWAY CONFERENCE

Proceedings of the 1954 California Street and Highway Conference are on sale by the University of California Press, Berkeley 4, Calif. Price: \$2. The California Conference is presented annually by the Institute of Transportation and Traffic Engineering, of the university. It draws road men from all levels of government and the industry.

Calling Paul Bunyan

*Clearing Del Norte Freeway
Is Job for Legendary Logger*

By B. D. VAN ZANDT, Resident Engineer

MANY TIMES during the past six months the McCammon-Wunderlich Company has wished that the legendary Paul Bunyan and his great Blue Ox, Babe, could be put on the pay roll to help with the monumental task of clearing 72 acres of right of way, much of it through dense virgin and second-growth redwood forest. This king-sized logging job was part of the contract awarded in April of this year for clearing and grading a 5½-mile portion of US 101 between US 199 and the Smith River Bridge in Del Norte County. Also included in the contract was approximately one-half mile of construction along US 199 at the south end of the project and the construction of two reinforced con-

crete cattlepasses on US 101 north of the Town of Smith River.

Limited Access Freeway

The completion of this contract early this fall will result in a graded roadbed on two-lane, limited access freeway standards of the 5½-mile portion of US 101. The base and surfacing are to be placed next year under separate contract. When completed, this portion will by-pass a 9½-mile section of US 101 which is narrow and winding with undulating grade and encroaching trees and stumps, which make hazardous driving conditions for the traveling public. The new alignment consists of long tangents with two intervening

25,000-foot radius curves and very light grades.

As can be seen from the accompanying photographs, the task of clearing the right of way for this project was one of major proportions—the majority of the alignment passes through dense redwood forests. Approximately one mile is through virgin timber, from which the owner was allowed to remove all merchantable trees prior to the start of this contract. Another three miles traverse a dense forest of second-growth redwoods with some spruce and fir.

This area was originally logged in the early 1890's, the logs being hauled away by bull teams to one of the first

LEFT: View of portion of existing US 101 showing type of alignment which will be by-passed by project on right





UPPER: This blasting scene has been repeated many times in order to remove the legion of stumps resulting from logging and clearing operations. LOWER: View showing clearing partially completed through an area of dense second-growth redwood forest. The large stumps resulted from logging operations in the 1890's. Approximately one-half of the new alignment passes through this type of forest.

mills in the county. The stumps left by this operation made the clearing job all the more difficult as they required considerable effort to remove. It was also necessary to remove a

heavy blanket of humus throughout the forested areas. The remainder of the line passes through areas which vary from a heavy growth of alders to clear pasture land.

The task of cutting the trees and removing the stumps was big enough, but getting rid of the resulting mountains of debris was even greater. If

... Continued on page 63

Grand National

*Freeways Facilitate Travel
To Tenth Annual Exposition*

VISITORS from both near and far traveling by automobile to the 1954 Grand National Livestock Exposition, Horse Show and Rodeo at the San Francisco-San Mateo Cow Palace, October 29th to November 7th, will have a pleasanter, faster and safer ride than ever before in history.

This is the prediction of Nye Wilson, Secretary-Manager of the Cow Palace on the basis of a report from R. P. Duffy, Assistant District Engineer, District IV, Division of Highways, comprising the nine Bay counties, on freeway construction during the past 12 months.

The flow of traffic from the San Francisco side will be greatly facilitated by the recent opening of the Seventh Street off- and on-ramps to the Bayshore Freeway. These will relieve the congestion formerly apparent at the Ninth and Tenth Street ramps.

Traffic from the San Mateo peninsula will, for the first time this year, enjoy the full benefit of completed construction work in the vicinity of the San Mateo Bridge where all surface turns have been eliminated.

Construction work is now in progress from the south city limits of San Mateo to Redwood City but traffic is being handled on the four-lane existing facility with little inconvenience.

Castro Valley Freeway

In Alameda County the freeway by-passing Castro Valley was opened to traffic in September of this year and will afford much relief in this area which is traveled by hundreds of exhibitors and thousands of spectators from the fertile San Joaquin Valley.

Expected to be completed before next year's show is the extensive construction work on the Waldo grade of the Redwood Highway, the north approach to the Golden Gate Bridge. Work is being so conducted that the existing four-lane traveled way is available to traffic during peak hours, with only limited restrictions.



Rex Allen, famous motion picture, TV and radio star, with his horse, Koko, who will be the headliner of the arena entertainment thriller at this year's Grand National

Construction on the Eastshore Freeway north and south of the San Francisco-Oakland Bay Bridge is also being so conducted that little inconvenience is experienced, Mr. Duffy stated.

Tenth Anniversary

The Grand National will not only be easier for the visitor to reach this year but it will have one of the greatest attractions of all time in its arena show. In observance of its tenth anniversary, the huge exposition is going western in a big way.

The "Show of National Championships," will play 14 performances within the 10 days of October 29th to November 7th in the Cow Palace.

Rex Allen, famous motion picture, TV and radio western star and his horse, Koko, accompanied by the Arizona Wranglers, will headline the arena show bill.

Another feature with a western flavor will be the Boom Town Ballet, a company of beautiful dancers who will put on two numbers, one in modern cowgirl costume and the other a can-can straight out of the old time cow town dance halls.

In addition to being the last big rodeo of the year for points towards the Rodeo Cowboys' Association championships, the Grand National has once more been designated as the International Rodeo Association Championship Finals Show.

Grand National Horse Show

The Grand National Horse Show has again been selected for the National Cutting Horse Association Championship Finals and the American Horse Shows Association Medal Class National Finals, Stock Seat for Juniors. There will also be classes for western reined stock horses and trail horses as well as the fine horse classes.

A total of \$155,361 is being offered in cash premiums, prizes, purses, and added entry fees at this year's Grand National. Division of premiums, as announced by Porter Sesnon, President of the Cow Palace Board of Directors, is: livestock premiums, \$89,261; horse show prizes, \$31,100; rodeo purses \$21,000 to which will be added all rodeo entry fees, estimated at \$14,000.

Highlights in the livestock division will be the American Aberdeen-Angus Breeders' Association National Show and Sale and the Columbia Sheep Breeders Association of America National Breeding Sheep Show and Sale.

Sponsored by State Agency

The arena show alternates events of world championship rodeo with classes of a national full division horse show and famous arena specialty acts, to provide a thrilling change of pace, breath-taking action, color and rhythm.

Ticket prices for the 8,523 arena show reserved seats will be: \$2, \$2.50, \$3 and for box seats \$3.50. There will be 2,404 unreserved seats for each performance at \$1.25. Parking for 4,000 cars will be available at 50 cents.

Mail orders for choice reserved seats are now being received. Orders should be addressed to Cow Palace,



This is an aerial photograph of the famous San Francisco-San Mateo Cow Palace

San Francisco 24, California. Reserved seats are also on sale in San Francisco at the Cow Palace and at Crane Box Office, 245 Powell Street; in Oakland at Sherman Clay & Co., Broadway and Hobart Street, and outside the San Francisco Bay area at all Greyhound bus depots and ticket agents in Northern California.

The Grand Nationals are sponsored by No. 1-A District Agricultural Association, a State of California agency, the members of whose board of directors devote a large segment of their valuable time to Cow Palace affairs without remuneration. The officers are Porter Sesnon, President; Wilson Meyer, First Vice President; Roland Tognazzini, Second Vice President; Lawrence Draper, Jr., Louis G. Conlon, John Lawler, J. W. Mailliard, III, and Fred D. Parr.

BAY BARRIER

Continued from page 29 . . .

know is how much salt water will flow uphill.

The task the scientists from the University of Washington are undertaking is to establish the most complete and detailed information in existence anywhere in the world on the subject of salt-water intrusion through ship locks.

The ship locks at Seattle, which connect the salt water of Puget Sound to the fresh water of Lake Washington, are the second largest in the western hemisphere, being exceeded in size only by the Panama Canal locks.

The University of Washington scientists, headed by Dr. Clifford A. Barnes, nationally known oceanographer, are measuring the continually

changing salt content and temperature of the water in the lock. Normal lock operation will not be interrupted during the measurements so that the experiments will reflect actual conditions. An additional series of measurements will be obtained from the six-foot diameter drain used to remove salt water from the lake. All measurements are being made with special electronic equipment. The University of Washington had some equipment on hand, but not enough to make the extensive simultaneous measurements specified by the Division of Water Resources. Dr. Barnes was able to borrow some equipment from Johns Hopkins University in Baltimore, Maryland, and the United States Navy Electronic Laboratory shipped a complete set of electronic measuring devices from Norfolk, Virginia.

STATE CHAMBER OF COMMERCE SUBMITS HIGHWAY PROGRAM

On August 26th the California State Chamber of Commerce submitted to the Highway Commission in Sacramento recommendations for state highway improvement projects for all of the State's 58 counties, in line with a long established custom. The projects included many recognized highway deficiencies that will require a score of years to eliminate.

The formal proceedings before the

commission were presided over by F. W. Tarr, Chico, Vice Chairman of the chamber's State-wide Highway Committee. The chamber's six regional councils' recommendations were presented by the following: William J. Tunison, Westwood, Chairman, Sacramento Valley Council Highway Committee; A. J. Vanderschoot, Santa Rosa, Chairman, North Coast Council Highway Committee;

Claude T. Faw, Berkeley, Chairman, Central Coast Council Highway Committee; Irving Symons, Sonora, Chairman, Central Valley Council Highway Committee; Charles S. Ehrhorn, Visalia, Chairman, San Joaquin Valley Council Highway Committee; and Kenneth Kendrick, Los Angeles, Vice Chairman, Southern California Council Highway Committee.



The California State Chamber of Commerce tendered to the Highway Commission its annual luncheon at the Sutter Club, Sacramento, on August 26th. **LEFT TO RIGHT, STANDING**—V. M. Mair, North Coast District Manager, State Chamber of Commerce, Santa Rosa; Harold Springer, Orange County Road Commissioner, Santa Ana; Heinz Kaiser, Orange County Supervisor, Santa Ana; C. M. "Max" Gilliss, Special Representative, Director of Public Works, Sacramento; J. E. Jellick, Manager, Portland Cement Information Bureau, San Francisco; T. Fred Bagshaw, Special Assistant to the Director of Public Works, Sacramento; Claude Minard, Director, California Railroad Association, San Francisco; A. J. Vanderschoot, Chairman, North Coast Council Highway Committee, State Chamber, Santa Rosa; John Bronson, John Bronson Company, Sacramento; H. V. Starr, Manager, Civic Development Department, San Francisco Chamber of Commerce; Robert M. Shillito, Assistant General Manager, San Francisco Chamber of Commerce; Vernon G. Smith, Kern County Road Commissioner, Bakersfield; C. E. Bovey, Engineer of City and Cooperative Projects, Division of Highways, Sacramento; Douglas C. Mackenzie, City Engineer, Pasadena; R. M. Gillis, Deputy State Highway Engineer, Division of Highways, Sacramento; Harmer E. Davis, Director, Institute of Transportation and Traffic Engineering, University of California, Berkeley; H. B. LaForge, Engineer of Federal Secondary Roads, Division of Highways, Sacramento; Ross T. Shoaf, Traffic Engineer, City Engineer's Office, San Francisco; Howard J. Reamer, Willow Point Ranch, Clarksburg; George J. Tschumy, Tulare County Abstract Company, Visalia; Martel Wilson, Regional Vice President, Central Valley District, State Chamber, Stockton; Bruce Craver, Manager, Stockton Chamber of Commerce; R. H. Wilson, Assistant State Highway Engineer, Division of Highways, Sacramento; Corbin Shepherd, President, Stockton Chamber of Commerce; Robert E. Reed, Chief Counsel, Division of Contracts and R/W, Division of Highways, Sacramento; William J. Tunison, Chairman, Sacramento Valley Council Highway Committee, State Chamber, Westwood; George N. Cook, Assistant Secretary, California Highway Commission, Sacramento; Charles E. Waite, Assistant State Highway Engineer, Division of Highways, Sacramento; Chester W. Walker, Vice Chairman, Sacramento Valley Council Highway Committee, State Chamber, Hamilton City; Sam R. Kennedy, Los Angeles County Road Commissioner, Los Angeles; Matt English, Secretary, Metropolitan Traffic and Transit Committee, Los Angeles Chamber of Commerce; J. P. Murphy, Principal Highway Engineer, Division of Highways, Sacramento.

