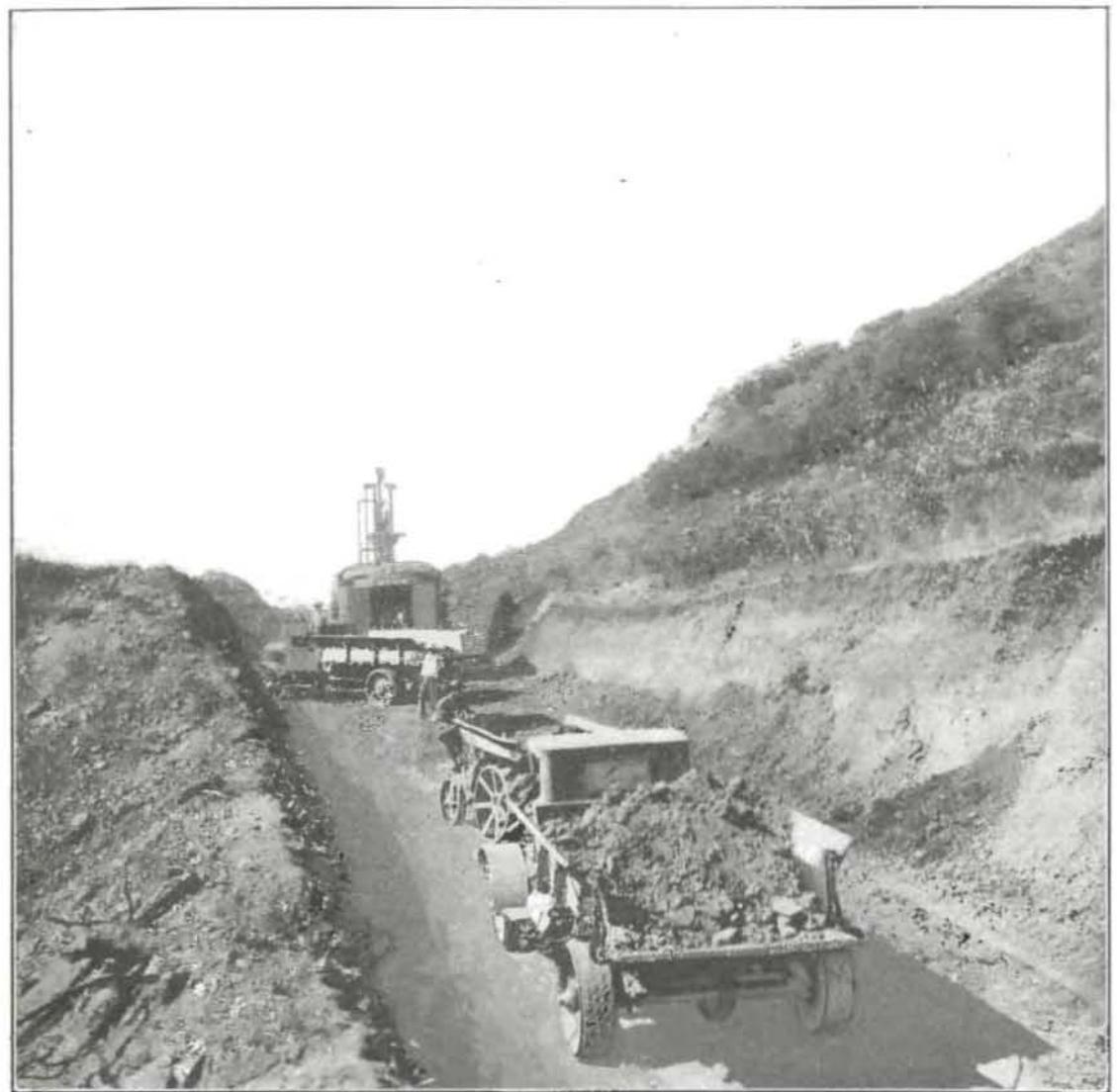


# California Highways and Public Works



Official Journal of the Department of Public Works  
State of California  
SEPTEMBER 1929



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This issue of CALIFORNIA HIGHWAYS AND PUBLIC WORKS includes in its contents articles dealing with the activities of all the divisions of the Department of Public Works. This is in accordance with the statute passed by the last legislature and approved by Governor C. C. Young, which became effective August 14, 1925. Succeeding issues of CALIFORNIA HIGHWAYS AND PUBLIC WORKS will carry similar matter.

