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CALIFORNIA HIGHWAYS

A BULLETIN ISSUED BY THE DIVISION OF HIGHWAYS FOR THE
INFORMATION OF ITS EMPLOYEES AND THE PUBLIC

Vol. 4

AUGUST, 1927

No. 8



AIRPLANE VIEW OF SACRAMENTO.—Showing part of the business section to the right, Capitol Building and Capitol Extension Buildings in the center, with Capitol Park in the foreground. To the extreme left, showing dark, is the State Printing Plant. The Strub Building, housing the Motor Vehicle and Criminology departments and the Division of Highways, across the alley from the Printing Plant, was missed by the air man, connected with the 15th Photo Section of the Army Corps, Crissy Field, Presidio, San Francisco, who took the shot.

In this issue: CENSUS TRAFFIC MAP FOR JULY, 1927, OF ALL ROUTES IN THE CALIFORNIA STATE HIGHWAY SYSTEM, PAGES 8 AND 9.

CALIFORNIA HIGHWAYS

This Bulletin is published by the California Highway Commission for the information of its employees and the public. Editors of newspapers and others interested are welcome to use, without restriction, any of the matter herein contained. Cuts will be gladly loaned upon request.

J. P. HALL Editor
P. O. Box 1103, Sacramento, California.

Vol. 4 AUGUST, 1927. No. 8

CALIFORNIA DIVISION OF HIGHWAYS

C. C. YOUNG, Governor.

B. B. MEEK, Director of Public Works.

CALIFORNIA HIGHWAY COMMISSION

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J. P. BAUMGARTNER, Commissioner, Santa Ana

M. B. HARRIS, Commissioner, Fresno

JOSEPH M. SCHENCK, Commissioner, Los Angeles

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General Headquarters, Third Floor, Strub Bldg., Eleventh and P Streets,
Sacramento, California.

EVERY employee of the highway commission has a direct interest in the improvement of the highway organization's methods and results, both engineering and clerical, office and field. To that end, the State Highway Engineer invites constructive criticism or suggestions from every employee.

Ideas as to the more economical and efficient handling of your job, or suggestions for elimination of waste will be welcomed. Criticism is also desired from persons outside the organization, who are in a position to give facts.

Send only signed communications addressed as follows:
California Highways, P. O. Box 1103, Sacramento, Cal.

GOVERNOR YOUNG COMPLETES APPOINTMENT OF COMMISSION

Governor C. C. Young has completed the appointment of the members of the California State Highway Commission, fulfilling that requirement of the Reorganization Act which increased the number of members from three to five.

The new commissioners are Joseph M. Schenck of Los Angeles and Fred S. Moody of San Francisco. The former is the well-known movie producer and a state leader of the south. Mr. Moody is a representative business man of the bay region and has had experience in affairs of state, having been a member of the Board of Harbor Commissioners.

In announcing the appointments Governor Young said:

"In securing their services I believe I have two of the most capable men in the state. Both are prominent in their respective communities and have told me they will devote their time and energy to the commissions work. I am highly elated over their acceptance."

The entire commission is now a geographically well-balanced organization consisting of—

Ralph W. Bull, Eureka, Chairman,

J. P. Baumgartner, Santa Ana,

M. B. Harris, Fresno,

Joseph M. Schenck, Los Angeles.

Fred S. Moody, San Francisco.

Incidentally they follow a variety of vocations and are as representative a body of men as could be selected in the entire state.

WHEN PAVING MEANS ECONOMY

According to H. J. Kuelling, State Highway Engineer of Wisconsin, it is economy to pave a road when it carries over 500 vehicles per day, the saving in maintenance cost and vehicle operation will, he writes, more than balance the first cost of the paving.

Wisconsin has not yet learned about how California handles heavy traffic with her oiled highways.

WHAT COUNTS.

You build for the future, my friend, every day.
The things that you do and the words that you say
Will some time rebound as a blessing or bane.
As sowing the seed brings a harvest of grain.

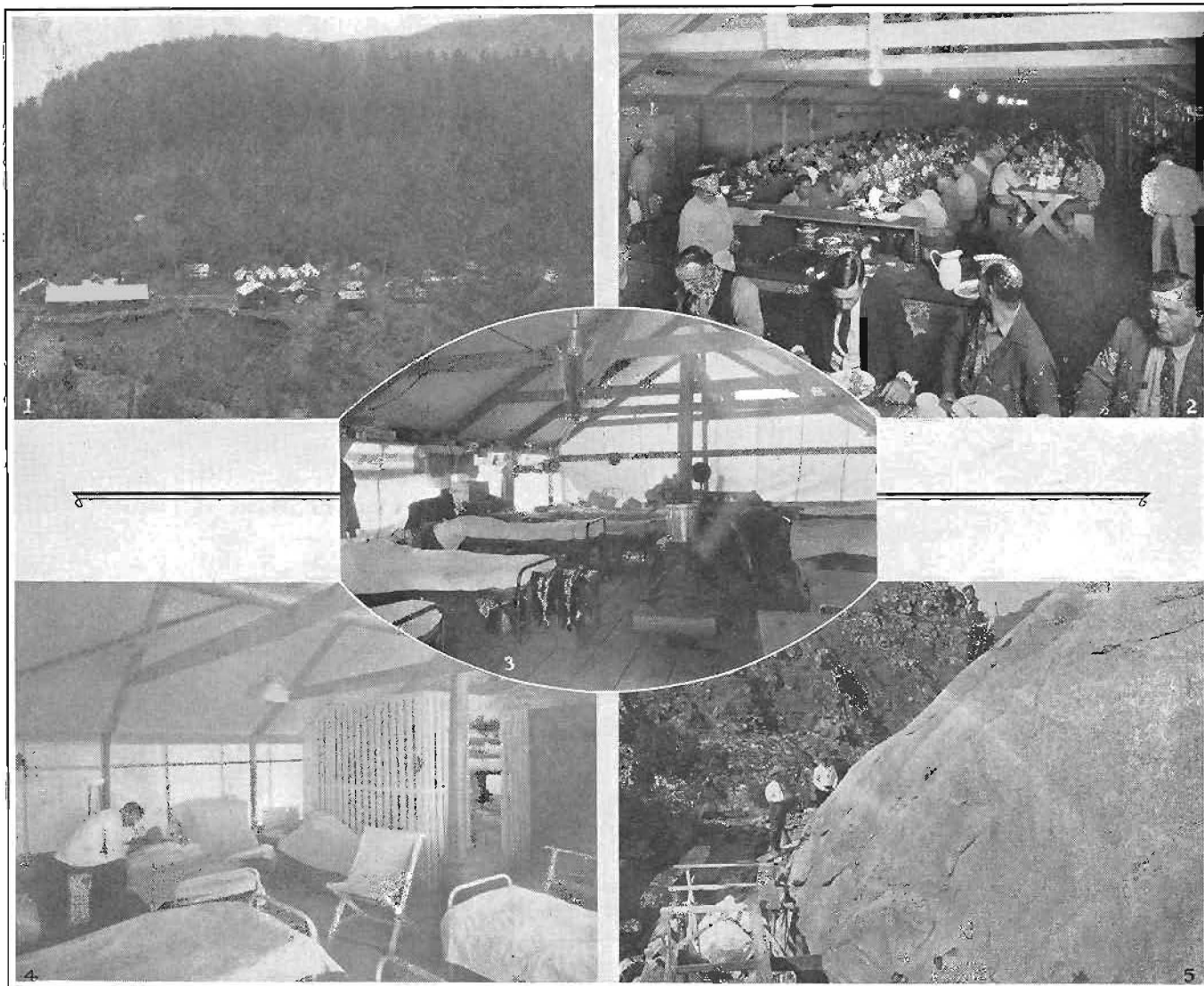
Then build life's foundations with diligent care
The granite of character slowly prepare.
Your speech counts for little unless it agree
With things that you do and with what you may be.

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FOUR YEARS' EXPERIENCE WITH CONVICT WAGE

Reported by BEN H. MILLIKEN, Superintendent of Prison Road Camps.



"WHERE LIFE IS BETTER."—(1) Smith River Camp in Del Norte County, near Crescent City. (2) Healthy appetites are one of the products of the camps. (3) Living quarters. (4) Camp Hospital. (5) Character of country through which Kern River Highway was built; getting ready for the blast.

STATE prisoners have been used on state highway work since 1915, but only during the past four years have the workers received pay. On August 17, 1923, they became wage earners, and since then the operation of the system has been observed with increased interest.

While the pay law provides for a maximum gross wage of \$2.50 per day, the wage has been set at \$2.10, the average cost of maintaining the prisoners at the camps prior to the inauguration of the wage system. It was expected that the cost would be reduced by the coordination of prison camp activities, and the saving thus affected would represent the net

earnings of the prisoners. Under this plan the average daily maintenance cost has been reduced from \$2.10 to \$1.82 allowing the prisoners an average net daily saving of \$0.28.

Expense Deductions.

The items of expense which must be deducted from the gross wage of \$2.10 are: meals, which includes cost of food, wages of kitchen help, freight on supplies, fuel, lighting, refrigeration and depreciation on cookhouse equipment; salaries of commissary men and clerks who work on convict records, camp doctor, barber, shoemaker, guards, office rent,

Ortega Hill Relocation to be Paved



COAST ROUTE HILL CONQUERED.—View of recently graded State highway along Santa Barbara channel, over Ortega Hill, near Summerland, Santa Barbara County. The roadway was daylighted giving motorists a view of the majestic Pacific.