LEFT TO RIGHT, SEATED—Clark Galloway, Southern California District Manager, State Chamber, Los Angeles; Leonard S. Mosias, Chairman, Traffic and Highway Committee, San Francisco Chamber of Commerce; Kenneth Kendrick, Vice Chairman, Southern California Council Highway Committee, State Chamber, Los Angeles; Claude T. Faw, Chairman, Central Coast Council Highway Committee, State Chamber, Berkeley; A. H. Clark, Vice Chairman, Central Coast Highway Committee, State Chamber, Salinas; Floyd Howe, Secretary, Coalinga Chamber of Commerce, Coalinga; E. E. Hall, Avenal; Ernie Fleming, Coalinga Chamber of Commerce; James A. Guthrie, San Bernardino; Charles T. Leigh, San Diego; Robert E. McClure, Los Angeles, members of Highway Commission; Frank B. Durkee, Director of Public Works and Chairman, Highway Commission; F. W. Tarr, Vice Chairman, State-wide Highway Committee, State Chamber, Chico; George T. McCoy, State Highway Engineer, Sacramento; H. Stephen Chase, Member, Highway Commission, Sacramento; F. Walter Sandelin, Member, Highway Commission, Ukiah; Frank J. Gasper, Quincy; Lewis E. Arnold, Engineer of Administration, City of Los Angeles; Irving Symons, Chairman, Central Valley Council Highway Committee, State Chamber, Sonora; Stanley Wakefield, Vice Chairman, Central Valley Council Highway Committee, State Chamber, Oakdale; Sidney L. Cruft, Chairman, Fresno County Board of Supervisors; Charles S. Ehrhorn, Chairman, San Joaquin Valley Council Highway Committee, State Chamber, Visalia; Frank C. Balfour, Chief Right of Way Agent, Division of Highways, Sacramento; F. W. Panhorst, Assistant State Highway Engineer, Division of Highways, Sacramento.

TWENTY-FIVE-YEAR AWARDS ARE PRESENTED

Director of Public Works Frank B. Durkee has presented 25-year awards to the following employees of the Division of Highways who have served the State for a quarter of a century.

ELIGIBLE ON APRIL 30, 1954

	Total service		
	Yrs.	Mos.	Days
<i>Shop 11</i>			
Berry, Horace S.	25	0	25
<i>District X</i>			
Lewis, Karl F.	25	0	13

ELIGIBLE ON JUNE 30, 1954

<i>District I</i>			
Lovering, W. R.	25	0	28
<i>District II</i>			
Crews, Edmund N.	25	0	6
Jacobsen, Wilbur	25	0	0
<i>District III</i>			
Hawkins, Albert L.	25	0	25
<i>District IV</i>			
Buchanan, Alvin F.	25	0	25
Doherty, Daniel	25	0	18
Frank, Dorothy R.	25	0	7

<i>District V</i>			
Garcia, Kenneth M.	25	0	1
Jensen, James R.	25	0	11

<i>District VI</i>			
Hughes, Patrick O.	25	0	24
Ostrander, Robert H.	25	0	7
Roush, Frank M.	25	0	0
Schell, Paul H.	25	0	1

<i>District VII</i>			
Garlinghouse, Sally	25	0	15
Keller, Henry J.	25	0	10
Sedgwick, William D.	25	0	23

<i>District X</i>			
Arsate, Henry	25	0	6

<i>District XI</i>			
West, Melbourne H.	25	0	4

<i>Shop 4</i>			
Kampschmidt, Oscar A.	25	0	14

<i>Shop 5</i>			
Ball, David L.	25	0	26

<i>Central Office</i>			
Bradt, Elrod R.	25	0	16
Chertorisky, V. L.	25	0	14

ELIGIBLE ON JULY 31, 1954

<i>District I</i>			
Maciel, John V.	25	0	25

<i>District III</i>			
Kinney, Clarence W.	25	0	29
Roy, L. Ernest	25	0	6

<i>District IV</i>			
Johnson, Frank H.	25	0	6
Moses, Herbert Lea	25	0	4
Dietschy, John O.	25	0	1

<i>District VI</i>			
McClaine, John M.	25	0	14
England, Frank B.	25	0	1

<i>District VIII</i>			
Stone, Kent B.	25	0	22

<i>District X</i>			
Alonzo, Fermin P.	25	0	16
Rodemer, Frank A.	25	0	6
Potter, Richard V.	25	0	1

<i>District XI</i>			
Kerr, Philip S.	25	0	24

<i>Bridge Department</i>			
Gilbert, A. K.	25	0	7

<i>Bay Bridge</i>			
Hamilton, Carl S.	25	0	0

ELIGIBLE ON AUGUST 31, 1954

<i>District I</i>			
Cox, Henry J.	25	0	23
Remore, Neil	25	0	15

<i>District II</i>			
Allen, Harry C.	25	0	0

<i>District III</i>			
Johns, Harry W.	25	0	6

<i>District IV</i>			
Arneal, Raleigh L.	25	0	27

	Total service		
	Yrs.	Mos.	Days
Gaberel, Leroy C.	25	0	8
Lamas, Charles E.	25	0	5

<i>District V</i>			
Martin, Manuel	25	0	17
Jeppesen, Niels J.	25	0	6

<i>District VIII</i>			
Cowgill, John M.	25	0	28
Smith, Thomas E.	25	0	15

<i>District XI</i>			
Murdock, Earl J.	25	0	23

<i>Shop 11</i>			
Sears, Ben P.	25	0	4

<i>Central Office</i>			
Womack, J. C.	25	0	11
Reynolds, Frank M.	25	0	4

ALAMEDA COUNTY SUBMITS HIGHWAY PROJECTS

Officials of Alameda County and of 11 cities and representatives of civic organizations, on August 27th, submitted to the California Highway Commission their recommendations for highway projects for the 1955-56 budget.

Following their annual custom, the Oakland Chamber of Commerce and the Alameda County Highway Advisory Committee tendered a luncheon to the highway commissioners, officials of the Department of Public Works and engineers of the Division of Highways at the Sutter Club in Sacramento.

William Sparling, General Manager of the Oakland Chamber of Commerce was in charge of arrangements. The Alameda County delegation included:

Alameda County

Harry Bartell, Supervisor, Alameda County and Chairman, Advisory Committee; Clifford Wixson and Kent Pursel, Supervisors; Wallace Boggs, Alameda County Surveyor; George Herron, Administrative Assistant to County Surveyor; Francis Dunn, Jr., Assemblyman; Randall Dickey, Assemblyman.

Oakland

Clifford E. Rishell, Mayor; Hilliard Wilson, Acting City Manager; John A. Morin, City Engineer; Kendrick B. Morrish, President, Oakland Chamber of Commerce; James Carey, City Treasurer.

San Leandro

Thomas O. Knick, Mayor; Wesley Mc-

Clure, City Manager; Charles P. Martin, former City Engineer; Frank King, Manager, San Leandro Chamber of Commerce; Don Wells, San Leandro Chamber of Commerce.

Alameda

Leland W. Sweeney, Mayor; Carl Froerer, City Manager; S. Chesley Anderson, Vice Mayor; Sherwood Jones, City Councilman; William McCall, City Councilman; J. P. Clark, City Attorney; Henry Maggenti, Alameda Chamber of Commerce; Vic Cangi, Manager, Alameda Chamber of Commerce; Mrs. Moresi, Alameda.

Hayward

Lohn Ficklin, City Manager; Carlos Bee, City Councilman; Fred Cox, Past President, Hayward Chamber of Commerce; Roger W. Anderson, Manager, Hayward Chamber of Commerce.

Berkeley

Samuel C. Jacka, Director of Public Works; William Hunrick, Jr., City of Berkeley

Piedmont

George Mattis, representing City of Piedmont.

Washington Township

Manuel Hidalgo, President, Chamber of Commerce.

Centerville

William I. Short, President, Chamber of Commerce; Dan Irwin, Chamber of Commerce.

Newark

Arthur W. Cotton, President, Chamber of Commerce; Gordon Cotton, President, Kiwanis Club.

Livermore

Joseph T. Smith, Manager, Chamber of Commerce; C. G. Clarke, William Dear.

Niles

Stuart Nixon, Editor and Publisher, *The Township Register*, Niles.

Vital Link

*San Luis Obispo Freeway
Completed in August*

By E. J. L. PETERSON, District Engineer

ANOTHER vital link, which will ultimately make US 101 between Los Angeles and San Francisco a multilane freeway, was completed on August 27, 1954, through San Luis Obispo.

This four-lane divided freeway will completely by-pass the business district of San Luis Obispo. Since US 101 north and south of San Luis Obispo carries approximately 9,000 cars per day, a large proportion of which do not stop in San Luis Obispo, the traffic congestion on the city streets has been greatly reduced. Many on and off ramps to the freeway will provide convenient connections for those desiring to visit in the city.

Bridge Construction

The initial work on this project began with the award of a \$527,769 contract to the Granite Construction Company, Watsonville, California, on

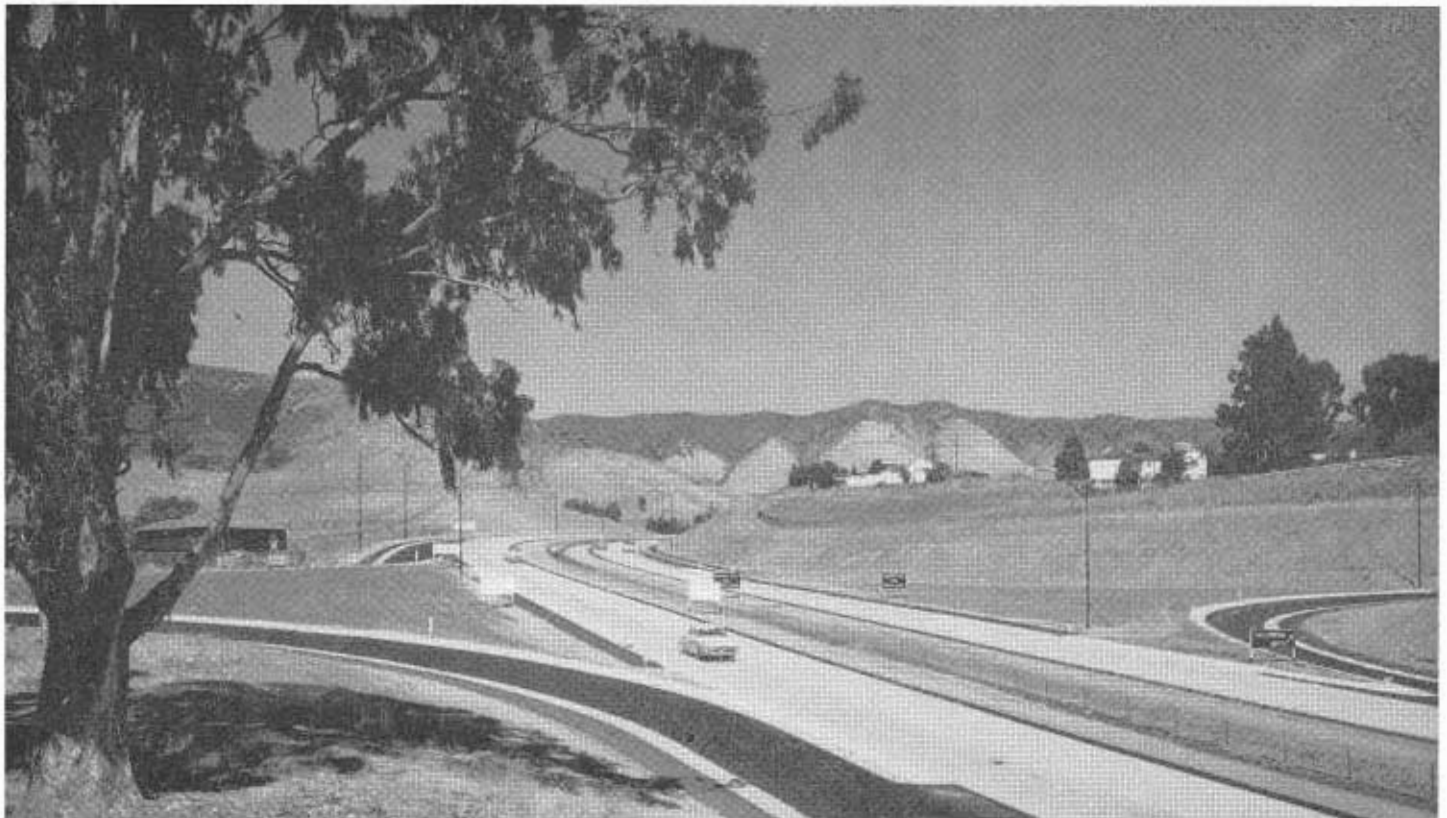
September 4, 1951, for the construction of two reinforced concrete bridges located at Santa Rosa Street and Ida Street, and a steel plate girder bridge carrying two tracks of the Southern Pacific Railroad over the freeway.