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# Travel Count Indicates Double Present Highway Traffic by 1940

THE volume of traffic on state highways has increased at the rate of 9 per cent annually for the past five years. If this rate continues to hold until 1940, the Division of Highways will be expected to maintain the roads for twice the present volume.

The biannual count of traffic was taken on July 14th and 15th throughout the entire state highway system. This count has been made on the Sunday and Monday nearest the middle of January and of July for the past five years. The check is made between 6 a.m. and 10 p.m. each day. For purposes of analysis the vehicles are segregated by hourly periods under the following classifications: passenger cars, light trucks, heavy trucks, trailers, buses, and horse-drawn vehicles. During the recent census 956 separate stations were recorded.

A comparison of the July 1929 count with that of July, 1928, shows the following increases:

	For Sunday per cent	For Monday per cent
Main north and south routes	5.0	5.0
Laterals between inland and coast routes	5.0	7.0
Interstate connections	16.0	19.0
Recreational	31.0	31.0
Average all routes	8.9	9.6

The gain or loss for a particular route expressed in percentage shows a considerable variation in several instances. This is accounted for, in the main, by the fact that construction work was under way either last year or during the recent count. The average of all stations, however, should give a dependable figure as traffic diverted from one route seeks the nearest outlet.

Gain or loss in count shown expressed as a percentage of the July, 1928, count for all state highway routes is as follows:

Rt. No.	Description	Sunday		Monday	
		gain per cent	loss per cent	gain per cent	loss per cent
1	Sausalito-Oregon Line	19.0		32.3	
2	San Francisco-San Diego	7.2		12.5	
3	Sacramento Oregon Line		19.0*		24.1*
4	Sacramento-Los Angeles	2.3			2.9
5	Stockton-Santa Cruz	4.5		11.2	
6	Sacramento-Woodland Jct.		3.9		.7
7	Tehama Jct.-Genieville		2.9	12.3	
8	Ignacio-Cordelia		2.2		19.2
9	San Fernando-San Bernardino	1.4		4.1	
10	San Lucas-Sequoia National Park	13.4		11.1	