(Reported by L. H. GIBSON, District Engineer, District V.)

THE immediate paving of the recently graded and realigned state highway over the historic Ortega Hill and through Summerland, Santa Barbara County, has been assured by an extension to the contract of Sam Hunter, Summerland to Carpinteria. The Ortega grading was done in 1925.

Hill Removed For Ocean View.

The original grading project involved the removal of the entire side of the hill and the construction of fills from 10 to 25 feet in depth. Ortega Hill at this point precipitates abruptly into the ocean. The old road was forced back a half mile from the shore, taking a zig-zag course in making the grade. In constructing the new road a deep cut was made through the side of the hill and then in order to daylight the road and give motorists a full view of the Santa Barbara Channel at this point, the portion of the hill left between the roadway and the shore line was entirely removed. The fills were made in 8-inch layers, each layer being watered and rolled with a 12-ton roller. The compaction secured in this manner was so thorough that no appreciable settlement occurred since construction, in spite of the excess rains of last winter and a daily traffic running from 4000 to 10,000 vehicles.

Paving to be 30 Feet.

The new paving will be of Portland cement concrete and will cost the state \$10 per cubic yard. By combining it with the present Hunter contract a saving will be effected and the public will have the use of a fine highway at a much earlier date than if handled as a separate job.

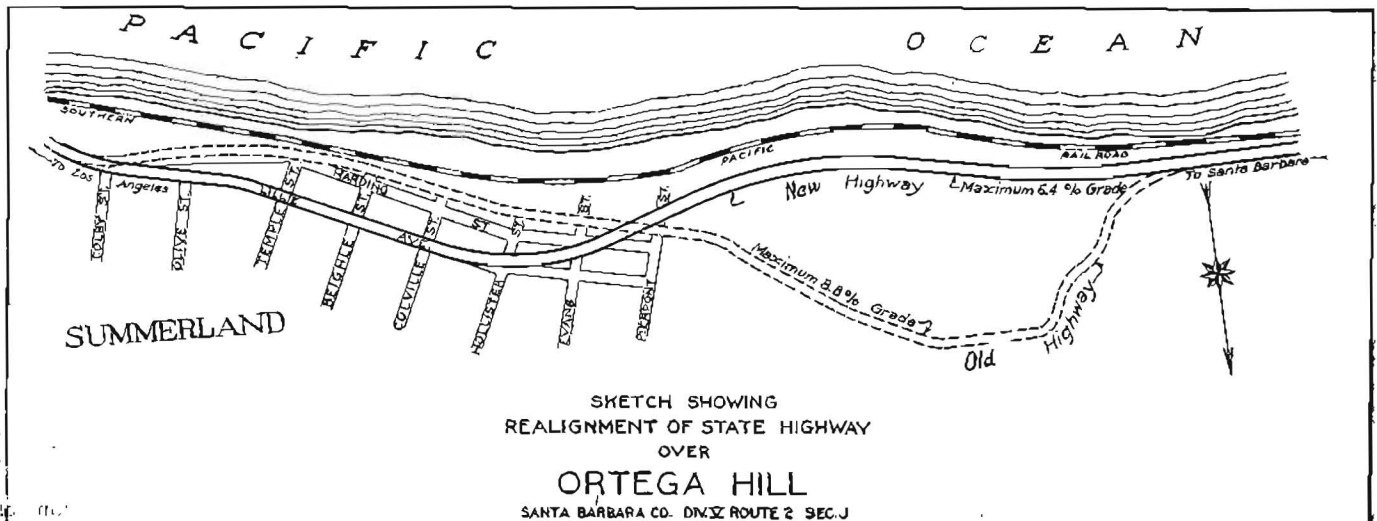
Paving to Reduce Maintenance Cost.

The maintenance of this piece of road, which is of standard rock surfacing, has been exceptionally heavy, a smooth surface being maintained only by continual sprinkling and dragging. The paving will eliminate this high maintenance cost, also the dust, which has been considerable in spite of the continual watering, and will make of this section one of the finest stretches of highway in the state.

History of the Road.

The Ortega Hill road dates back to the early days of the Spanish control of California, the hill receiving its name from Capt. Jose Francisco Ortega, often called the "Kit Carson" of the early Spanish expeditions into California. He was active in colonization work for 30 years and died near Santa Barbara February 3, 1798.

(Continued on page five.)



New Method for Checking Maintenance Work

(By T. H. DENNIS, Acting Maintenance Engineer.)

SINCE THE advent of heavy trucking on many of the state highway routes the matter of maintenance and the dispatch with which it is accomplished have become of much importance to the Division of Highways. The old adage of the "stitch in time" is extremely applicable to the situation as a break in a paved road, if allowed to be pounded for several days by traffic, soon becomes a piece of ruined highway, not to mention the inconvenience to travel and damage to cars.



T. H. DENNIS.

Checking up on the work of maintenance superintendents and foremen is therefore an important part of the work of the Maintenance Department and following a study of the situation the system now being inaugurated was adopted.

One of the central office assistants is assigned the northern, the other the southern section of the state, each being responsible for proper methods and results in his respective territory. Each assistant covers his territory approximately every three weeks, usually in company with the district maintenance engineer.

To insure against instructions issued at that time being entirely dependent on the district maintenance engineer's memory, it was deemed advisable to adopt a form, made out in triplicate, on which the defects of each section were noted, space being reserved for the comment of the district maintenance engineer, advising when and in what manner the corrections would be made. One copy of the report is left with the district maintenance engineer, one remains in the assistant's book and the other at central office. On the assistant's ensuing trip, he notes on his copy the corrective measures taken, if any, and if nothing has been done, requires an explanation from the district maintenance engineer. This form in which the district maintenance engineer definitely obligates himself to perform certain things would appear to have much merit, his efficiency being rated in proportion to his ability to perform.

That the spirit of responsibility may become more general, there will be kept a card index of the various foremen and superintendents assigned to maintenance. When the assistant reports section defects on his form, he will also note the name of the foreman and superintendent on whose sections these occur. These reports will serve as a merit or demerit system for the respective men, and should by their continued tenor, indicate those most valuable to the organization.

The following is a typical copy of the form adopted for the work with suggested criticisms filled in:

**State of California
CALIFORNIA HIGHWAY COMMISSION
Maintenance Inspection Report**

Town _____
Date _____ California
192____

Mr. R. M. Morton,
State Highway Engineer,
Sacramento, California

Attention—Maintenance Department

Dear Sir:

An inspection of road _____ County _____ Route _____ Section _____ (Foreman) _____
on _____ Date _____ shows the following which needs attention
Shoulders low, guard rails broken, excess oil used in patching, crack filling sloppy—Heavy truck used where light is available. Crew work slow.

In discussing this matter with District Maintenance Engineer _____

I am advised that their plan is as follows:

Shoulders will be built up at once. Rails will be repaired next week. Will personally inspect patching and crack filing. Will advise foreman on necessity of efficiently handling crew and equipment.

District Maintenance Engineer

Assistant Maintenance Engineer

Inspected above on _____ Date 192____. Work completed. Appearance of work and of crews improved.

Ortega Hill Relocation to be Paved

(Continued from page four.)

In addition to Ortega Hill, a bad situation existed immediately to the east, through the town of Summerland. The street on which the former 15-foot pavement was placed has a width of only 30 feet. On one side are business buildings, one the other tracks of the Southern Pacific Railroad. A

new location was adopted on a residence street one block from the former location. The street was widened to 80 feet by purchasing lot frontages and moving several buildings. Condemnation suits were necessary before all rights of way could be obtained. Originally there were nearly 200 defendants in these suits but through negotiation most of the needed property was purchased without trials.

IS YOUR STATE FUNCTIONING IN ROAD BUILDING
IN PROPORTION TO ITS ABILITY AND NEEDS?

UNDER THE above heading "American Highways," a quarterly publication, issued by the Association of State Highway Officials, in its July, 1927 issue, prints a comparative tabulated statement of highway figures for all the states of the Union. It then asks the following questions:

How does your road mileage compare with your area and population to be served? Wealth is the way to find out your ability to pay but number of motor vehicles govern much of the highway financing of today.

How does your state rank in wealth correspond with your rank in number of motor vehicles?

Should not your receipts from motor licensed fees and gas tax put you in the same rank as your number of motor vehicles?

If you rank low in mileage of roads improved is your state keeping pace with this need in proportion to her wealth?

The figures for California are as follows:

2d in Area.

2d in Autos and Trucks.

3d in Basic Wealth (Farms, Mines and Forests).

4th in Auto License and Gas Tax Receipts.

5th in National Wealth.

7th in Population.

3d in Concrete Highway Mileage.

7th in Miscellaneous Mileage.

9th in Graded and Drained Mileage.

10th in Bituminous Macadam Mileage.

10th in Bituminous Concrete Mileage.

17th in Improved State Highway Mileage.

20th in Total State Highway Mileage.

Although the tabulation fails to give California credit for an additional 581 miles of rock-surface mileage, much of which is now oiled, it furnishes much food for thought.

FOUR YEARS' EXPERIENCE WITH CONVICT WAGE

(Continued from page three.)

phones, telegrams and stationery, accident insurance for free employees, commissary supplies, including clothing, bedding, tobacco and toilet articles, and incidentals, cost of camp maintenance, rewards for escapes and expense of returning them to prison, and transportation to and from prison.