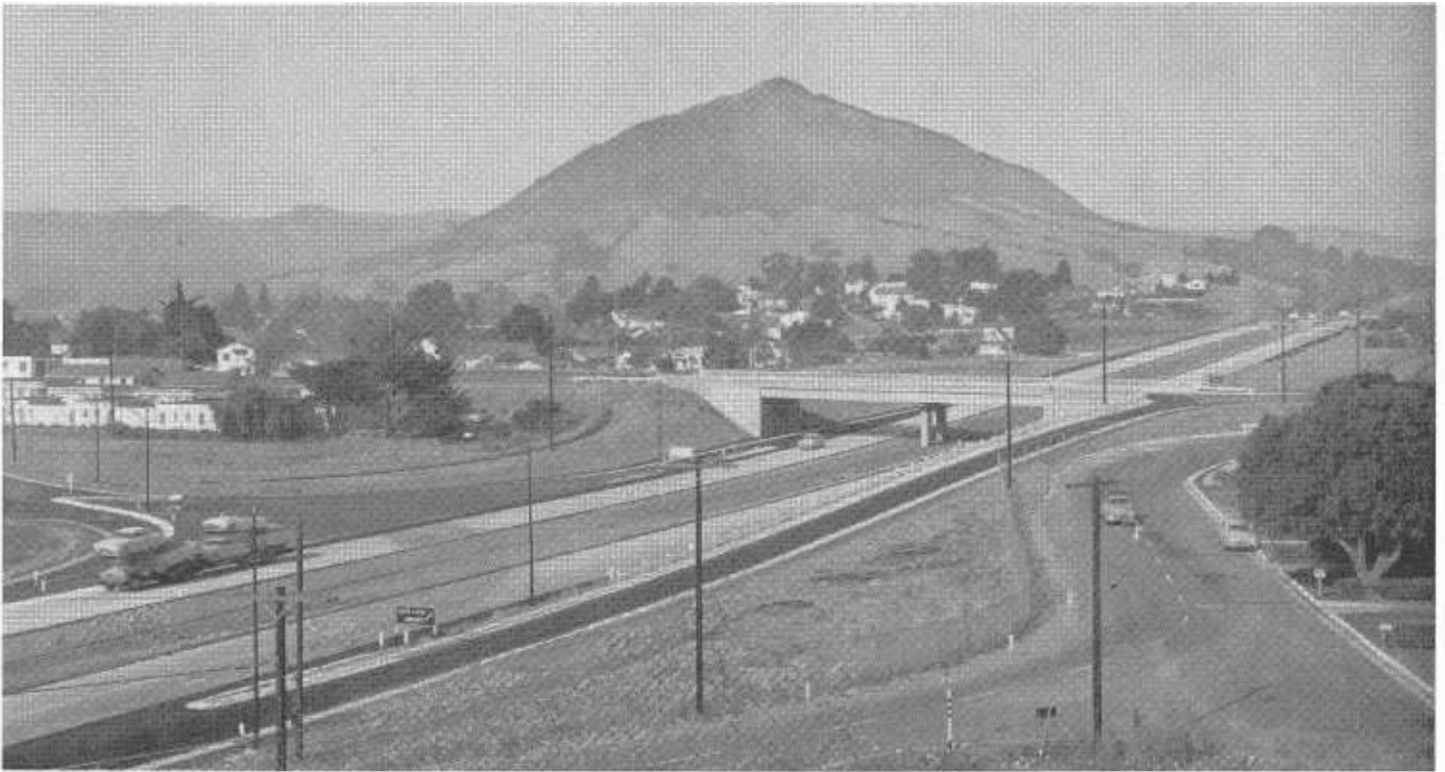
The second structure contract was awarded to the C. B. Tuttle Company, Long Beach California, for a \$402,833 contract on January 28, 1952. This contract called for the construction of three reinforced concrete bridges and one existing bridge to be widened. One of these structures is located at the intersection of the freeway with an extension of Marsh Street, and with on and off ramps make up the Marsh Street Interchange. The second was the construction of a double 12 feet x 12 feet reinforced box culvert, approximately 229 feet long, carrying the water of

Stenner Creek under the freeway. The third bridge was a reinforced structure on the freeway over Chorro Street which now is one of the main arterials connecting the southwest residential area of San Luis Obispo to the business district. The existing bridge on Broad Street, which crosses Stenner Creek, was widened to accommodate two-way traffic and serve as an off and on ramp from the freeway to this section of the city.

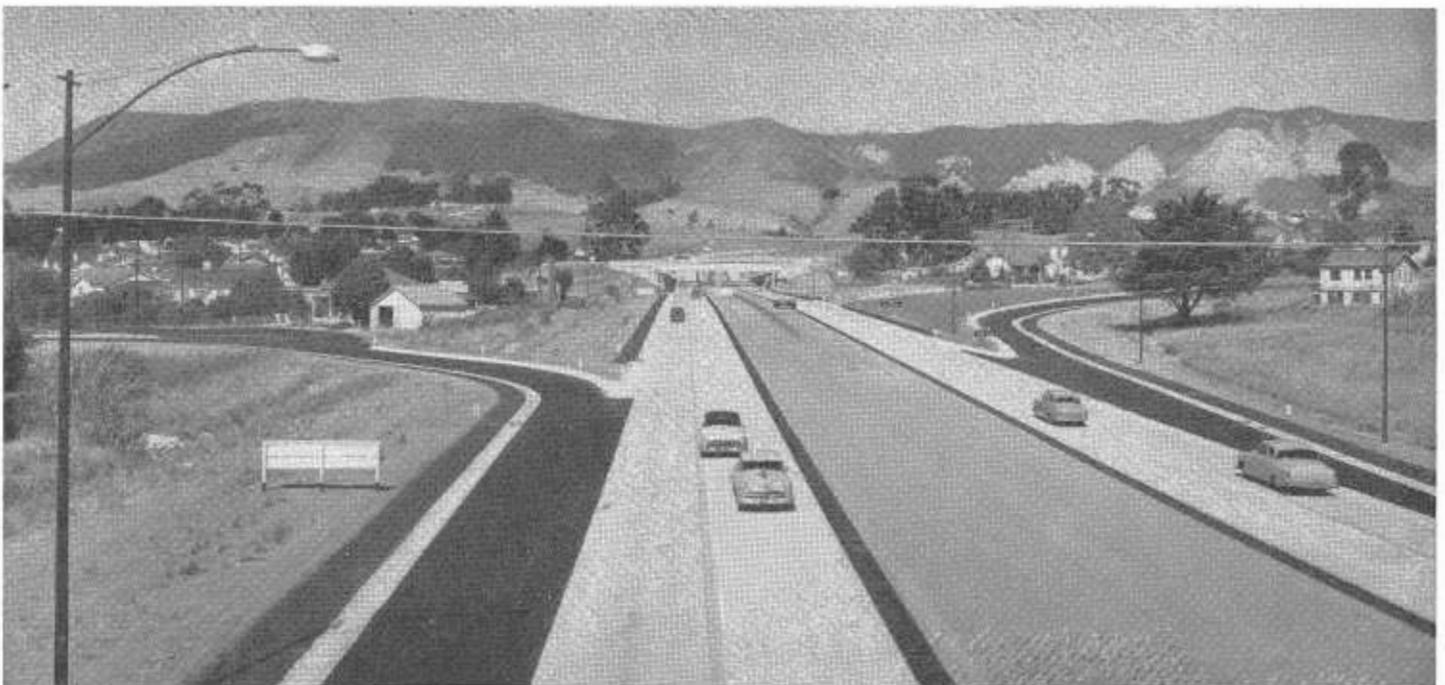
The third and last bridge contract was awarded to the Thomas Construction Company, Fresno, California, on May 5, 1952, in the amount of \$205,513. This contract consisted of a freeway overpass over Grand Avenue and Buena Vista Avenue overpass over the freeway, both of which were reinforced concrete bridges.

Looking north from California Boulevard overpass showing on and off ramps at this location

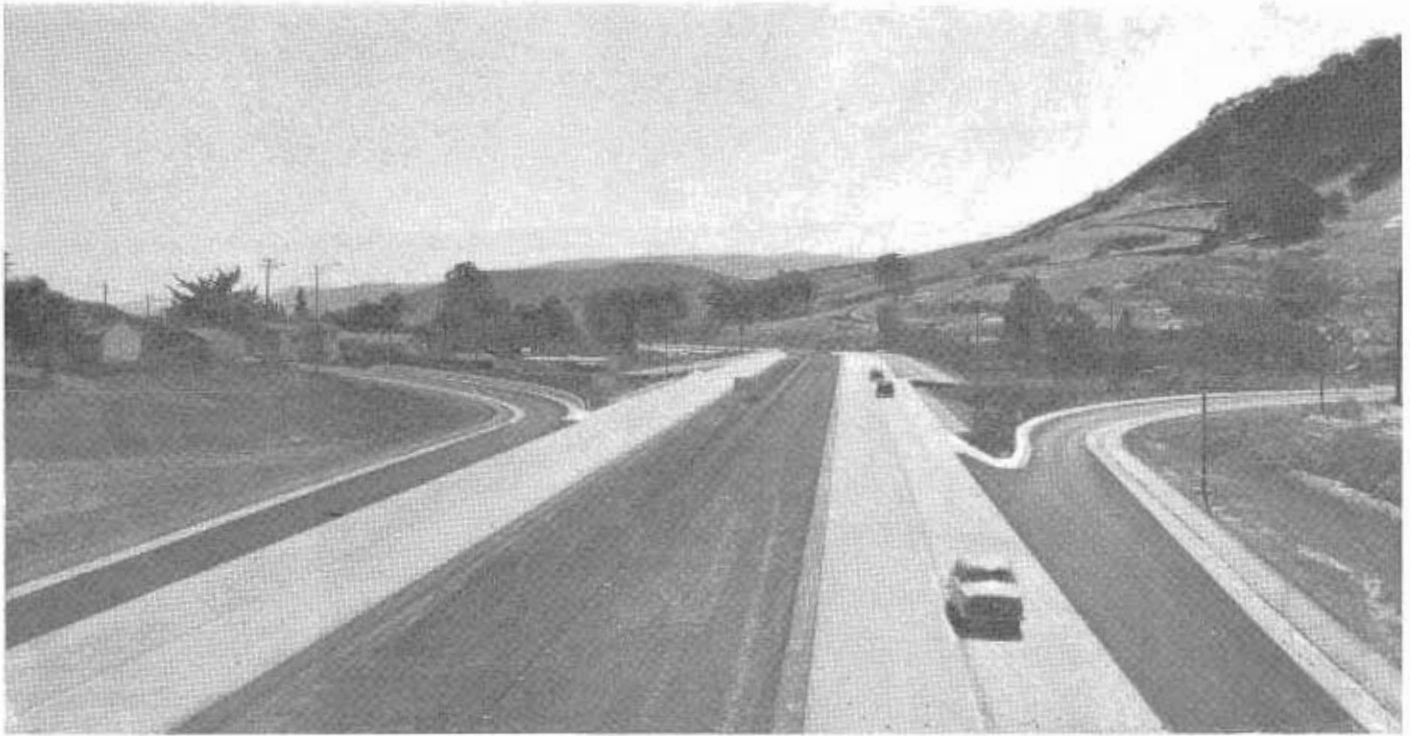




Looking south, showing Buena Vista Overpass in the foreground, with outer highway serving Monterey Heights in the immediate foreground. Mt. San Luis in the background.



Freeway looking north from Santa Rosa Street Overpass on ramp to business district in the right foreground. Off ramp from State Route 56 in the left foreground. Santa Lucia Mountains in the distance.



Looking south from Santa Rosa Street overpass, showing on and off ramps from business district of San Luis Obispo

Grading

Prior to the completion of all of the bridges the grading of the freeway between Marsh Street and San Luis Obispo was begun. The low bid on this phase of the project was submitted by the Madonna Construction Company, San Luis Obispo, in the amount of \$576,696 and was awarded to the firm on January 16, 1953.

In addition to the grading on the freeway on and off ramps were built; city streets connected or new ones constructed for use of local traffic.

Paving and Lighting

The last major contract on the freeway was for the paving and was awarded to Fredrickson and Watson Construction Company, Oakland, California, on December 17, 1953, in the amount of \$576,620. This work consisted of placing four 12-foot lanes of Portland cement concrete pavement eight inches in thickness over four inches of cement-treated base; constructing Portland cement concrete curbs and gutters on all on and off ramps and paving these with plant-mixed surfacing.

The contract for installing illuminated signs and luminaires was

awarded to the Howard Electric Company, Gilroy, California, on April 1, 1954, and this part of the project will cost \$52,932.

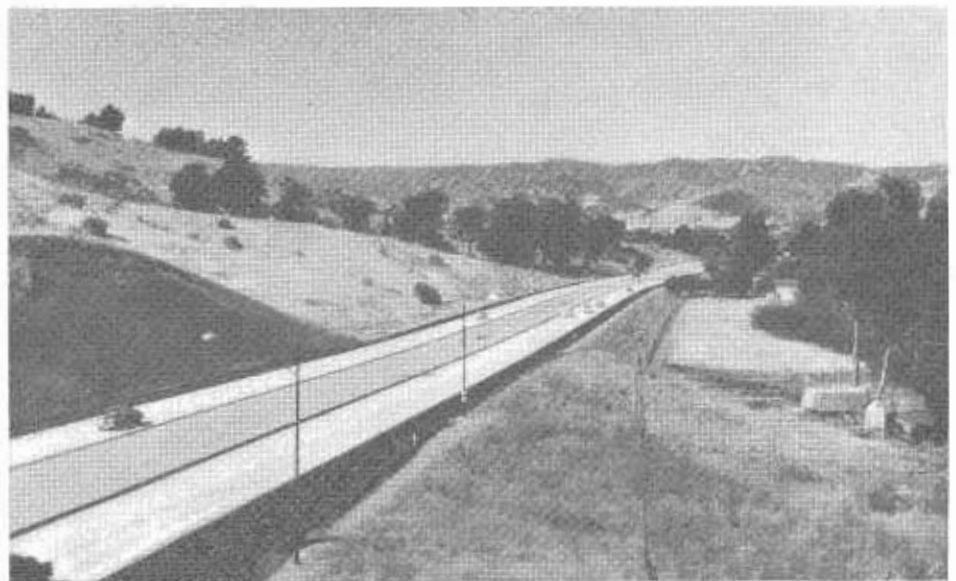
Overhead lights are located on all on and off ramps to minimize the accident factor of merging traffic at these locations.

The last of this series of contracts in connection with the San Luis

Obispo Freeway will be undertaken in the near future. This project will be for erosion control work, and in this area it is most essential in order to retard excessive soil scour and keep roadside maintenance to a minimum.

Traffic Relief

San Luis Obispo is located half way between Los Angeles and San Fran-



Looking north from Marsh Street on ramp. Santa Lucia Mountains in the background

cisco on US 101. With through traffic now using the freeway, the narrow city streets will function most efficiently both from a safety standpoint for the pedestrians and the heavy vehicular traffic at the major street intersections.

The construction of the freeway through the City of San Luis Obispo provides a continuous four-lane highway between Pismo Beach and one mile south of Santa Margarita, a distance of approximately 20 miles.

San Luis Obispo is situated at the foot of the well-known Cuesta Grade, which is located to the north of this city. Several trucks in the past years have lost their brakes or had a broken driveshaft in descending this 7 percent mountain grade, causing the vehicles to go out of control and at the bottom attaining speeds in excess of 75 to 80 miles per hour and wrecking in the business section of the city. The completion of the freeway eliminates this hazard, as these runaway vehicles will no longer have to go through the business section of the city.

MAGAZINE SERVES PURPOSE

LOS ANGELES, CALIFORNIA
6229 Miramonte Boulevard

DEAR MR. ADAMS: I feel that the *California Highways and Public Works* magazine is doing fine work. When anyone complains to me that there is too much money spent on highways, I take the magazine and show them the wonderful work being done, not only in highways, but in public works. It changes their ideas.

I wish to congratulate you on the wonderful way you present facts to the public on these matters. I am,

Very truly yours,
JOHN E. WRIGHT

WE HOPE SO

SANTA ANA

*Division of Highways
Sacramento*

I think your magazine far excels any publication of the kind that I have ever seen.

Yours truly,
DAN E. MALONEY

WINTER ROAD CONDITIONS ON THE AIR

By R. D. KINSEY, Assistant District Engineer

The California Division of Highways, through the medium of the United States Weather Bureau teletype System, presented to the people of California during last winter concise, up-to-date and last minute reports on California highway conditions throughout the State.

casts and information for their publications. Since the use of the Weather Bureau Teletype System by the Division of Highways in transmitting up-to-date, last minute road information, automobile clubs, additional newspapers and other parties have taken advantage of this system with the re-



Vice President Arthur Hull Hayes of Columbia Broadcasting System and General Manager of KCBS receiving last minute road conditions in Division of Highways radio room in San Francisco from dispatcher clerk, California Williams. Photo by KCBS.

These reports have been made available through the operation of the State Division of Highways Radio Communication System and the use of teletype. In Los Angeles and San Francisco through the use of a teletype connection to the United States Weather Bureau Teletype System, and in Sacramento on a separate teletype system, road information is transmitted direct to interested parties.

The various news services and some newspaper organizations had previously taken advantage of connections to the Weather Bureau Teletype System in order to obtain weather fore-

sult that rapid dissemination of this information has been made available to a very large portion of the people of California.

Augmenting this last source of information, Radio Station KCBS, affiliate of the Columbia Broadcasting System in San Francisco, has installed in its radio newsroom a teletype receiver on the Weather Bureau Circuit and is broadcasting to radio audiences complete and detailed weather and road reports from this system. As a result, it renders a very great public service to the residents of California and adjoining states.

Artesia Street

Progress in Converting Route 175
Into Four-lane Divided Highway

By HAIG AYANIAN, Senior Highway Engineer

THE COMPLETION of the contract 54-7VC5-F on Route 175, Artesia Street, in Los Angeles County brings one step closer the fulfillment of the need for a through route from the Redondo Beach area to inland Orange County points. This project is another link of a modern divided state highway traversing, in most part, highly developed areas.

Artesia Street, or Redondo Beach Boulevard and 174th Street in the westerly area, will also serve as an interconnector between the 10 state routes which it intersects. It is important to note that four of these routes are established or proposed freeways. This highway will fill the need of a good east-west road between Pacific Coast Highway and Firestone Boulevard, a distance of about 11 miles, and is about halfway between them.

To the present time, the construction has consisted of rebuilding existing streets into a modern four-lane divided highway. However, two contracts have just been let for the final links of this route which will entail entirely new construction as no traversed way existed. The completion of these two contracts should be the occasion for a real celebration among the motorists traveling between the Redondo Beach area and points to the east.

Alignment Details

The contract provided for the construction of a four-lane divided highway from Inglewood Avenue easterly to Normandie Avenue, a distance of 3.63 miles. This work is in the three cities of Redondo Beach, Torrance, and Gardena. Existing 174th Street consisted of a narrow plant-mixed surfaced street in poor repair but more or less surrounded by new subdivisions. All of this street was removed during construction as very little of it was of such quality that it could be utilized even for a base.

The westerly portion of the project from Inglewood Avenue to Casimir Avenue is over 100 feet of right of way, each roadway 32 feet between curbs, median width 16 feet between gutters, and 10 feet from outside curb to right of way line. The easterly portion of the project from Casimir Avenue to Normandie Avenue is over 110 feet of right of way, each roadway 36 feet between curbs, median width 18 feet between curbs, and 10 feet from outside curb to right of way line.

The centerline of the new construction follows the centerline of existing streets with two exceptions: where Route 175 departs from Redondo Beach Boulevard, the centerline of Route 175 heads to the intersection of 174th Street and Hawthorne Avenue, (Route 164); at the crossing of the Atcheson, Topeka & Santa Fe Railway where new alignment is necessary as the existing underpass is used to span the eastbound roadway. The westbound roadway utilizes the new extension of the underpass constructed under this contract. The new alignment is a series of reversing curves with radii of 3,500 feet. The deflection angles along the centerline elsewhere are so small that curves are not necessary.

The structural section in general consists of four inches of asphalt concrete pavement on eight inches of untreated rock base under which was placed one foot of imported subbase material. The westerly portion of the contract was through native material of high enough quality that the untreated rock base could be placed on the basement soil.

Drainage Problems

The area traversed by Route 175 from Arlington Avenue eastward is drained by the Dominguez Channel of the Los Angeles Flood Control District. This channel crosses the project twice. At both crossings batteries of

seven 72-inch corrugated metal pipe were placed. These provided facilities equal to or superior to those which existed prior to construction. These are considered ample for the capacity of the channel.

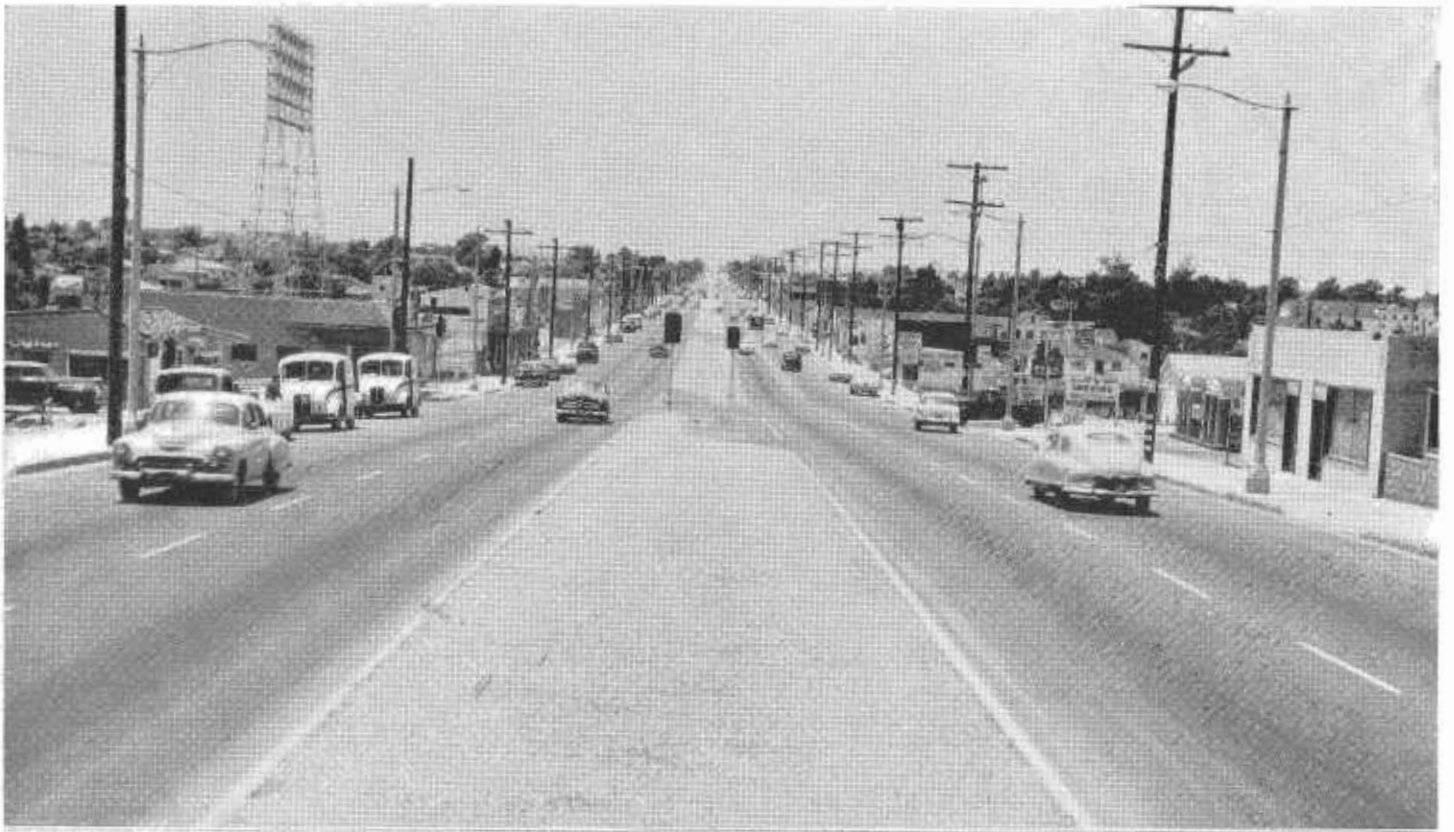
The Los Angeles Flood Control District does not expect to undertake the channel improvement in this area for 10 years. At that time funds will be available and bridges will be constructed to replace the multiple pipes. Until this channel is constructed to its ultimate grade and width, the roadway in this area will be subject to flooding during high intensity storms. To provide for this, the slopes around the pipes were paved with asphalt concrete.