A reward of \$200 is allowed for the capture of each escaped prisoner, and as this amount is a direct charge against the gross wage, it creates resentment among the prisoners against those contemplating escape. Careful selection of those to be sent to the camps, improved camp conditions, humane treatment by free men in charge, a reduction of guards, thereby extending the honor system, and proper recreation facilities are other factors that have contributed toward the reduction of escapes.

Recreation.

The recreation fund consists of earnings forfeited by prisoners who escape or are returned to the prison for violation of camp rules, together with interest on prisoners' earnings. With this fund, radios, motion picture projectors, and baseball, handball, and boxing equipment have been purchased, and recreation halls have been built. Express on weekly film service has been paid and daily newspapers provided. The Film Board of Trade in San Francisco each week supplies free of charge a feature and comedy for each camp. Publishing companies supply all the late magazines free and each camp has a library well stocked with good books.

Not only have beneficial effects of the system been noted at the camps, but also within the prison walls, for the possibility of road assignment is an incentive for prisoners to keep their records clear. The camps have affected a saving of several hundred dollars per day in prison support and have made aid possible to prisoners' dependents through allotments from road earnings. The outstanding beneficial feature is the opportunity for prisoners, while still serving time, to prove that they can do an honest day's work and that they intend to make good upon release. Incidentally, they all ask parole while in prison, making many promises for the

future and the road camp furnishes opportunity to try out their good intentions. The marked improvement in health, morals and general outlook on life, however, is not to be overlooked when considering the accomplishment of the prison road camps.

Four Years' Figures.

For every two days a prisoner spends in a road camp he is given credit for an extra prison day. To date, the total number of convict days spent in camp is 511,801, which, with an added 255,900 extra time earned, has resulted in a saving of 767,701 convict days in prison support.

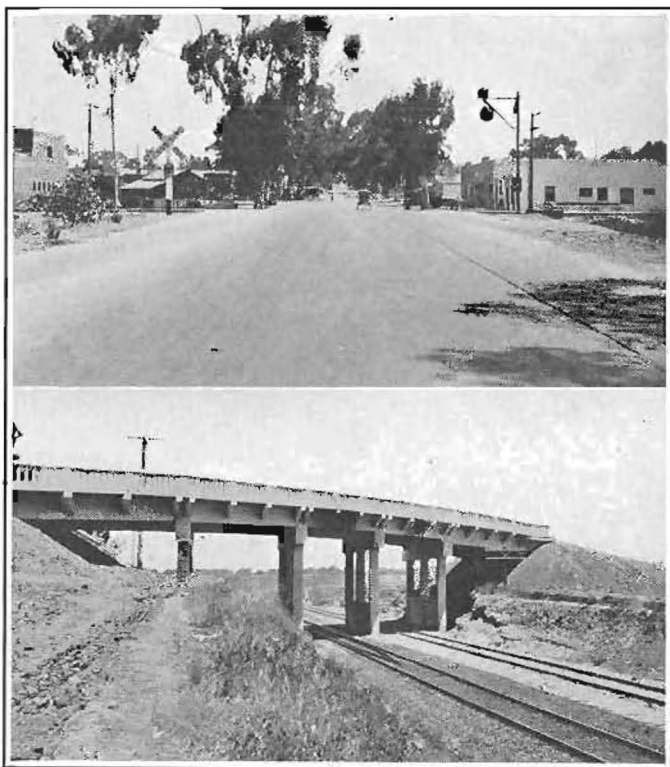
The total gross earnings of the prisoners has been \$1,074,788, less \$961,705, deductions, leaving a net of \$144,782, or an average daily saving per worker of \$.283. The total amount allotted to dependents has been \$33,395.

The average time spent in camp has been 10½ months, while the average net earning of those who make good has been \$85. The record net earning by any one prisoner is \$660.

Since August 17, 1923, when the pay law became effective, approximately 2000 prisoners have gone through the road camps. The large majority of these men have been released on parole, the remainder discharged free. When a prisoner is paroled it is a prerequisite that he have employment to go to, guaranteed by a responsible citizen. His transportation is paid by the state from the point of his release to the place of employment. In the case of a discharged prisoner, the state pays his transportation to the point of arrest.

The conduct of hundreds of released prison camp men has been closely observed and the conclusion has been reached that it is not only desirable but necessary that they have some money with which to make a start. Too much money, however, is a detriment as it gives the ex-prisoner a feeling that he can put off thoughts of serious work. A complete outfit of clothing and bedding and \$85 in cash, the equipment which the average released prisoner takes with him, is believed to be sufficient.

THE CARLSBAD OVERHEAD



Upper, The old Carlsbad grade crossing of the Santa Fe main line to San Diego which has been eliminated from the State Highway by a line change and a new overhead crossing. Lower, The new concrete structure which carries the traffic safely over the tracks.

The completed Carlsbad overhead crossing in San Diego County is another step in furthering the plan of the Division of Highways to build safety into state roads. The new structure crosses the Santa Fe railroad on a relocation and diverts the through traffic from one of the town's main streets.

The new overhead is 165 feet long and has a 30-foot roadway and a 5-foot sidewalk. The cost of the structure was \$19,803, shared equally by the railroad company and the state. The job was started by Coon Brothers and finished by Leadbetter & Company. Resident Engineer W. B. Anderson was in charge at the completion of the job.

Material for the approaches was obtained from the railroad company's excavation made necessary by the relocation of a side track. The cost of the overhead and approaches totaled approximately \$40,000.

WISCONSIN'S TOURIST CROP

The state of Wisconsin has made an expert study of its annual tourist crop and has arrived at figures as to just how much it means to the state in dollars and cents.

Traffic counts indicate that 9000 cars from other states come into Wisconsin daily during the touring season. Questionnaires answered by tourists show that cars carry an average of 3.6 passengers and stay in the state an average of 8.5 days. Expenditures average \$2.82 per person per day. Cars travel an average of 586 miles in the state. About 35 per cent of the tourist camp out, 55 per cent stay in hotels and the balance have summer homes. Gas tax revenues are approximately \$600,000 per year from tourists. On this basis a rough estimate puts the gross tourists business at \$100,000,000 per year, which is approximately one-third as much as the state's largest business—dairying.

Seven

LOOKING BACKWARD

(By J. H. SKEGGS, District Engineer, District IV.)

A review of historical data in relation to highway construction invariably discloses some point of interest for "California Highways." In looking through the old files in the District IV office of the Division of Highways at San Francisco, the following letter was found under the date of April 19, 1916. It is a plea from the Santa Cruz Chamber of Commerce that the newly graded road (the state highway from Los Gatos to Santa Cruz) be kept watered, so that the "splendid work done by the Highway Commission would be maintained." In order to emphasize the necessity of granting their request, a traffic count was kept.

S. A. Palmer, then President of the Santa Cruz Chamber of Commerce, and W. S. Moore, Chairman of the Good Roads Committee, in the letter reports the count as: 618 automobiles; 32 motorcycles and 29 buggies.

It is not quite definite from the above at just what point on the highway the traffic count was taken by the Santa Cruz Chamber of Commerce. Nevertheless, it is of particular interest at this time to compare the figures in this old count with the latest check made by the State Division of Highways, covering a 16-hour period on Sunday, July 17, 1927. This recent tabulation shows that at the city limits of Los Gatos 9616 automobiles passed during the 16-hour period of the count, while during the same period at the city limits of Santa Cruz, 7712 automobiles passed the observer.

The 1927 count makes no reference to buggies, indicating that the horse-drawn means of transportation has dropped to almost a negligible factor in present day highway traffic study.

TAKING HIGHWAY PHOTOGRAPHS

THE FOLLOWING is an extract of an article on "Some Thought on the Taking of Highway Photographs" in "The Highway Magazine" for August:

Viewpoint—General views of highways should be taken from an elevation, from the seat of a truck or higher, and from the edge of the pavement, facing traffic. Different viewpoints serve to bring out different facts. Choose the viewpoint that best serves the reason for the picture.

Detail—While pictures as a whole convey impressions, it is the details that are usually most valuable to the engineer. Catching the desired detail is worth experimentation.

Action—Pictures showing construction are best without the distracting influence of traffic. However, photos to show methods and equipment require action. If possible they should be taken with workmen unconscious of the camera, at work and not posed; likewise traffic scenes.

Data—Don't forget the data on the back of the photo. Many times they are useless without it.