The underpass is known locally as the East Redondo Beach Underpass and consisted of a through girder steel bridge of about 41-foot span carrying a single track railroad. The existing roadway was lowered about 18 inches for the exclusive use of the eastbound roadway. The north abutment was converted to a pier by the construction of a bearing wall for the new bridge of about 41-foot span to carry the railroad across the new westbound roadway. It was necessary to construct a timber piling shoofly to carry the trains around the site of the construction and this work was performed by the Atcheson, Topeka & Santa Fe forces.

The project included the following major items of work:

Remove concrete	1,500 cu. yds.
Roadway excavation	115,000 cu. yds.
Structure excavation and backfill	5,500 cu. yds.
Imported subbase material	58,000 tons
Untreated rock base	66,000 tons
Asphalt concrete	28,000 tons
Class A P.C.C. (structures)	550 cu. yds.
72" C.M.P. (10 ga.)	1,860 l.f.

The total cost of the project was approximately \$1,000,000 and the contract was accepted on August 2, 1954. The contractor was J. E. Haddock, Ltd., and the project was under the supervision of Neal Saul. The State was represented by L. W. Sixt as



UPPER: Looking westerly from Inglewood Avenue showing completed divided highway development along Redondo Beach Boulevard. LOWER: Looking easterly from Hawthorne Boulevard along completed 4-lane divided highway development on 174th Street.



Resident Engineer and Frank Feiler as Bridge Department representative.

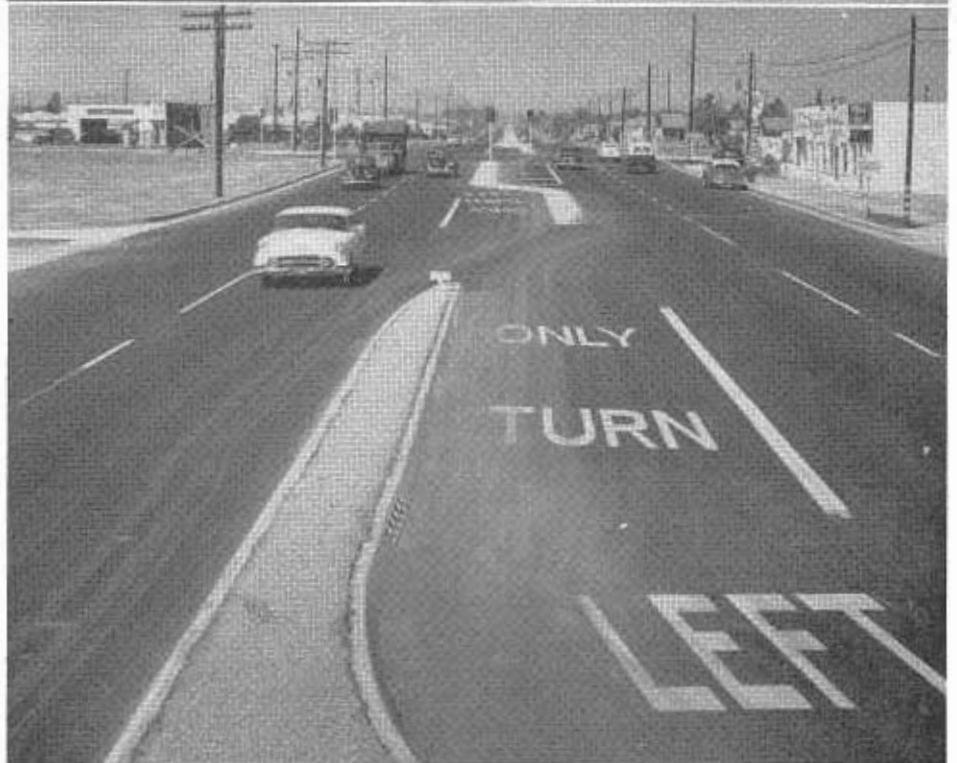
Final Links

The present project is joined on the west by a recently completed section which carried the improvement westerly to Pier Avenue in Redondo Beach and provides direct connection to Route 60, Pacific Coast Highway. This project was, in general, to the same standards as the one under discussion.

The construction of the balance of Route 175 in this area is now progressing under two recently awarded contracts. Contract 54-7VC70-F covers the portion from Normandie Avenue to Main Street and Contract 54-7VC72-F covers that portion from Central Avenue to Alameda Street. Contract 54-7VC70-F originally called for the construction of a four-lane divided highway beginning at the easterly end of the recently completed contract 54-7VC5-F discussed above and joining at Main Street the westerly end of a portion completed prior to World War II.

After the start of construction the portion of Route 175 between Normandie Avenue and Alameda Street was declared a freeway by the California Highway Commission and steps were taken to revise the typical section to conform to the freeway standard with six lanes of divided highway having controlled access.

The work in general consists of about 1.4 miles of six-lane divided highway to be graded and surfaced with plant-mixed surfacing on untreated rock base and construction of a reinforced concrete slab bridge



UPPER: Looking westerly along State Highway Route 175 from Inglewood Avenue showing East Redondo Beach grade separation with Santa Fe Railroad. LOWER: Looking westerly along State Highway Route 175 showing intersection with Crenshaw Boulevard. This photograph shows construction details in central dividing strip in order to provide for left turning traffic movements.

across a flood control channel. The cost of contract 54-7VC70-F is estimated at \$538,000 and the contractor is the Sheets Construction Company of Gardena. The time set for completion is June, 1955. The State is represented by L. W. Sixt as Resident Engineer and H. L. Harger as Bridge Department representative.

Contract 54-7VC72-F originally called for the construction of a divided four-lane highway from Central Avenue, the easterly end of the portion completed prior to World

War II, to Alameda Street where it will make connection to that portion of Artesia Street recently improved to a four-lane divided highway and which was described in a story by William D. McGinnis in the July-August, 1953, issue of *California Highways and Public Works*.

Contract 54-7VC72-E was also revised to conform to freeway standards after the start of construction. The work in general consists of grading a six-lane divided highway about

... Continued on page 59

Bituminous Paving

*New Procedures for
Hauling and Placing*

By VAUGHN MARKER, Assistant Engineer, Headquarters Construction

ON THE recently completed Contract 53-3TC15-F, road III-Yol-6-C, Yolo Causeway to Tower Bridge, some different procedures for hauling and placing of plant-mixed surfacing were tried with considerable success. The basic difference which led to the alterations in placing methods was the change from end dump hauling units to the bottom dump type.

The foregoing change by the contractor was prompted by the desire to reduce hauling costs. This in turn demanded a new piece of equipment for use in conjunction with the bot-



Spreader box used with the bottom dump hauling unit



Spreader box in position for next truck to use

tom dump semitrailers and trailers in order to provide a controlled and uniform spread from the trucks. The ultimate result was a special spreader box for use with the bottom dump trucks which was designed and built by personnel of the Miles and Sons Trucking Service and provided the necessary control of spread in a satisfactory manner.

Placing Procedure

The placing procedure consisted of dumping from the bottom dump hauling units into the spreader box which, when pulled by the trucks, left the material on the grade in a windrow of the desired size. In the case of the leveling course, this windrow



Windrow left by bottom dump hauling unit and special spreader box

was then spread by a motor grader in the conventional manner. In order to utilize the hauling units for placing the surface course, however, a little more radical change was required. After the plant-mixed surfacing was placed in the windrow by the trucks, it was picked up by a mechanical loader and deposited into the hopper of a bituminous paving machine. This system worked out very successfully and gave a satisfactory surfacing.

Observations

Following are some observations made during paving operations using this procedure:

1. It was possible to operate the paving machine continuously without having to stop for each truck. This feature alone eliminates the cause for much of the surface irregularities that occur in asphaltic surfacings.
2. It was much easier for the paver operator to control his machine when pushing the loader than when pushing trucks.
3. Approximately 40 degrees of temperature was lost in the mix between the truck and paving machine. This loss occurred at a time when the air temperature was above 90° F. with little wind



Equipment string for placing surfacing course

and it is possible that a greater heat loss would occur under different weather conditions. It is not believed, however, that heat loss will be a serious problem except in extreme cases.

4. Very little segregation of material occurred. The possibility exists for it to occur, but with a little care on the part of the loader operator this can be minimized.

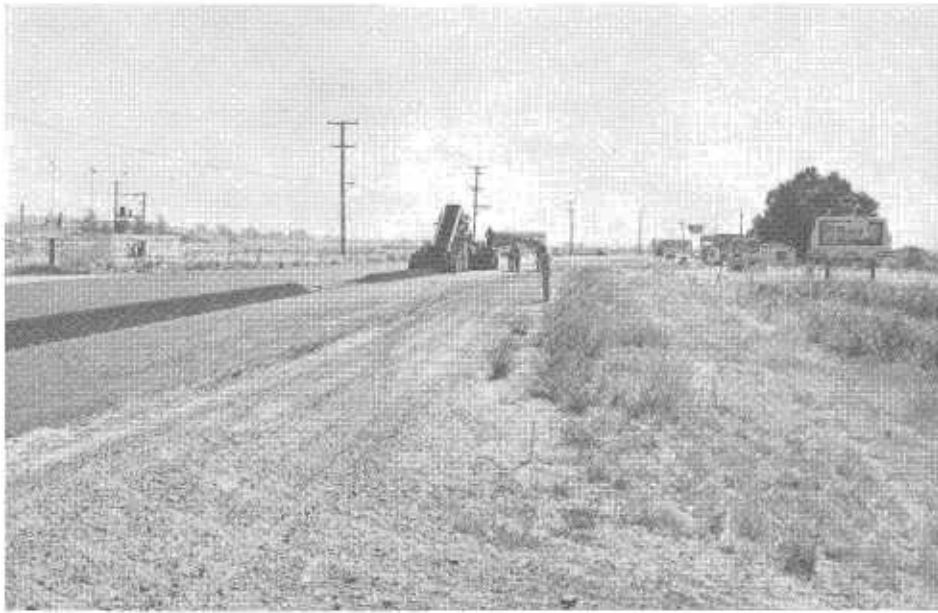
5. The quantity of material being fed to the paver was easily controlled by sizing the windrow slightly larger than necessary, then leaving short gaps as required.
6. It is important that the windrow spread does not get too far ahead of the loader for two reasons:
 - (a) Possible mechanical breakdown of the paving equipment.
 - (b) To allow adjustment in windrow size as needed.
7. It is important that the loader pick up the windrow clearly so as not to leave any loose material under the tracks of the paver.
8. Droppings of accumulated fines from the loader must be kept picked up to prevent pads from bleeding up through the surfacing.
9. A re-combining cone or baffle at the end of the discharge belt of the loader as used for this job is mandatory, in order to reduce the possibility of segregation of the coarse and fine particles in the mix.

Spreader Box

The spreader box was 7 feet long, 3½ feet wide, 9 inches high on the



Loader and paver in operation on surfacing course



Gap in windrow to control quantity being fed to paving machine

sides and with a 2-foot wide, variable height opening at the rear. The sliding gate at the rear was built into the backplate, which was hinged to fold down to the 9-inch height of the sides. When in position with the backplate upright, a chain on each side held the plate in place against the weight of the plant mix. A piece of belting 3 inches to 4 inches high was bolted to the sides of the box to prevent any spillage of material. The box was hooked to the truck by means of two chains that were fastened around the axle ahead of the box. The bottom of the box was open so that the mix discharging from the truck fell directly to the pavement between the skids on which the spreader box moved. As the truck moved forward, a sized windrow was left behind on the grade. With this configuration a very successful spread was obtained, coming out consistently within 10 feet in 275 feet. (275 feet was the average theoretical distance that one truck and trailer load of mix should have spread at the rate being used.) The main care that must be taken to insure a reliable spread is to hold the speed of the truck to the absolute minimum in all cases so that a contraction of the material coming through the opening in the spreader box will not occur, thereby leaving too small a windrow.

Limiting Factors

It must be noted that there were some limitations in the equipment and methods used on this project, although with certain modifications it would be possible to keep them to a minimum. The main limiting factors were:

- a. With the size of opening in the spreader box, the maximum controlled windrow that could be placed was one which would provide a strip 13 feet wide and $1\frac{1}{2}$ inches thick through the paver.
- b. Where the working space was limited and where it was necessary for the trucks to back into position, hourly production fell off considerably due to poor maneuverability of the trucks.
- c. On short radius turns such as occur on ramps, interchanges, etc., the trailer of the hauling unit will not track exactly and great care must be taken to prevent the wheels of the trailer from running over the spreader box when moving into position.