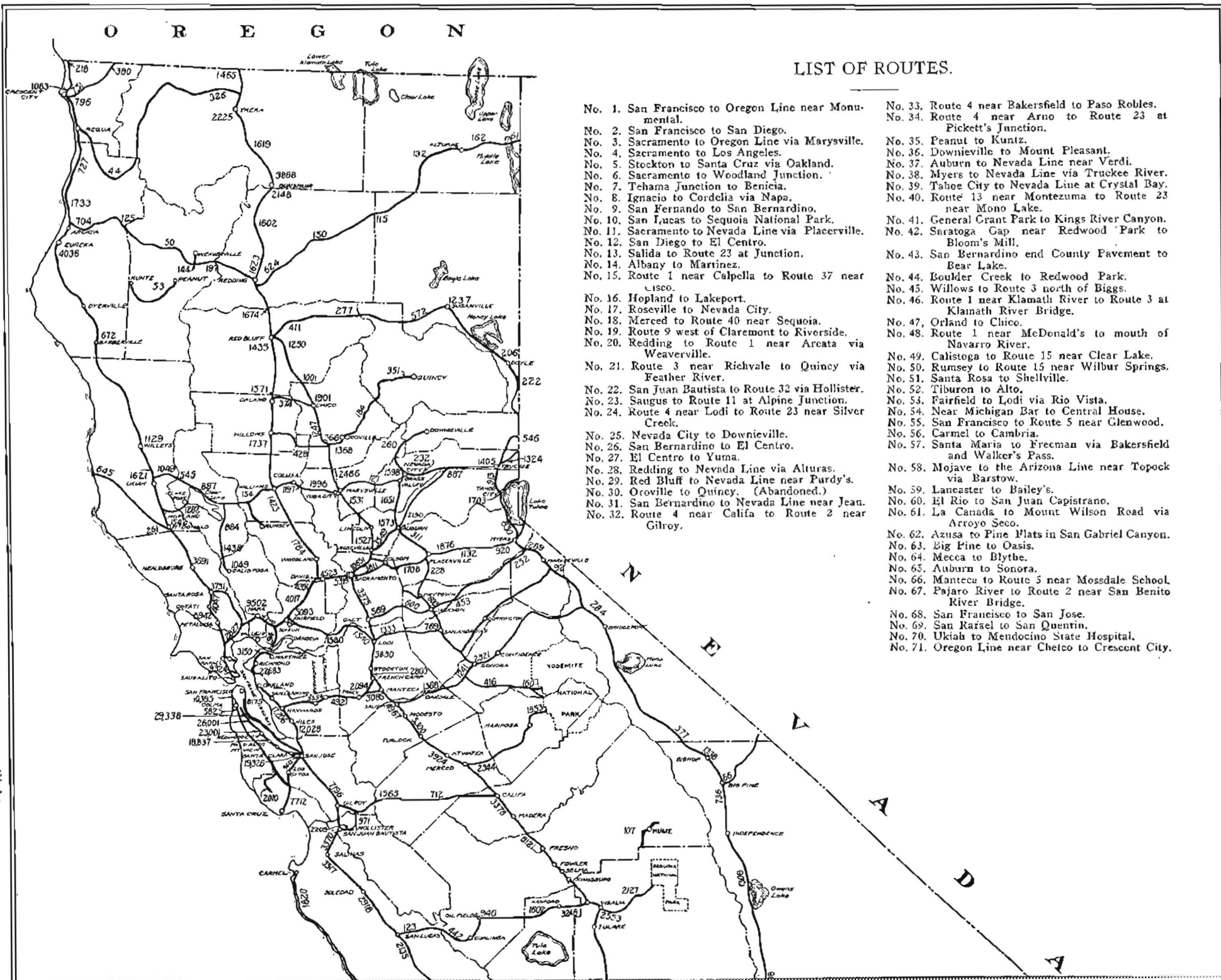
Composition—A logical and concise technical report, excluding unimportant and misleading details, gets its message over most effectively.

Precautions—Hold your camera level. Removal of weeds or rubbish from the foreground might improve the view. Keep unimportant details out of the foreground. Avoid standing over edge of pavement or any line that will divide the view. Include the vanishing point in a road view.

Many a highway scene is snapped impulsively, with only hazy notions as to what it is being photographed for. A moment's thought as to what purpose the view will serve, as well as to the mechanics of the camera, will usually aid in taking it more effectively. Or, perhaps, after a moment's hesitation you won't snap it at all.

O R E G O N

LIST OF ROUTES.

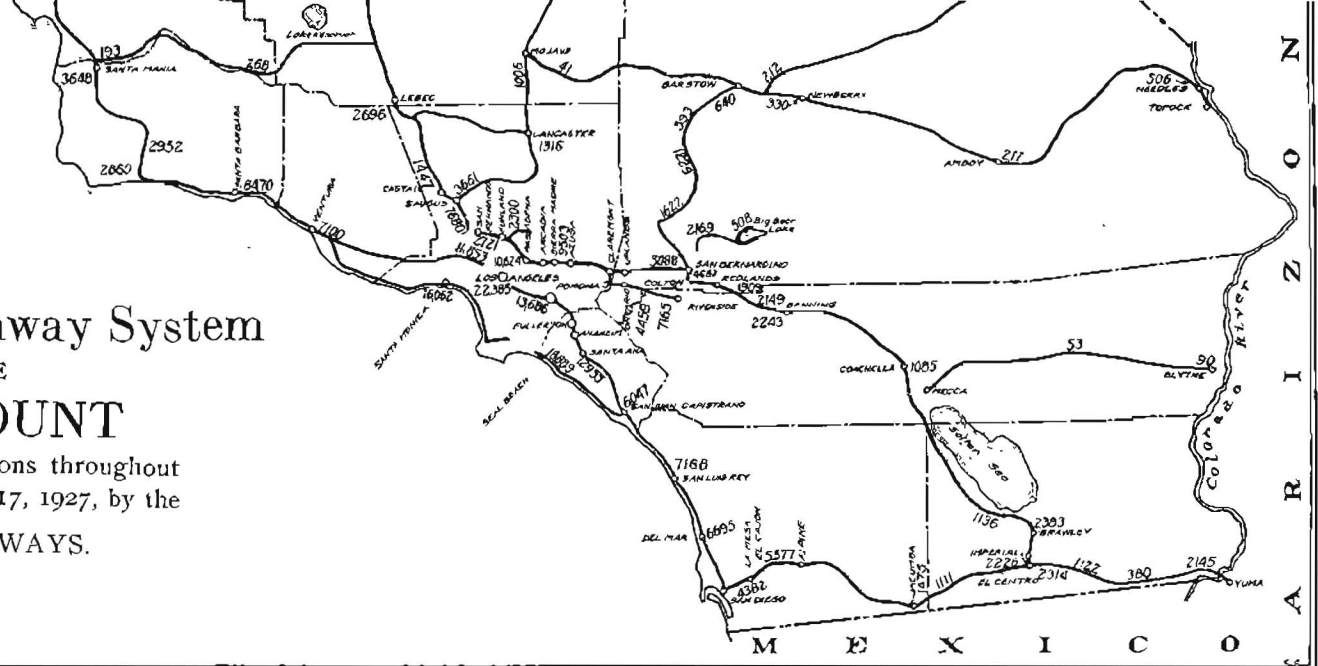


- No. 1. San Francisco to Oregon Line near Monumental.
- No. 2. San Francisco to San Diego.
- No. 3. Sacramento to Oregon Line via Marysville.
- No. 4. Sacramento to Los Angeles.
- No. 5. Stockton to Santa Cruz via Oakland.
- No. 6. Sacramento to Woodland Junction.
- No. 7. Tehama Junction to Benicia.
- No. 8. Ignacio to Cordelia via Napa.
- No. 9. San Fernando to San Bernardino.
- No. 10. San Lucas to Sequoia National Park.
- No. 11. Sacramento to Nevada Line via Placerville.
- No. 12. San Diego to El Centro.
- No. 13. Salida to Route 23 at Junction.
- No. 14. Albany to Martinez.
- No. 15. Route 1 near Calpella to Route 37 near Visco.
- No. 16. Hopland to Lakeport.
- No. 17. Roseville to Nevada City.
- No. 18. Merced to Route 40 near Sequoia.
- No. 19. Route 9 west of Claremont to Riverside.
- No. 20. Redding to Route 1 near Arcata via Weaverville.
- No. 21. Route 3 near Richvale to Quincy via Feather River.
- No. 22. San Juan Bautista to Route 32 via Hollister.
- No. 23. Saugus to Route 11 at Alpine Junction.
- No. 24. Route 4 near Lodi to Route 23 near Silver Creek.
- No. 25. Nevada City to Downieville.
- No. 26. San Bernardino to El Centro.
- No. 27. El Centro to Yuma.
- No. 28. Redding to Nevada Line via Alturas.
- No. 29. Red Bluff to Nevada Line near Purdy's.
- No. 30. Oroville to Quincy. (Abandoned.)
- No. 31. San Bernardino to Nevada Line near Jean.
- No. 32. Route 4 near Califa to Route 2 near Gilroy.
- No. 33. Route 4 near Bakersfield to Paso Robles.
- No. 34. Route 4 near Arno to Route 23 at Pickett's Junction.
- No. 35. Peanut to Kuntz.
- No. 36. Downieville to Mount Pleasant.
- No. 37. Auburn to Nevada Line near Verdi.
- No. 38. Myers to Nevada Line via Truckee River.
- No. 39. Tahoe City to Nevada Line at Crystal Bay.
- No. 40. Route 13 near Montezuma to Route 23 near Mono Lake.
- No. 41. General Grant Park to Kings River Canyon.
- No. 42. Saratoga Gap near Redwood Park to Bloom's Mill.
- No. 43. San Bernardino end County Pavement to Bear Lake.
- No. 44. Boulder Creek to Redwood Park.
- No. 45. Willows to Route 3 north of Biggs.
- No. 46. Route 1 near Klamath River to Route 3 at Klamath River Bridge.
- No. 47. Orland to Chico.
- No. 48. Route 1 near McDonald's to mouth of Navarro River.
- No. 49. Calistoga to Route 15 near Clear Lake.
- No. 50. Runsey to Route 15 near Wilbur Springs.
- No. 51. Santa Rosa to Shellville.
- No. 52. Tiburon to Alto.
- No. 53. Fairfield to Lodi via Rio Vista.
- No. 54. Near Michigan Bar to Central House.
- No. 55. San Francisco to Route 5 near Glenwood.
- No. 56. Carmel to Cambria.
- No. 57. Santa Maria to Frecman via Bakersfield and Walker's Pass.
- No. 58. Mojave to the Arizona Line near Topock via Barstow.
- No. 59. Lancaster to Bailey's.
- No. 60. El Rio to San Juan Capistrano.
- No. 61. La Canada to Mount Wilson Road via Arroyo Seco.
- No. 62. Azusa to Pine Plats in San Gabriel Canyon.
- No. 63. Big Pine to Oasis.
- No. 64. Mecca to Blythe.
- No. 65. Auburn to Sonora.
- No. 66. Manteca to Route 5 near Mossdale School.
- No. 67. Pajaro River to Route 2 near San Benito River Bridge.
- No. 68. San Francisco to San Jose.
- No. 69. San Rafael to San Quentin.
- No. 70. Ukiah to Mendocino State Hospital.
- No. 71. Oregon Line near Chetco to Crescent City.

Fig. 4

TRAFFIC CENSUS MAP OF THE California State Highway System SHOWING THE TRAFFIC COUNT

at some of the principal locations throughout
the system, made Sunday, July 17, 1927, by the
DIVISION OF HIGHWAYS.



STATE HIGHWAY TRAFFIC INCREASE SHOWN BY JULY, 1927, COUNT

THE semiannual traffic count made by the Division of Highways is primarily for the purpose of gathering data to be used by the state's road builders as a guide for contemplated future construction. The heavy duty roads are those most liable to require reconstruction and maintenance attention, the amount of traffic being good index as to the justifiable work a road should receive.

The traffic count determines many other useful facts. It furnishes information which determines whether certain highway routes are used for commerce or pleasure; it serves as a comparative working test for different types of construction and it is the best means of obtaining definite information regarding the trend of traffic.

First Census in 1924.

The first general count was made in 1920 by the Bureau of Public Roads in an investigation of the highways system. Two years later the Bureau again made a count in cooperation with state forces, obtaining records at 240 locations.

In 1924 the maintenance forces made their first count at 300 stations. The count was taken for 16 hours, 6 a.m.

to 10 p.m. on a Sunday and Monday during the months of April, June, August, October and December.

Early counts were exhaustive as to classification of vehicles, the distribution of the traffic over the width of the pavement, as to the paths of the traffic in relation to curves, condition of shoulders, trees, guard rails, etc.

In later counts some of the early observations were omitted and at present traffic is classified as to autos, trucks (light and heavy), trailers, busses and tractors.

During the past two years the number of observation points has been increased, the count being taken at 757 points in 1926 and at 818 in 1927. At points of heavy traffic four counters are necessary, and the number of employees used in this work is now around two thousand.

Traffic Conditions.

As new routes are opened and more means of travel established in the areas of heaviest traffic the yearly counts show some changes, but for the state as a whole there appears to be an increase each year. However, the July, 1927, census in certain localities show less uniformity

than that of previous years. The following figures show sections not running true to form:

	1925	1926	1927
Santa Monica.....	25,661	28,271	16,062
Los Angeles, Indiana Street.....	23,806	22,595	22,385
San Jose, north of city limits.....	22,623	19,663	19,326
Seal Beach.....	17,369	18,569	18,889
Santa Ana, north of city limits.....	12,429	13,283	12,955
Fresno.....	11,167	10,941	8,121
Chico, at De Sabla Junction.....	2,503	2,413	1,520
Benicia, north of city limits.....	903	1,013	794

A change in the location of the observation station at Santa Monica and Fresno may account for the decrease for 1927. At Santa Monica the 1925 and 1926 counts were taken near Santa Monica Canyon and the 1927 count at Beverly Blvd. The Fresno 1925 and 1926 counts were north of the city at Roeding Park county road junction and the 1927 south of the city at Church Avenue. At the other cities the counts are taken at the same place each year.

(Continued on page ten.)

STATE HIGHWAY TRAFFIC INCREASE
SHOWN BY JULY, 1927, COUNT

(Continued from page nine.)



Fourth of July traffic in the San Bernardino Mountains.

Important traffic points holding up for the usual gain are:

	1925	1926	1927
San Bruno	25,281	27,916	29,336
Near Oakland	18,116	19,931	22,683
Anaheim	11,932	13,245	14,403
Sacramento	10,140	11,357	12,731
Santa Barbara.....	12,887	7,557	8,470
Modesto	4,571	5,173	6,601



Typical Sunday traffic between San Fernando and Newhall, Los Angeles County.

Oddities in Count.

The heavy 1925 count at Santa Barbara was due to the visits of sight-seers following the earthquake.

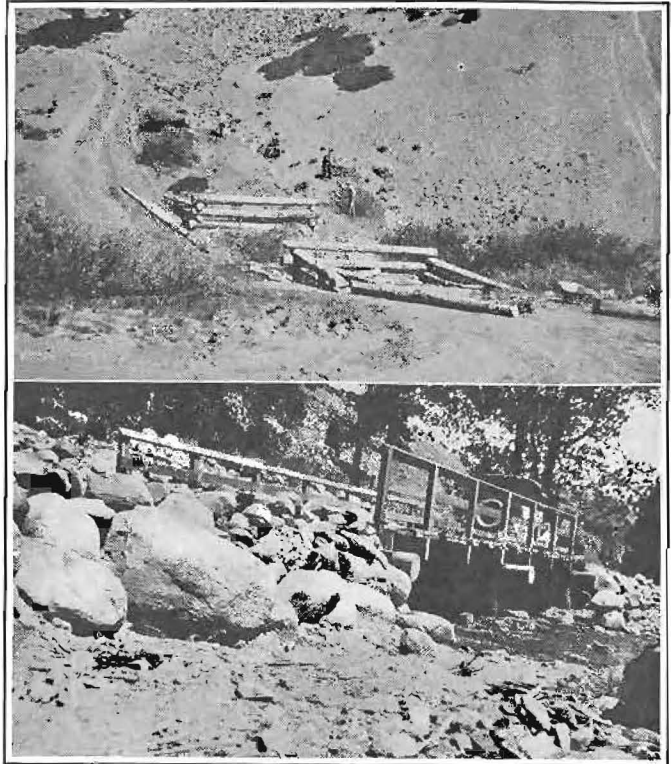
Hayward, Alameda County, perhaps takes the prize for the largest gain. South of the city limits the 1926 count was 7,933, while the 1927 total amounted to 17,206, a gain of 117 per cent. The Hayward travel on Sunday is three times that of Monday.

Throughout the state, except on certain routes which can be classified as commercial roads, the Sunday travel uniformly runs about twice that of Monday. In the 1925 count, taken for seven days, it was determined that the Sunday travel was about 25 per cent of the week's total; Saturday, 17 per cent and for the remainder of the week from 11 to 13 per cent daily.

The Monday traffic across the Oregon line on the Redwood Highway in July, 1926, was more than on Sunday, July 17, 1927, and the cross line travel into Oregon on the Pacific Highway showed practically no increase this year. The Monday traffic at De Sabia Junction near Chico was 2148, the Sunday count

DISTRICT IX LOG BRIDGES

(Reported by F. G. SOMNER, District Engineer, District IX.)



Upper—Starting a log bridge across Soda Creek, near Sonora Pass. Lower—A completed log bridge across Wolf Creek on the Sonora Road.

ON THE Sonora road between Sonora Pass and Sonora Junction, Mono County, the Construction of log bridges across Wolf Creek, Silver Creek, and Soda Creek were completed August 10th. The fording of these crossings has always been an obstruction to traffic during the spring melting of snow and this improvement together with widening and alignment changes in progress is welcomed by the traveling public.

COMMEND HIGHWAY EMPLOYEES.

The central office is in receipt of a letter from the California Real Estate Association of Los Angeles commending the cooperation they received from employees of the Division of Highways while traversing the Redwood highway in the vicinity of the new construction in Humboldt and Del Norte counties. They were on their way to the National Convention in Seattle.

dropping to 1520. All of the counts given in this article and on the traffic map in this issue are for Sunday.

Count Assisting Construction.

From the general increase noted yearly in the traffic the Maintenance Department has prepared a chart setting forth the expected increase up to the year 1940. As all California state highways are now being constructed to take care of future traffic, as well as that of the present, the traffic count in this way has become a valuable aid to the Construction Department.

Equipment Report for 78th Fiscal Year

The following recently written to Superintendents of Equipment and accompanying a consolidated statement of the operation of stores and shops for the 78th fiscal year, gives a good idea of the system used by the Division of Highways in keeping a close check on its equipment and stock.

(By R. H. STALNAKER, Equipment Engineer.)

ENCLOSED HEREWITH is a consolidated statement of operations of shops and stores for the 78th fiscal year. Comparison with the statement for the previous year shows a much healthier condition of the Equipment Department and the statement for this year shows an apparent surplus of nearly \$98,000 above depreciation requirements. However, during the past year the actual purchases of equipment charged out on the headquarters books amounted to approximately \$864,000 or \$65,000 more than the total depreciation reserve collected during the same period. Depreciation reserve collected and the amounts expended for new equipment in the various districts during the fiscal year in thousands of dollars were as follows:



R. H. STALNAKER.

I -----	\$187,000*	\$120,000
II -----	60,000	72,000
III -----	109,000	60,000
IV -----	41,000	61,000
V -----	53,000	60,000
VI -----	72,000	71,000
VII -----	117,000	130,000
VIII -----	100,000	89,000
IX -----	22,000	42,000
X -----	84,000	83,000
Hdq. -----	19,000	11,000
	<u>\$864,000</u>	<u>\$799,000</u>

*Includes approximately \$51,000 for 10 heavy duty dump trucks purchased in May, but not actually delivered to the district for service until late in June and early in July.