Saving in Hauling Costs

It is believed that the use of bottom dump trucks combined with the other equipment herein described (or some modification thereof) will result in a considerable saving in hauling costs

Fellowships Go To Three Young Road Engineers

Three young engineers of the Division of Highways have been granted leaves of absence to accept graduate fellowships awarded them earlier this year by the Automotive Safety Foundation.

Stephen George, Jr., Junior Civil Engineer with District VIII now stationed at Ontario, will attend the Bureau of Highway Traffic at Yale University.

Robert W. Crommelin, Assistant Highway Engineer with District IV in San Francisco, and Charles M. Roscoe, Assistant Highway Engineer with District I in Eureka, will carry on graduate study with the Institute of Traffic and Transportation Engineering at the University of California at Berkeley.

All three fellowships pay monthly living allowances plus fees for the 1954-55 school year.

Those awarded Automotive Safety Foundation fellowships must be graduate engineers. Preference is given to applicants with highway engineering experience subsequent to graduation.

which will eventually be reflected in lower bid prices for plant-mixed surfacing. In addition, there are certain other less tangible benefits as far as the actual pavement is concerned that should result from the method of placing. The equipment and methods described above appear to be among the more significant advances in asphaltic paving procedures noted in California in recent years. All of the equipment and methods complied with current specifications for the placing of asphaltic mixtures as required by the California Division of Highways.

The contractor on this project was B. J. Ukropina, T. P. Polich, Steve Kral, and John R. Ukropina. The work was under the general supervision of District Engineer A. M. Nash, with Muller Chapman the Resident Engineer. The superintendent for the contractor was Arthur "Swede" Ingwersen.

Arcata Freeway

*Unique Opening Ceremony
Replaces Ribbon Cutting*

By R. C. KENNEDY, Secretary, California Highway Commission

THE CITY OF ARCATA and its chamber of commerce were the hosts, on July 20, 1954, at the opening of the new freeway around Arcata. And they did

themselves proud.

The legendary Paul Bunyan was brought to life and a large redwood log was used instead of the proverbial

ribbon for the ceremonies of opening the road.

To start with, the Arcata Chamber of Commerce was host at a luncheon



UPPER: John Dickinson, Arcata Chamber of Commerce; Highway Commissioner, F. Walter Sandelin; Assemblyman Frank P. Belletti; Highway Commissioner, Robert E. McClure and Councilman Paul Ely, Arcata, on far right, watch professional logger using a chain saw. LOWER: The freeway is open.



On speaker's platform. Left to right: T. Fred Bagshaw, Department of Public Works; Commissioner Robert E. McClure, John Dickinson, Commissioner Walter Sandelin, Assemblyman Belotti and District Highway Engineer Allen S. Hart.

at the Big 4 Inn. The inn is located at the north end of the present construction, and made an ideal location for the luncheon.

City officials, county officials, representatives of the Bureau of Public Roads, and the California State Highway Commission were all called upon during the luncheon for a few remarks. F. Walter Sandelin, Highway Commissioner from Ukiah, was the main speaker.

Immediately after the lunch everybody piled into automobiles and started for the site of the celebration. The Arcata High School Band was out in full splendor. Music was a good part of the log-cutting ceremony.

The committee in charge had arranged a large redwood log on two trucks. The two trucks were back to back and about five feet apart. A board platform was built between the trucks.

John Dickinson was master of ceremonies at the luncheon and at the exercises at the log where civic leaders spoke. Speaker for the Highway Com-

mission was Robert E. McClure, who lives in Santa Monica. At the invitation of Governor Knight, Mr. McClure had flown from Santa Monica to be at the celebration.

As soon as Commissioner McClure had concluded his remarks, a couple of old timber hands were called upon to use a crosscut saw. This they did for an inch or two into the log. Then a professional logger took over and using a motor-driven chain saw made short work of cutting through the log. As his saw made the last swipe at the log the fireworks started. Bombs burst in air and the band started to play.

The drivers of the trucks had been well trained for as soon as the saw had finished cutting through the log the platform was removed and the two trucks pulled apart. Half of the log was on each truck—after cutting—and, as the trucks drove away the freeway was declared open to traffic.

The men from Humboldt County had taken a page from the legend of Paul Bunyan.

Drainage Design Course Offered In Fifteen Cities

A four-meeting short course, "Drainage Design in Highway Practice," will be offered in 15 California localities beginning in October and extending into 1955, the Institute of Transportation and Traffic Engineering, University of California, has announced.

The course will cover the latest practice in drainage design, some of it deriving from research completed in various parts of the Country since the last course of this type was offered in 1951-52. Increased emphasis will be placed on storm drainage in urban and suburban areas, the institute's announcement said.

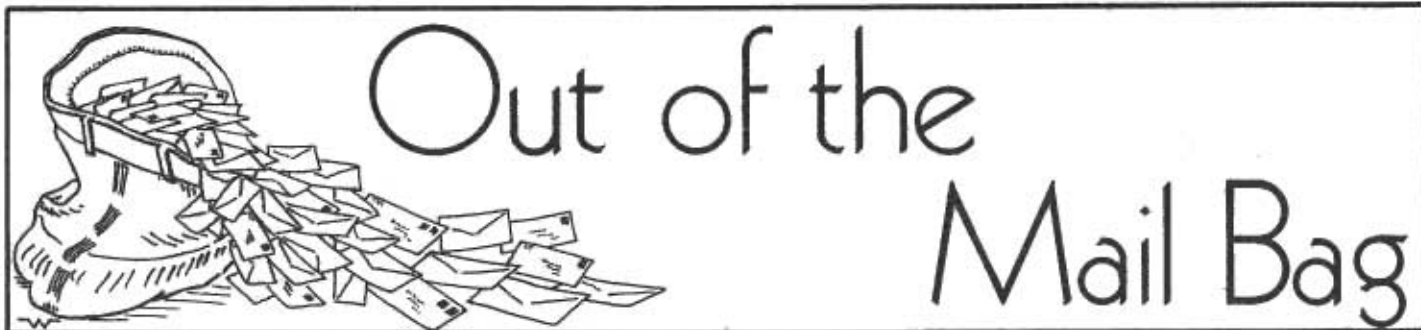
H. P. Pickering, ITTE assistant engineer, will conduct the course, presenting a series of illustrated lectures. Time will be provided for discussion of the possible application of the latest drainage design procedures to meet local conditions.

Meetings generally will be held on Friday evenings and Saturday mornings on the dates specified in the following communities:

- Bakersfield, April 8, 9, 15, 16.
- Berkeley, November 26, 27; December 3, 4.
- Bishop, January 24, 25, 26, 27.
- Eureka, June 3, 4, 10, 11.
- Fresno, October 29, 30; November 5, 6.
- Glendale, February 11, 12, 18, 19.
- Long Beach, November 12, 13, 19, 20.
- Marysville, April 22, 23, 29, 30.
- Redding, May 13, 14, 20, 21.
- San Bernardino, October 15, 16, 22, 23.
- San Diego, December 10, 11, 17, 18.
- San Jose, January 7, 8, 14, 15.
- San Luis Obispo, March 11, 12, 18, 19.
- Santa Rosa, February 25, 26; March 4, 5.
- Stockton, March 25, 26; April 1, 2.

RASHNESS AND TIMIDITY

Good driving calls for a happy medium between rashness and timidity, says the California State Automobile Association. Rashness blends easily into recklessness, with serious consequences, while timidity causes a driver to react in ways not expected by others on the road. Don't be afraid of other drivers—but do cultivate a healthy respect for them.



THANK YOU, DUD

PORT OF OAKLAND
Oakland 7, California
Office of the Manager

MR. KENNETH C. ADAMS, *Editor*

Again there passed over my desk the magazine *California Highways and Public Works*.

As I have wanted to do many times, I wish to express to you my admiration for the excellent job that is done by you in the publishing of this magazine. I thoroughly enjoy it, and always look forward to receiving it and going over it.

Again congratulations and best wishes for your continued success.

Sincerely,

DUDLEY W. FROST

LETTER FROM TOKYO

ROAD BUREAU
Ministry of Construction
Japanese Government
Tokyo

MR. G. T. MCCOY
State Highway Engineer

DEAR MR. MCCOY: I would like to express my sincere thanks for your kindness in placing me on the mailing list for your magazine, *California Highways and Public Works*, which I requested when I visited your office in Sacramento.

The March-April, 1954, issue of the magazine has arrived recently. I am thinking of putting it in circulation in our office for efficient use by the people concerned.

With best wishes and regards, I remain,

Very truly yours,

HIROMASA SATO
Chief, Road Planning Section
Road Bureau

FROM BRAZIL

IAGS, BRAZIL PROJECT
APO 676, c/o Postmaster
New York, N. Y.

California Highways and Public Works

DEAR SIR: I have enjoyed your magazine for many years and hope that I may go on receiving it for many more years to come. I was long a resident of California and now that I am working in Brazil, your magazine helps very much in keeping me posted on the latest developments in highways and freeways in California.

Sincerely,

JAMES B. CASE

DESERVED PRAISE

Stockton, California

MR. CLIFF TEMBY, *Assistant District Engineer*
State Division of Highways

DEAR CLIFF: You are to be congratulated on the excellent article which appeared in the issue of the *California Highways and Public Works* periodical. I think that you have given a most complete explanation, including pictures, of the good progress being made on the various highway projects in District X.

Likewise, the articles by Dick Potter, C. E. Moffatt, and Ken Wells are well prepared and visually described. I think it is well worth while to have articles such as these explaining highway construction projects broken down for the various districts.

Cordially,

EDWARD W. SIPE, Manager
Central Valley District
State Chamber of Commerce

OREGON WANTS MAGAZINE

CENTRAL PLANNING OFFICE
Lane County Planning Commission
Eugene Planning Commission
Springfield Planning Commission
Eugene, Oregon

California Highways and Public Works Publication
Sacramento, California

GENTLEMEN: It has been my privilege to occasionally see a copy of your very excellent publication on *California Highways and Public Works*. I would greatly appreciate being placed on your mailing list to receive copies for the purpose of stimulating advanced thinking among the administrative personnel and planning commissions in the central Oregon area.

Very truly yours,

HOWARD W. BUFORD
Director, Central Lane County
Planning Commission

VIEWS AND REVIEWS

L. HAROLD ANDERSON
San Francisco

MR. KENNETH C. ADAMS, *Editor*

I have just finished reviewing the May-June issue of *California Highways and Public Works* and I want to compliment you on the excellence of this publication. I have long been impressed by the quality of the magazine, the use of photographs, charts and maps, and I thought I would take the occasion to tell you my wishes.

Again, my compliments to you and your staff.

With warmest personal good wishes, I am

Sincerely,

L. HAROLD ANDERSON

FROM POMONA

POMONA BRANCH, COUNTY ASSESSOR
City Hall, Pomona

MR. KENNETH C. ADAMS, *Editor*

Your excellent magazines received per my request. I wish to thank you for sending them to me and to commend you for the excellence of your publication. I enjoy it so very much. The photographs are splendid and the write-ups too. It helps me in my work.

Yours, etc.,

EDNA YERXA MILLER,
Deputy Assessor

AUSTRALIA WRITES

COUNTRY ROADS BOARD
Divisional Engineer, Bendigo, Victoria

KENNETH C. ADAMS, *Editor*

DEAR SIR: I was privileged to spend three weeks with your department and the Bureau of Public Roads, Sacramento, in July, 1953, studying highway practices and since my return to Australia the issues of your excellent magazine have served to keep me in touch with developments in your State.

May I say how much this service is appreciated and commend you and your staff for the high standard of the publication.

Yours faithfully,

F. WEST

Senior Divisional Engineer

FROM CANADA

34 Ivorwood Cres.
c/o Wexford P. O.
Ontario, Canada

MR. KENNETH C. ADAMS, *Editor*

DEAR MR. ADAMS: I have been receiving copies of *California Highways and Public Works* for nearly two years. This magazine has been of considerable value to me in my work as Principal Assistant Traffic Engineer for the Ontario Department of Highways. The articles on the economic effects of freeways on adjacent land values have been of value to me in my studies on the necessity of controlling access to expressways.

L. O. FEANDER

ARTESIA STREET

Continued from page 52 . . .

2.2 miles in length and surfacing with plant-mix surfacing on untreated rock base and constructing two steel plate girder bridges.

The first of these bridges will carry the highway over the tracks of the Pacific Electric Railway and the second bridge is a combination structure that will carry the highway over Compton Creek, over the tracks of the Southern Pacific Railroad, and over Alameda Street. The contractor is the Vido Kovacevich Company and O. B. Pierson of Rosemead, and the cost will be about \$1,700,000. The completion date for the contract is set for November, 1955. C. C. French is Resident Engineer for the State, and F. B. Donovan is Bridge Department representative.

EXPRESSES THANKS

GORDON F. ROGERS
Consulting Engineer

BERKELEY 5, CALIFORNIA

August 23, 1954

MR. RALPH KINSEY

Division of Highways

San Francisco, California

DEAR MR. KINSEY: I want to thank you for your cooperation last Saturday night in leaving your home in the middle of the night to issue a permit to Bigge Drayage Co. This emergency work was being done at my request. Sunday afternoon it was a great satisfaction to me to see this bulky equipment at work salvaging grain from a burning storage tank. With the assistance of this equipment working 24 hours per day we hope to save most of \$400,000 worth of barley that was stored in one tank.

Thank you for your help in my emergency.

Yours very truly,

GORDON F. ROGERS

MAGAZINE SAME AS TRAVEL

JOSEPH C. SCHILL, O.D.
Tulare, California

KENNETH C. ADAMS, *Editor*

DEAR MR. ADAMS: We are happy to see the magazine come and for a lay office, we read it very thoroughly. It has been and still is in constant use in our reception room.

Yours very truly,

JOSEPH C. SCHILL, O.D.

Greeley Award Is Given to F. W. Montell

The American Public Works Association has presented to Supervising Highway Engineer F. W. Montell, District IV, San Francisco, the Samuel A. Greeley Service Award for this year. The award was made at the annual meeting of the association, held in Atlantic City on September 22d.

This award is made in recognition of professional achievement to eligible members of the American Public Works Association who have maintained their membership for five years and have at the same time completed a period of at least 30 years of continuous service with the public works agency with which they are presently associated.

Montell is the first California Division of Highways member of the organization to receive this award. He began his service with the Division of Highways in July, 1923, when he accepted a position as chairman in District IV. After working at that location for one year, he returned to college, and in June, 1925, accepted a position in District IV, where he has since been continuously employed in a variety of engineering assignments.

Montell is presently Assistant District Engineer assigned as head of the District IV Cooperative Projects Department.

KEEP PACE WITH TRAFFIC

Accidents can be avoided by keeping pace with the rest of the traffic on a road or street. Motorists who drive too fast must pass many other cars, increasing their own hazard; motorists who drive too slowly cause other drivers to pass them too frequently, and often at the wrong time.

FOG AND SPEED

Low driving visibility leads to high driving fatalities. When the fog is dense, keep your speed low. Make sure that your life isn't lost in a fog.

Retirements *from* Service

James Gallagher

James Gallagher, Senior Bridge Engineer, retired from the Bridge Department of the Division of Highways on September 30, 1954, after 33 years of service.

Jim was born September 20, 1884, at Branch Hill, Ohio. He attended Cincinnati public schools and graduated in 1908 from the University of Cincinnati with a degree in civil engineering.



JAMES GALLAGHER

Upon graduation from the university, Jim worked on survey crews doing maintenance and construction work for the Pennsylvania and Big Four Railroads in Ohio and Indiana and was Assistant Engineer on tests and operations for the Municipal Water Works in Cincinnati. He was employed as estimator and assistant superintendent of construction with the Ferro-Concrete Construction Co. of Cincinnati. He moved to the West Coast and worked for private engineering firms in Seattle, Washington, and then for several years was a structural engineer on railroad valuation in San Francisco.

Joins Highway Commission

In 1921, when the San Francisco office of the Interstate Commerce Commission was moved to Washington, D.C., he elected to remain in California and joined the California Highway Commission as a junior structural engineer in bridge design. At that time, a handful of designers, occupying one room in the Forum Building, turned out plans for all bridges built on the State Highway System. He designed some of the first bridges constructed in 1924 under the

... Continued on page 62

Helen R. MacLachlan

On October 1, 1954, Mrs. Helen R. MacLachlan, Personnel Officer for the Division of Highways, retired after completing over 21 years of state service, the last 18 of which were in the Division of Highways. A dinner



HELEN R. MacLACHLAN

in honor of Mrs. MacLachlan was held on October 5th at the University Club in Sacramento.

Helen was born near Portland, Oregon, and received her schooling in that city. Starting to work at an early age, her first positions were in the clerical field and included billing and mimeographing for various employers in the Portland area.

In 1918 she went to work as a junior stenographer for the U. S. Bureau of Public Roads Office in Portland. Transferred to the San Francisco regional office of the bureau, she worked up through various grades until, at the time of her resignation in 1932, she was a principal clerk, and served as secretary to the late Dr. L. I. Hewes, long-time regional chief.

While working for the bureau in San Francisco, a highway economist in the organization convinced Helen, whose last name then was Rook, that she should take on the name of MacLachlan. This union of the Irish and Scotch was accomplished on July 14, 1924.

After moving to Sacramento, Mrs. MacLachlan worked for the State Board of Equalization for three years and then transferred to the Division of Highways on January 4, 1937. Since July of that year, Helen has been personnel officer for the Division of Highways. During that period the

... Continued on page 63

Archibald M. Walsh

Archibald M. Walsh, senior highway engineer in District IV, retired September 1st after 29 years of service in the Division of Highways, during which he supervised many notable construction projects.



ARCHIBALD M. WALSH

Retirement plans call for Walsh and his wife, Geneva, to leave their San Francisco residence for a small ranch near Sonora, where Arch, as he is known to his many friends, plans to catch up on a number of postponed hunting and fishing trips.

Born in 1890 in Sausalito, Walsh received his education in the northwest, attending high schools in Oregon and Washington and the University of Washington.

His first position in his engineering career was on a survey crew with the Southern Pacific Railroad, after which he worked with the Oregon State Highway Department for six years. In 1924 he moved to California and was employed by the City of Sacramento on inspection of street work.

Enters State Service

In August, 1925, Arch Walsh began his state service as an instrumentman in District IV. He worked on a variety of construction and location projects for his first five years with the State, then, in 1930, was assigned as resident engineer on a project in Santa Cruz County in the vicinity of Boulder Creek. For the next 20 years he continued to serve as resident engineer on many important highway projects in District IV.

These projects included a number of sections of the relocation of State

... Continued on page 63

George G. Pomeroy

George G. Pomeroy, Supervisor of the Machine and Instrument Shop of the Highways Material and Research Department, retired on August 13th, completing to the day 32 years of service with the State.



GEORGE G. POMEROY

Pomeroy came to work for the Division of Highways in 1922 in the Equipment Department. With the expansion of the Materials and Research Department, he was assigned to construct many of the new items of equipment needed and in January, 1930, was placed in charge of the first Laboratory Instrument and Repair Shop.

Since that time Pomeroy has worked in close cooperation with the engineers of the laboratory and of the division as a whole on the development of hundreds of new ideas.

One of the early pieces of apparatus constructed by Pomeroy was a copy of the Florida bearing machine, a load penetration device similar to the California Bearing Ratio but designed for asphaltic mixtures.

Created Many Machines

Other instruments and machines which he created and developed include beam breaking machines, bump meters, automatic air pumps for sampling contaminated atmosphere along highways, stabilometers, soil compression machines and fatigue testers.

A partial list of the numerous machines, instruments and devices created or improved by Pomeroy during the past 24 years, which was read at the retirement dinner held in his honor on August 12th at Manhart Hall, contained 62 items.

Pomeroy was born in Edgerton, Wisconsin, in 1884, and received his education in mechanical engineering at the University of Wisconsin.

Prior to coming to work for the State, Pomeroy held many jobs as mechanic and machinist in private in-

... Continued on page 64

John W. McPartland

John W. McPartland, Assistant Hydraulic Engineer, Division of Water Resources, retired August 13, 1954, after 32 years of state service.

"Mac" was born on September 14, 1899, in San Francisco, where he at-



JOHN W. McPARTLAND

tended grammar and high school. His education was interrupted, however, by World War I. During this war, "Mac" saw action in France and Germany. Following the end of hostilities, he continued his education and attended Heald's Engineering School in his native San Francisco for three years. During this period, he visited his sister at Franklin Hospital and as a result, relieved the staff of one of their prettiest nurses, Miss Emilia Fischie, whom he married in 1921.

In 1920 he joined the staff of the Sacramento County Surveyor as a draftsman, and later was with the Sacramento County Engineer's office.

In 1922, "Mac" entered state service as a draftsman with the State Highway Commission and in 1923 transferred to the Division of Water Rights, now known as the Division of Water Resources. His work throughout the years with the division was of a diversified nature. After some time as a draftsman, he was promoted to the watermaster service and saw duty throughout Northern California. Watermastering came easy to him and through his efforts he made many friends for himself and the State. In 1944 he left the watermaster service to work on the first of a series of special water resources investigations. In 1950 he joined the staff of the water quality function of the division where he worked until his retirement.

"Mac" is a member of Sacramento 40 Lodge, F. and A. M., Sacramento, Scottish rite and Ben Ali Shrine.

He and his wife plan to move near the fogbound coast in the vicinity of Carmel, where many of his fondest memories are realized.

Paul R. Watson

Paul R. Watson, Associate Highway Engineer, retired from the Bridge Department, Division of Highways, on August 31st.

Paul's retirement climaxed an active and varied engineering career which included work as private consultant and county construction engineer, as well as engineer with the Bridge Department.

Although Paul feels like a native of California, the records show that he came west in 1886 from Boston, Massachusetts, his native city, at the age of two.

His early school days were spent in Santa Ana. He later moved to San Diego, where he was graduated from San Diego High School in 1903, and began his engineering career as assistant to a consulting engineer in that city. He left this position to enroll in the Civil Engineering Department of Stanford University.

Worked in San Diego

Immediately upon leaving Stanford, Paul was employed as acting bridge engineer for San Diego County, which position he held until 1920. During the flood of 1916, which caused so much damage in Southern California, he obtained much of his first-hand knowledge regarding the repair and construction of major bridges.

In recognition of his performance as Bridge Engineer, Paul was promoted, in 1920, to the position of Construction Engineer for the San Diego County Highway Commission under R. M. Morton, who was later to become the second California State Highway Engineer.

In 1922 the opportunities of private practice beckoned to Paul, and soon the firm of Watson, Valle and Gough was engaged in a successful engineering practice in and around San Diego.

... Continued on page 62

JAMES GALLAGHER

Continued from page 60 . . .

supervision of the newly organized Bridge Department.

The expansion of the department brought administrative duties and although there were no high sounding titles bestowed, Jim became, in fact, the first assistant to Bridge Engineer Harlan D. Miller. After Mr. Miller's death, for a time, he had the full responsibility for the department.

Administrative Assistant

Following the appointment of Charles E. Andrew as Bridge Engineer, Jim resumed his duties as Administrative Assistant. This included the negotiation and preparation of agreements concerning railroad grade separations, navigation clearances, etc., which then could be taken in stride with his other duties. However, starting with the WPA Grade Separation Program in the middle 1930's, the expansion of the highway program including the large amount of freeway construction in metropolitan areas, made the handling of agreements one of the most important tasks handled by the department.

For many years, Jim has had the responsibility of working out the complex federal, state, local and railroad relationships in the improvement and elimination of critical California railroad-highway grade crossings. He is a recognized authority and consultant in this field.

Jim's specialized knowledge and his ability to command the friendship and respect of all with whom he had dealings has been an asset to the department, the loss of which will be felt long after his retirement.

After his retirement he will continue to reside with his wife, Gertrude and daughter Patricia at 1311, 38th Street, Sacramento. He also has another daughter, Mrs. Harry Tarbell of Bellevue, Washington, and four grandchildren, three boys and a girl.

WORST TIME OF DAY

Impatience to get home, weariness after the day's work and congestion of traffic make the hours from 4 to 6 o'clock p.m. the most dangerous of the day. More than a sixth of all traffic fatalities occur in those two hours.

PAUL R. WATSON

Continued from page 61 . . .

During this period Paul supervised the engineering work for a subdivision being developed by the real estate firm of Davis and Baker of Pasadena—Harrison Baker who later became a State Highway Commissioner.

Although most of his private practice was in the field of municipal engineering, Paul found time to design the two bridges on Mission Bay in San Diego, on the road from Crown Point to the Marine Base.