The above figures represent actual expenditures for new equipment only and do not include the cost of fitting up government trucks which we had on hand and on which we have installed dump bodies, oilers, and other equipment.

During the past year 32 of these trucks have been equipped and issued to the districts and in addition to this there have been a good many transfers of these government trucks from one district to another. A good deal of this was occasioned by the fact that some of the districts have released many of their heavy trucks, replacing them by the 1½-ton pneumatic job. During the past year a good many of the old government trucks have been discarded and have been replaced either by government trucks in good shape or by purchased lighter trucks. In districts where this took place, to a large extent, the upkeep costs are of course somewhat below the normal. Another factor which affects depreciation charges is the sale of discarded equipment. In some of the districts considerable loss was sustained in disposing of this old equipment and in none of them was any appreciable profit realized from such sales. All these factors affect the results of the rental operations in the districts quite seriously and no doubt a good share of the divergency between the different districts is due to the variations in these factors.

Comparison of the inventory value of our equipment at the beginning and end of the fiscal years shows the following:

Inventory value of rental equipment June 30, 1927	-----	\$3,579,561
Inventory value of rental equipment June 30, 1926	-----	3,259,650
Increment during year	-----	\$319,911

In the above figures the government equipment and equipment purchased prior to January 1, 1924, is included at an appraised value as of that date as set forth in the instructions for the preparation of the annual inventory. All equipment purchased since that date is carried at full purchase price, including cost of additions and equipment.

A WORD FROM SOUTH AMERICA

The following letter written in Spanish has been received by the editor. Translated by Mrs. Helen Halsted of the Maintenance Department, it reads:

Valparaiso, July 21, 1927.

Editor of California Highways,
Sacramento, California.

Our Dear Sir:

We wish to inform you that until this date we have received with regularity your important publication and have read with much pleasure your interesting articles which carry reports about your projects.

The punctuality with which you send these pleases us greatly and we pray that you accept our congratulations in regard to the excellent foundation on which your publication is based.

At this time we wish to ask you if you will please inform us if you receive regularly our magazine "Caminos y Turismo" which we send you periodically.

Very truly yours,
Automobile Association of Valparaiso.

His Last Laugh.

"Ha, ha, we're doing fifty now and that crazy motorcycle cop back there is trying to race with us."—Pitt Panther.

Eleven

PHOTOGRAPHS OF SAND

Herbert C. McKay, in the June 25, 1927, issue of Rock & Products, suggests that the sand producer establish the practice of having photomicrographs made of his sand for the purpose of showing its physical characteristics. He feels that such information would be a valuable supplement to the usual data of grading, concrete and mortar strength, etc. He states that:

"Moreover, a series of such photomicrographs, kept on file, will soon show clearly whether the quality of sand is uniform, and if not the series will show the trend of the change as clearly as a graph would show it. In short, the photograph shows at a glance that information which, if compiled from laboratory reports, would require a lengthy period, perhaps several hours, and even then the photographic record is visual, vivid, tangible, while the compilation from the reports is after all but a mass of figures which carry little conviction except to those who are mathematically inclined. We run up against that classic quotation which should hang in the office of every business executive:

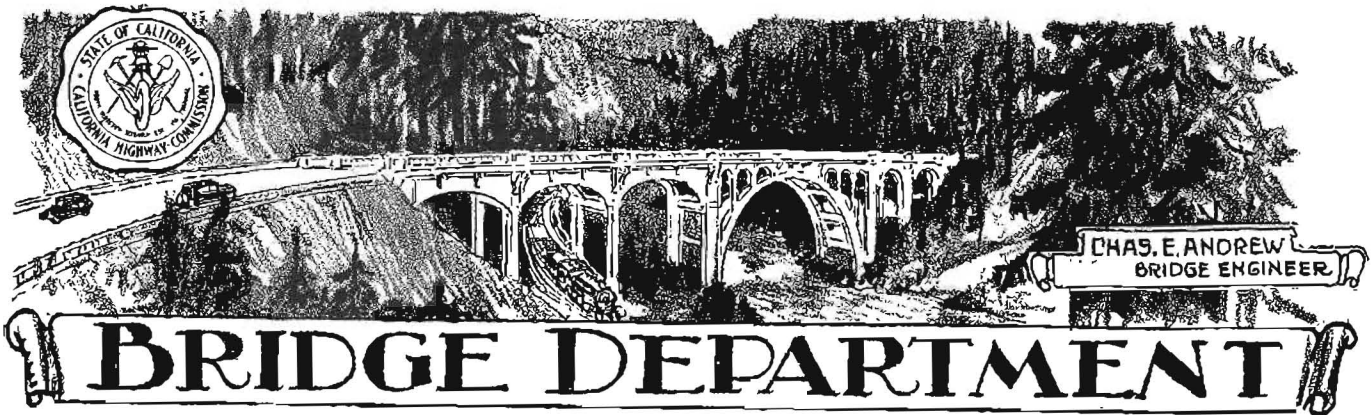
"One Picture is Worth a Thousand Words!"

Mr. McKay states that the cost of preparing such photographs would not be excessive.

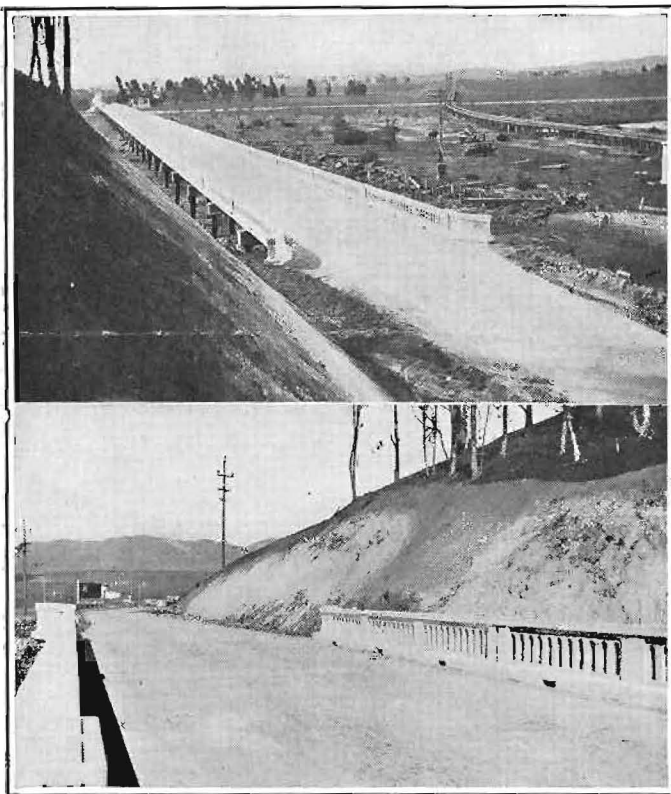
Little Boy: Please, may I have my top?

Motorist (who had just parked): Yes; but where is it?

Little Boy: Stuck in the flat front tire of yours.



**SANTA MARIA STRUCTURE
A MODERN IMPROVEMENT**



Upper, Recent completed concrete bridge across Santa Maria overflow channel on the Coast Route in San Luis Obispo County; Lower, North end of bridge shows it relocated on an elevation to avoid washouts that have been frequent in the past.

The recently completed concrete bridge over the Santa Maria overflow channel on the Coast route in San Luis Obispo County, is a modern and welcomed improvement. It replaces a dilapidated timber bridge and in the relocation of the north end frequent washouts of highway at this location will be avoided. It is 1370 feet long and has a 24-foot roadway.

CARQUINEZ BRIDGE TRAVEL.

In 42 days, July 1st to August 11th, inclusive, a total of 171,109 vehicles passed over the Carquinez bridge; a daily average of 4,076.

Ben Ali Subway Construction

(Reported by J. J. GALLAGHER, Assistant Bridge Engineer.)

The construction of Ben Ali subway beneath the tracks of the main Overland route of the Southern Pacific, a short distance east of North Sacramento, is progressing in a satisfactory manner.

At the location of the work there was no grade, the tracks being on a level with the surface, necessitating excavations to a depth of 20 feet. Seepage to the extent of four feet had to be pumped during the process of the work and the resultant pressure taken care of in the course of construction.

In order that pavement would not lift under hydrostatic head when pumping was stopped, pavement three feet thick is required at the low point of subway. The thickness of pavement varies from standard 6-inch section at points 200 feet either side of low points to 3 feet at bottom. Walls are carried up to elevation of 29 feet on both sides so that below this elevation the structure is like a boat 400 feet long. All construction joints are sealed with copper strips to prevent seepage. A 30-foot clear roadway and a 5-foot sidewalk will adequately provide for the traffic at this point. This route carries east side traffic for the Sacramento Valley, that of the Auburn-Truckee route and part of the Placerville route travel. The traffic averages over 5000 cars daily.

MOSSDALE BRIDGE OPENED TO TRAFFIC.

The new Mossdale bridge was opened to traffic August 29th following the completion of fills for both approaches and a portion of new roadway by contractor J. E. Johnson of Stockton. The fills involved the placing of 40,000 cubic yards of material, taken from the San Joaquin River by a suction dredge.