Enters State Service

Another notable structure which Paul designed is the multiple arch bridge across the San Luis Rey River near Bonsall. Because of the proximity of the San Luis Rey Mission, the lines of the bridge were made to conform with the architecture of the old mission, which resulted in a very pleasing and beautiful structure.

It was in the early thirties that considerable expansion occurred in the State's highway and bridge building program. It was in 1933 that Paul became associated with the Bridge Department. Since that time he has represented the department on the planning and construction of many of the major structures in the Los Angeles area. His work as Resident Engineer included such structures as the Santa Monica Tunnel, both of the Arroyo Seco Freeway bridges over the Los Angeles River, the Fair Oaks Bridge in South Pasadena, and the Sunset Boulevard-Glendale Boulevard separation structure.

In Planning Section

With the tremendous increase in freeway construction in Southern California, Paul joined the planning section of the Los Angeles Office of the Bridge Department where his background of design and construction could be brought to bear on the problems of the expanding freeway program. This position he held until his retirement.

A characteristic of Paul has been his willingness to impart to others with less experience the fruits of his

Les Bertken

On August 23, 1954, Les Bertken, Assistant Location Engineer, began a period of vacation prior to his official retirement from state service after nearly 36 years on October 1, 1954.

He started with the Division of Highways, District VI, in December of 1918 on construction and survey assignments, and in 1926, after brief service in District VIII, transferred to District IV, where he has been continuously employed.

Bertken was appointed chief of party shortly after his arrival in the district, and his entire service has been devoted to location surveys. There isn't a route, path or byway in the district that Les is not familiar with. He was in on the solution of most of the tough location problems in the district. The location of Route 5 in Santa Cruz County from Los Gatos to Scotts Valley particularly stands out in his recollection, where, due to the heavy brush and broken terrain, the going was extremely difficult.

Les is retiring near the minimum age limit, and is looking forward to operating a gold mine in his home County of Mariposa. He has plenty of youth and energy for this purpose, and his many friends wish him much happiness and success in his new venture.

extensive knowledge and experience. His advice has been solicited and highly valued by his associates.

He is a life member of the American Society of Civil Engineers, having joined the organization in 1917. He has been a full member since 1927.

The Watsons have two sons, Millard L. Watson of South Pasadena, and Paul R. Watson, Jr., of Sacramento, who is Assistant Construction Engineer for the State Division of Highways.

Paul says that the most important event of his career was his marriage on February 2, 1911, to Alys E. Bullock. The Watsons live at 1535 Ramona Avenue in South Pasadena.

CALLING PAUL BUNYAN

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enough time had been available, it would have been possible to burn the material but this process is very uneconomical so the contractor negotiated for disposal sites from property owners along the right of way and hauled, dragged, or pushed the logs, stumps, humus, etc., to these sites. These disposal areas are situated so as to be well screened from the traveled way by the dense growth of trees and brush. Some merchantable trees and logs have been obtained from the clearing operation and these have a ready market in this area where lumbering is a major industry.

The larger portion of the grading on this project involved the use of 515,000 tons of imported borrow to construct embankments. The remainder of the construction involved the use of 127,000 cubic yards of roadway excavation, a major portion of which was involved in the leveling of a small rocky knoll near the line for use as local borrow. Also included in this item was approximately 14,000 cubic yards of excavation for the removal of unsuitable material from six swamp areas which are crossed by the new alignment. These swamps were from two to six feet deep and were backfilled with river gravel.

Due to late rains this past spring and early summer and to the poor drainage of the terrain through which the alignment passes, many areas of muddy, unstable ground were encountered. In order to obtain a stable roadbed, it was necessary to strip this unsuitable material, which varied in depth from one to three feet, prior to starting embankment construction.

Frontage Roads and Structures

In order to reduce access to a minimum, several small frontage roads were constructed, the major one being approximately one-half mile in length along the south side of US 199 at the new intersection with US 101. This latter road serves farm property, a subdivision, and a motel. Its effect on the growth of this area will be watched with interest as it is the first frontage road constructed in Del Norte County.

In addition to the two cattlepasses previously mentioned, five reinforced concrete box culverts were constructed on the new section of alignment. Reinforced concrete pipe culverts were used at other locations throughout the job.

The total contract allotment is \$846,190.44. Floyd O. Helm is Superintendent for the McCammon-Wun-

ARCHIBALD M. WALSH

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Sign Route 17 between Los Gatos and Santa Cruz, the freeway construction on Sign Route 1 between Santa Cruz and Watsonville and the construction of the Half Moon Bay Flight Strip during World War II. In 1950 Walsh was promoted to senior highway engineer and was assigned as field supervisor on construction contracts in the southern portion of the district.

In retirement Arch Walsh leaves many younger engineers to carry on highway work with the benefit of the sound training he imparted.

HELEN MacLACHLAN

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total number of employees in the Division of Highways has increased from about 6,200 to just over 10,000.

Now that she is retired, Helen plans to devote some of her time to charity work and expects to be kept busy the rest of the time with house and garden work at the family home in Sacramento.

derlich Company, B. D. Van Zandt is Resident Engineer for the State, and Alton Kay represents the Bridge Department for the concrete structures.



Looking south from the north end of project showing grading in progress on the only portion of alignment which was relatively clear of brush or trees. Clearing here involved only the removal of occasional stumps from approximately 3,000 feet of pasture land.

SAN FERNANDO PASS

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opment of the historic pass into the San Joaquin Valley, where as early as the fall of 1865, oil drilling activities were already under way in what are now the McKittrick Oil Fields of Kern County.

Around the early 1870's, when dust became a menace due to the terrific amount of travel, the road through the cut was paved with black asphalt. Then, with the extension of the Southern Pacific Railroad line through Southern California in 1875, a tunnel was cut through the mountain, and a considerable amount of shipping was carried on by rail, thus relieving some of the pressure on the wagon road.

But with the turn of the century, pressure began building up again. Beale's Cut was no longer wide enough to accommodate the heavy flow of traffic; moreover, the road itself was too steep for the newfangled "gasoline buggies" that were chugging over the roads of Southern California in ever-increasing numbers.

Come 1910, the population of Los Angeles County had risen to 504,131; and there were some 44,132 automobiles registered in the State, many of which at one time or another were cluttering the narrow San Fernando-Fremont Pass Road through Beale's Cut. There was only one answer: Build a new road!

Action came swiftly, when that same year, Los Angeles County, through a bond issue, began the construction of the Newhall highway tunnel through the ridge of hills to the west of the old cut. Although the new tunnel had a bore of only 17 feet 5 inches, it provided two lanes for traffic, which was a marked improvement over the old, steep, one-way road.

For nearly three decades the famous tunnel—part of the State Highway System since 1916—accommodated the ever-increasing amount of traffic to and from the Los Angeles area. But by 1938, it was no longer adequate. At times an average of 3,000 cars per hour passed through the tunnel, with traffic blocked for a mile behind. To eliminate the critical bottleneck—the worst in Southern California—the State Division of Highways removed the old tunnel in 1939 to make way

In Memoriam

SAMUEL M. TEMPLETON

District XI was saddened by the news of the passing of Samuel M. Templeton, June 16, 1954, at a local hospital after an illness of several months. Mr. Templeton, a highly regarded employee of the district, was born April 26, 1895, at Clarksville, Texas, and after graduation from high school attended Trinity University in Texas until 1915. After service during World War I, he began his chosen career in engineering and served as instrument man, field inspector, estimator, and field office manager with private concerns and municipal agencies prior to his employment by the Division of Highways.

On August 4, 1930, Templeton accepted employment with the Division of Highways as a junior civil engineer in District VIII under E. Q. Sullivan, who was then district engineer in District VIII. Shortly thereafter he joined the newly formed District XI and transferred to San Diego as an assistant resident engineer on October 9, 1933.

During his tenure in District XI, Templeton served as a field construction inspector on many of the quickly developing highway projects. At the time of his passing Templeton was an assistant highway engineer.

Those surviving him include three sons, Samuel M., III, William W., and David, and a daughter, Mrs. Charles Graham, all of San Diego.

for a new four-lane divided expressway—the present Highway US 6.

Today, picturesquely silhouetted against the sky, within sight of the heavily traveled highway, the historic gateway through which the tide of empire once surged, stands deserted and alone; serving only to intrigue the passing motorist and to attest to the skill and perseverance of California's pioneer road builders.

EDITOR'S NOTE:

As a main source of information on San Fernando Pass, the author acknowledges:

Vernette Snyder Ripley: "The San Fernando Pass and the Pioneer Traffic That Went Over It." Quarterly, Historical Society of Southern California; March, 1947—Part I; September, 1947—Part II; March, 1948—Part III.

In Memoriam

JOHN W. CORVIN

John W. "Jack" Corvin, Assistant District Engineer of District V, Division of Highways, died in San Luis Obispo on September 18, 1954, after a long period of illness. He had been an employee of the California Division of Highways since graduation from the University of Nevada in 1928.

Born in Green River, Wyoming, January 25, 1905, Corvin came to California as a child and was educated in Roseville.

His first job with the Division of Highways was as a chainman and rodman for District III on the Emerald Bay, Lake Tahoe, construction project. He continued to work on surveys, as resident engineer on all types of paving jobs, and later served as District Materials Engineer and District Location Engineer.

During World War II Corvin was assigned to location and construction of emergency flight strips, and for one year was sent at the request of the Federal Government to serve as field engineer on highway, railroad and army camp construction in Iran.

After World War II Corvin served for a brief period in District II, Redding, and then returned to Headquarters Office in Sacramento, serving in an administrative capacity and as Assistant Traffic Engineer. He was assigned to District V in 1950 as Assistant District Engineer, with jurisdiction over various district functions including traffic, materials, right of way and administration.

Corvin is survived by his widow, Dorothy, and daughter, Amelia Mary, in San Luis Obispo; and by two sisters, living in Roseville.

GEORGE G. POMEROY

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dustry including the embryonic automobile industry, and later with the Santa Fe and Western Pacific Railroads.

Pomeroy and his wife life at 4810 Eighth Avenue in Sacramento. He expects to spend much of his time after retirement pursuing his hobbies of rock collecting and photography.

GOODWIN J. KNIGHT

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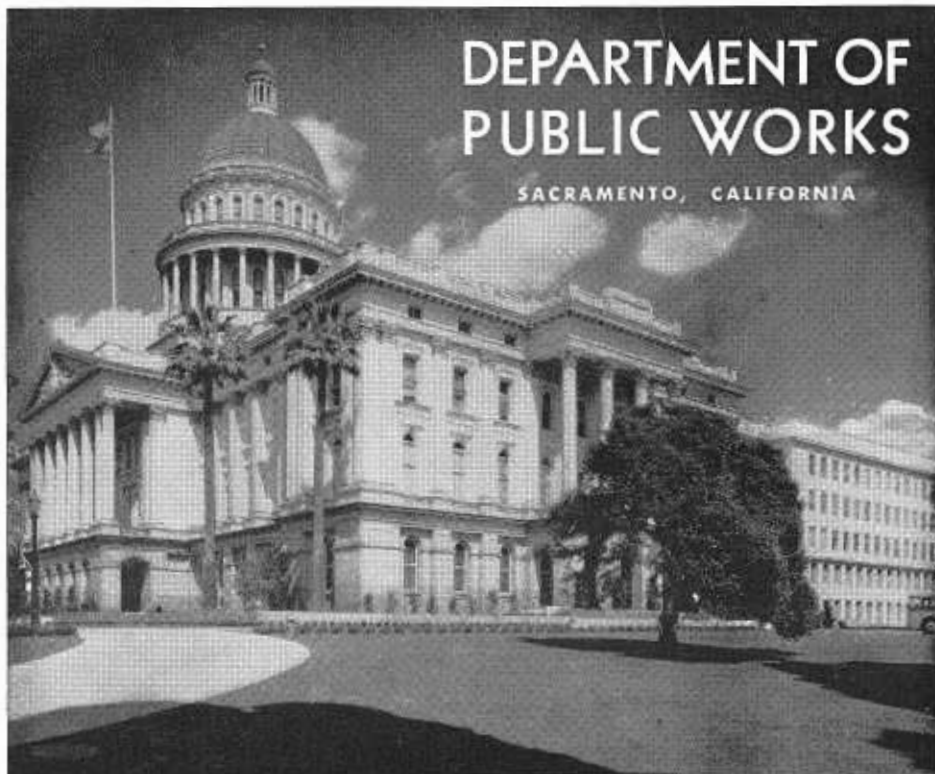
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P. O. HARDING Assistant State Highway Engineer

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