The bridge was recently completed by the state following work by two different contractors. It is a steel structure, 300 feet long and having a 24-foot roadway. A bascule lift provides for the passage of river transportation. It replaces an old timber bridge of too light structure to accommodate present heavy traffic.

This improvement is on 5, the Valley Route, 12 miles from Stockton and 8 from Tracy.

CONSTRUCTION PROGRESSING.

The Rio Vista River creosote timber bridge is progressing under contractor Leonard T. Isham according to schedule. All the piles have been driven and cut to grade and the erection of trusses will soon begin.

This project is taken care of by a legislative appropriation of \$80,000. The state furnished material to the extent of \$14,795 and contractor Isham's bid was \$54,715.

SILICA TO BE USED

In the two concrete bridges to be constructed at Arno, on Route 4, about 20 miles south of Sacramento, an experiment will be made in the use of diatomaceous silica in the concrete mix for the bridge rail. Its use will permit a 33 per cent reduction in the amount of cement used, 6 sacks of cement instead of 9 being used to the cubic yard of aggregate.

Silica has the effect of reducing voids in the concrete, making it more nearly waterproof, makes the mix easier to handle and is practically a saving of three sacks of cement to the cubic yard.

His Problem.

A revival was raging in a Georgia negro church. The fruits had been considerable. One obdurate soul, however, resisted the efforts of the elder. Called to account for his reluctance, he replied: "Yo' see how it is, elder. How's I gwine get mah shirt on ovah my wings when I gets to glory?" "Dat ain't yo' problem," retorted the exhorter promptly. "Yo' problem is how yo' gwine git yo' hat ovah yo' horns."

PLANS COMPLETE FOR SUTTER CAUSEWAY.

Plans are now practically complete for the causeway across the Sutter By-Pass on the Woodland-Yuba City highway and specifications are being prepared. Tests have been taken for the pile driving. The causeway will have a 24-foot roadway and will be 5160 feet long. Dredger cuts at each side of the By-Pass are being spanned by removable structures providing 76-foot openings for the passage of dredgers.

The structure which is being built by the Division of Highways was financed by a special legislative appropriation of \$200,000. The project will soon be ready for the advertisement for bids.

PLANNING SMITH RIVER BRIDGE.

The Bridge Department is now preparing plans and estimates for the Smith River bridge in Del Norte County. This structure will span the river at a point where it has a width of 400 feet. It will make possible the opening of some of the recently constructed Redwood highway, east of Crescent City. The new road at this location avoids a very difficult grade. Del Norte County will cooperate in the financing of the bridge.

PERSONAL NOTES.

H. J. Peacock has taken an assignment as Assistant to Resident Engineer A. L. Lemhart in Humboldt County where a group of bridges are being built, the principal one of which is the Redwood Creek bridge at Orick.

George J. Porter, who has been in charge of the core drilling rig used on preliminary bridge surveys, is taking a vacation.

Paul Dunkhorst has returned to his desk after a two-weeks vacation spent in San Francisco with his family.

Albert Willett has returned to the Bridge Department after a short leave of absence during which time he and his mother visited with relatives in St. Louis, Missouri.

HEADQUARTERS OFFICE PERSONALS.

George C. McCoy, formerly assistant state highway engineer of the state of Washington, has been appointed assistant office engineer in the headquarters office.

Joseph M. Kane has recently been added to the engineering staff in the headquarters drafting room. Mr. Kane comes to us from the Nevada State Highway Department where he was employed during the past nine years.

T. A. Hawthorne of the Drafting Department and George Gunston, assistant secretary, recently spent two weeks with the National Guard encampment at Del Monte, both being lieutenants in the artillery corps.

W. F. Faustman and family spent a week recently in the Yosemite Valley. Faustman has also been chasing the

"elusive pill" around various golf links in the San Francisco bay region.

R. F. Reynolds is spending a couple of weeks hunting and fishing in the Klamath River region in Siskiyou County. He is a mighty bow and arrow artist, and perhaps will try the arrow on some of the bears in that region.

C. S. Pope of the Construction Department began his vacation with an injury received while putting too much force behind a car. A very severe case of Santa Barbara sunburn later prevented enjoyment of his two weeks off. Mrs. Pope accompanied him on the trip.

Andrew Mains spent his vacation driving to Colorado, and climbing Pike's Peak. Andy says California roads have it all over the roads in Utah, Colorado and Wyoming.

Bill Bock is very fond of camping out and he and family recently spent a week in the Yosemite Valley.

On almost any of these fine summer mornings you will find several highwaymen disporting themselves over local golf links. They say Tom Stanton and Charles Andrew are practicing hard for the State Fair championship matches. A headquarters golf tournament is projected for this fall, and great excitement will prevail at Land Park links.

DESERT HIGHWAY WORKERS IN BATHING SUITS

(Reported by District VIII.)



HANG YOUR CLOTHES ON A HICKORY LIMB.—Maintenance man in District VIII desert clearing boulders from State Highway.

FOREMAN Wm. Neilson and his crew have adopted reasonable costumes for the desert. They look something like old-fashioned, modest bathing suits, though the distance is 250 miles from the seashore in the middle of the desert. The temperature has been hovering around 120 degrees.

ADDRESSES ASSESSORS' CONVENTION

Herman D. Jerrett, right of way agent for District X, headquarters, Sacramento, was one of the principal speakers at the Convention of County Assessors, held recently at Eureka. Mr. Jerrett's talk appeared in the August 23d issue of the Eureka Standard and contained much information of value gained by the speaker in his years of service for the Division of Highways.

His principal points were that, owing to the wide variance of opinion as to values, trained men for the gathering of valuation data have become necessary and that the fixing of values was a distinct work in itself and should be left to assessors. The training attained by valuation men, he said, enabled them to plat various acreages, soil and crop changes, quality of soil, age, condition and variety of orchards and vineyards and other permanent crops; also to make records showing dimensions, type, obsolescence or age of building improvements, topographical, traffic and other conditions affecting urban properties, all of which furnishes an abundance of data from which assessors can intelligently fix values.

WHAT THE DISTRICTS ARE DOING

DISTRICT III.

HEADQUARTERS, SACRAMENTO.

V. W. HASELWOOD, DISTRICT ENGINEER.

Counties of Butte, Colusa, El Dorado, Glenn, Nevada, Placer, southern Plumas, Sierra, Sutter, Yuba, and northern Sacramento and Yolo.

Sylvan School to Roseville.

The Sylvan school to Roseville asphalt concrete two-story job was awarded to J. C. Compton. Mr. Compton advises that he is now shipping his outfit down from Oregon and expects to start working about the first week in September.

Rock Border for Pacific Highway.

A district contract was advertised on August 22d for the placing of 11.8 miles of water-bound rock borders on the state highway, road III Col.-7-B&C between Williams and Delevan.

Willows to Biggs.

A district contract was advertised for the placing of rock borders and bituminous macadam surface between Four Corners and Butte City. This work is to be done on a fifty-fifty basis with Glenn County.

Wedding Bells.

District III announces the launching of another ship of matrimony in the marriage of Miss Grace Staats on August 14th to Edwin Bercher.

DISTRICT V.

HEADQUARTERS, SAN LUIS OBISPO.

L. H. GIBSON, DISTRICT ENGINEER.

Counties of San Benito, Monterey, San Luis Obispo, and Santa Barbara.



AFTER OILING.—A portion of the Cholame Lateral following oiling by the "mixing" method.

District V maintenance forces have completed a very successful oiling job on the Cholame lateral, Route 33, from Paso Robles to Shandon. Both the "mixing" and "surface" methods were used, the former on the western end of the job near the town of Shandon and the latter on the eastern portion, from Estrella River bridge west.

DISTRICT VI.

HEADQUARTERS, FRESNO.

E. E. WALLACE, ACTING DISTRICT ENGINEER.

Counties of Fresno, Madera, Merced, Mariposa, Kings, Tulare, and Kern, north of the Tehachapi.

Reconstruction For Valley Route.

On July 28th, the Commission awarded two reconstruction contracts involving widening of roadway to 30 feet and resurfacing with asphalt concrete to a width of 20 feet, between Lerdo and one mile south of Delano, in Kern County, a distance of 18.5 miles. On the southerly contract from Lerdo to one mile north of Famosa, 9.1 miles, the low bidder was Force, Currigan and McLeod. On the other section of 9.4 miles, the Valley Paving & Construction Company were the successful bidders.

Convict Camp Moved.

The convict camp which has been located in the Merced River Canyon at Bloss for several years, is now being moved to a point about six miles north of Mariposa, on the Merced-Yosemite lateral. For the next five months, this crew will be engaged in work of realigning the roadway between Mariposa and eight miles north. The convict force will approximate 100 men.

Investigate Kings River Canyon Route.

During the week beginning July 24th, a reconnoissance trip to the Kings River Canyon, Tehipite Valley and Granite Pass, in Fresno County, was made by F. J. Grumm, Engineer of Surveys and Plans, headquarters office, and E. E. Wallace. A preliminary investigation was made of the continuation of re-routing of the present highway through Hume, known as Route 41. About 1912, a road was constructed by the State Department of Engineering between General Grant Park and four miles east of Hume. This department also made reconnoissance surveys for continuing a future road down the Kings River and following same easterly to the Kings River Canyon. The scenic beauty and resources of this country were an agreeable surprise.

The expedition was sponsored by the Fresno County Chamber of Commerce, and was exceedingly well conducted. The party consisted of 15, besides packers and cooks.

Personal Items.

P. L. Wilcox has been assigned as resident engineer on Contract 96FCI south of Famosa.

H. B. La Forge has been assigned resident engineer on the contract between Delano and Famosa.

DISTRICT VII.

HEADQUARTERS, LOS ANGELES.

S. V. CORTELYOU, DISTRICT ENGINEER.

Counties of Los Angeles, Ventura, Orange, San Diego, and eastern Kern, south of Mojave.

More Wedding Bells in District VII.

L. M. Ransom, Assistant Division Engineer, announced that he was going on a vacation and, stealing a march on his many friends became a happy benedict. Mrs. Ransom was Mrs. Grace Ryan of Los Angeles.

L. C. Cline, another District VII employee, has also joined the married ranks. His bride was Miss Witcher of Oceanside.

Coast Highway Paving.

Work on the reconstruction of the portion of the Coast highway in Ventura County, between Ventura and the Santa Barbara County line, is progressing rapidly. About 9½ miles of the new concrete pavement is now in place, and all grading and culvert work is practically completed.

San Diego Paving Open to Traffic.

On the La Mesa to El Cajon reconstruction job in San Diego County all concrete pavement is completed and open to traffic.

Completing Orange Job.

All concrete pavement has been completed and opened to traffic, and work is in progress on the rock borders, on the contract for placing 1.5 miles of pavement between Naples and Anaheim Bay bridge, on the Coast highway in Orange County.

DISTRICT VIII.

HEADQUARTERS, SAN BERNARDINO.
E. Q. SULLIVAN, DISTRICT ENGINEER.
Counties of San Bernardino, Riverside, and Imperial.

Determined to Protect Its Workers From Reckless Drivers.

A number of avoidable traffic accidents, in which several of its employees were badly hurt, has caused the officials of District VIII to come to the determination that protection must be afforded its highway workers. Immediately following the accidents warrants for the arrest of the offenders were secured and the authorities are giving a full measure of cooperation.

A truck driver who ran through "Slow" signs, over a "Men at Work" sign and through barricades, injuring two workers, is now serving a 90-day sentence after paying a fine of \$250. He began his term before nightfall of the day of the accident. A bus driver, who broke both legs of another Division VIII man, is now a fugitive from justice.

DISTRICT IX.

HEADQUARTERS, BISHOP.
F. G. SOMNER, DISTRICT ENGINEER.
Counties of Inyo, Mono, and eastern Kern County, north of Mojave.



MAIN STREET, Bishop, District IX; Oiled in 1926 with Penetration Method.

Oiling In District IX.

The oiling program, limited to 14 miles, 4 miles between Lone Pine and Independence and 10 miles to the north of Independence, is well under way.

Drainage System Completed.

The construction of paved dips, twelve in number, between Mojave and Red Rock Canyon, was finished August 13th. R. C. Payne was in charge. This improvement marks the completion of a much-needed drainage system, supplying

proper cross-drainage to ditches paralleling the highway, thus controlling the waters from frequent cloudbursts in the mountains and flows from the spillways of the Los Angeles City Aqueduct.

Los Angeles City to Build Bridge in District IX.

Bids were opened on August 8th for the grading of 21 miles between Coso Junction and Olancho, Inyo County. R. C. Payton of Norwalk was the low bidder.

An important unit included in this improvement is the erection of a steel span across the Los Angeles City Aqueduct, replacing a timber structure on a dangerous curve. The city authorities are to be commended for their prompt action in providing this structure in advance of the grading operations.

Contemplated Work.

Grading on Route 23, Dogtown to Point Ranch, distance of 3.65 miles, is now contemplated.

Funds have been provided for the surfacing with crushed rock of a stretch of two miles in Inyo County, south of Independence. The work will be done by state forces.

DISTRICT X.

HEADQUARTERS, SACRAMENTO.
R. E. PIERCE, ACTING DISTRICT ENGINEER.
Counties of Amador, Calaveras, Alpine, Tuolumne, Stanislaus, San Joaquin, Solano, and southern Sacramento and Yolo counties.

Mr. R. E. Pierce, Acting District Engineer of District X, is vacationing with his family at Bijou.

C. J. Temby has just returned from a delightful vacation spent in southern California. Accompanied by his family he motored to Los Angeles via the Coast route. While on the return trip he visited the Oakland air port and saw the planes which were entered for the Dole Hawaiian flight.

Miss Julia Terra is a comparatively recent addition to the District X accounting force.

J. F. Kerins, clerk attached to District X, spent a joyous vacation at Santa Cruz.

J. F. O'Hara, formerly of Headquarters office, but more recently affiliated with District VIII, has been transferred to District X.

Messrs. Eugene Sorin and Harry Webb, draftsmen in the District X office, were among the national guardsmen who recently enjoyed two weeks of camp life at Monterey.

HIGHWAY NEWS NOTES

Foreman T. M. Joyce, employed since April, 1924, has been transferred from Sonora in District X, to Korbil, Division I.

Henry Stroder has been promoted to foreman and assigned to Eureka, Division I. Since 1918 he has been working in District X.

H. P. Grove until recently working out of Stockton, has been transferred to Trinidad, District I, where he takes a foreman's position.

F. R. Baker, formerly resident engineer in District III and more recently resident engineer on the Sand Hills job in District VIII, has been transferred to this district to supervise the Sylvan-to-Roseville reconstruction. Arthur Wallace and J. N. Hollister, assistant resident engineers, accompany him.

LOCAL ENGINEER'S WORK RECEIVES ATTENTION.

The Bridge Department is in receipt of a letter from R. B. Wright, Highway Bridge Engineer, for the Bureau of Public Roads, District No. 1, calling attention to an illustrated article by H. D. Stover, Associate Bridge Engineer in charge of designs, showing and describing graphic charts and their uses in bridge designing. He desires duplicate copies of the charts.

The above is an index as to the value of "California Highways" as a disseminator of engineering information, not to mention encouragement it offers our engineers to improve in their profession.

STATE HIGHWAY FUND CONTRACTS (Bond Funds, Including Federal Aid)

Cont. No.	Di- vision	County	Route	Sec.	Location	Miles	Type	Contractor	Estimated cost	Date contract awarded	Con- tract time, days
COMPLETED AND ACCEPTED SINCE JULY 28, 1927.											
443-A 519	I VII	Del Norte Orange	1 60	A B-C	Across Klamath River Through Laguna Beach	1.54	Repairing Bridge Grading and P. C. C. Pavement	California Air Const. Co. United Conc. Pipe and Const. Co.	\$54,748 41 70,012 13	Nov. 9, 1926 Jan. 3, 1927	

NOTE.—Primary construction covered by the above contracts does not include funds obligated on co-operative forest highway projects, prison camp road activities, or day labor jobs not being done under contract.

STATE HIGHWAY MAINTENANCE FUND CONTRACTS (Including Gasoline Tax Fund)

Cont. No.	Di- vision	County	Route	Sec.	Location	Miles	Type	Contractor	Estimated cost	Date contract awarded	Con- tract time, days
COMPLETED AND ACCEPTED SINCE JULY 28, 1927.											
M-161	VI	Merced	4	A	Between Athlone and the Southerly Boundary	4.51	Widen with P. C. C. and Surf. with Asph. Conc.	Allied Contractors, Inc.	\$105,706 18	Mar. 9, 1927	
M-158	X	San Joaquin	5	B	At Mossdale Bridge	0.26	Constructing approaches	J. E. Johnston	22,272 99	Feb. 7, 1927	
AWARDED SINCE JULY 28, 1927.											
95FC1	V	Santa Barbara	2	J	Montecito to Summerland	1.42	Portland Cement Concrete Pavement	Sam Hunter	167,837 66	Aug. 16, 1927	
97FC3	VII	Orange	2	B	1 mile north of Galivan to 6.7 miles North of Galivan	5.7	Grading and P. C. C. Pavement	George Herz Company	223,757 03	Aug. 16, 1927	125
911FC1	VII	Orange	2	B	Over the A. T. and Santa Fe R. R. near Galivan		R. C. Girder bridge	Hewitt-Miller-Shiray	32,599 12	Aug. 29, 1927	150
94EC2	IV	Alameda	5	B	Between Dublin and Hayward	7.6	Bituminous Macadam Surface	Arias-Knap Company	415,273 18	Aug. 18, 1927	250
98EC1	III	Placer	38	A	Across Blackwood Creek		R. C. Culvert, Parapet and Wing Walls	Frank A. Holdener	6,233 75	Aug. 20, 1927	75
93EC2	III	Sacramento-Placer	3	B, A	Between Sylvan School and Roseville	3.1	Asphalt Concrete Pavement	J. C. Compton	105,742 15	Aug. 23, 1927	120
96FC1	IX	Inyo	23	H, I	Coso Junction to Olancha	21.3	Grading and Structures	F. C. Payton	38,563 26	Aug. 23, 1927	150
911EC7	X	Sacramento	4	A	Two Bridges North of Arno		Two R. C. Girder Bridges	M. A. Jenkins	22,370 62	Sept. 2, 1927	175
97FC2	VII	Los Angeles	61	A	Retaining Walls Arroyo Seco		R. C. Ret. Walls for Flood Protection	J. W. Breedlove, Inc.	12,531 25	Sept. 2, 1927	100

NOTE.—The above obligations charged against the State Highway Maintenance Funds do not include funds from these sources obligated for general maintenance and for specific betterments being done under day labor authorization.

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Station