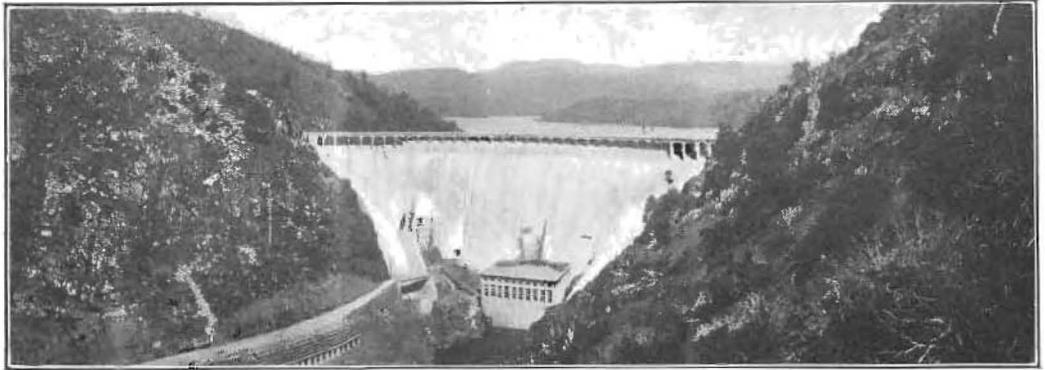
Rt. No.	Description	Sunday		Monday	
		gain per cent	loss per cent	gain per cent	loss per cent
11	Sacramento-Riverton	8.3			4.4
12	San Diego-El Centro	55.3		63.8	
13	Salida-Sonora	4.6			4.8
14	Alhambra-Martinez	10.3		7.4	
15	Rt. 1 near Calipella-Grass Valley	21.7		34.8	
16	Hopland-Lakeport		3.5	7.1	
17	Roseville-Nevada City		23.2		11.3
18	Mercado-El Portal		2.1	8.2	
19	Rt. 3 West of Claremont-Riverdale	15.3			3.0
20	Redding to Rt. 1 near Arcata		25.2	26.0	
21	Rt. 3 near Richvale-Gulucy	55.3		46.6	
22	San Juan Bautista-Rt. 32	7.2		15.8	
23	Saugus-Hishop	1.4		3.7	
24	Jct. 4 near Lodi to Valley Springs		.05		4.7
25	Nevada City-Downsville	26.7			5.4
26	San Bernardino-El Centro	20.0		22.3	
27	El Centro-Yuma	40.5		23.5	
28	Redding-Nevada Line	25.3		26.5	
29	Red Bluff-Nevada Line	20.4		21.7	
31	San Bernardino-Jean		3.0	6.5	
32	Rt. 4 near Califa-Rt. 2 at Gilroy	7.7		11.5	
33	Rt. 4 near Bakersfield-Pano Robles	79.1		90.6	
34	Rt. 4 near Arno-Pine Grove	4.5			4.2
35	Peanut-Kunts		29.8	25.0	
37	Auburn-Cofax		18.8	12.3	
38	Meyers-Nevada Line		18.5	46.9	
39	Tahoe City-Nevada Line		61.2		61.4
40	Rt. 13 near Montezuma-Rt. 23 Mono Lake		48.9		4.7
41	West and East of Hume	105.4		104.3	
42	Saratoga Gap at Redwood Pk. Gate	181.2		245.2	
43	San Bernardino-Big Bear Lake	7.4		11.2	
44	Boulder Creek-Redwood Park		8.7	6.3	
45	Willows-Rt. 3 N. of Biggs	12.6		6.9	
46	Rt. 1 near Klamath River-Rt. 2 near Cray		14.2		3.1
47	Oriand-Chico		14.2		1.6
49	McDonahis-Wendling		20.9		2.2
49	Callstoga-Lower Lake		8.1		14.2
51	Santa Rosa-Scheilville		4.1	32.9	
52	Alto-Tiburon		7.7	4.6	
53	Fairfield-Lodi		19.2	26.1	
54	Near Michigan Bar-Central House	105.4		126.1	
55	San Francisco-Spring Valley Dam	64.3		68.5	
56	S. of Carmel Interx of Carmel Valley and Big Sur Roads		24.9	12.4	
57	Santa Maria-Roldfish		10.6	25.3	
58	McJare-Topoc		5.0	12.8	
59	Lancaster-Baileys		4.8		5.6
60	El Rio-San Juan Capistrano		40.4	71.2	
61	La Canada-Mt. Wilson Rd.		0.5	31.4	
63	Big Pine-Oasis		1.4		22.3
64	Mecca-Blythe		28.6		15.8
65	Auburn-Sonora		17.0	8.6	
66	Manteca-Rt. 5 nr. Mossdale School		32.5		42.0
67	Pajaro R.-Rt. 2 near San Benito River Bridge		9.0	3.6	
68	San Francisco-Burlingame		25.2		51.1
69	San Quentin Road		10.2	26.8	
70	Ukiah Jct. Rt. 1		21.5	4.7	
71	Crescent City-Oregon Line		24.1	32.5	

\* The decrease shown on route 3 due to construction work which closes the heavily traveled portion of the road.

The actual number of vehicles passing each individual station follows:

TRAFFIC CENSUS				
July 1928, and 1929				
Count 5 a.m. to 10 p.m.				
Route 1, Sausalito to Oregon Line				
District IV				
Station location	July, 1928		July, 1929	
	Sun.	Mon.	Sun.	Mon.
Sausalito to Ferry Bldg.	15	16	495	267
Sausalito, Hyde Street Ferry			11,154	4,111

(Continued on page 28.)



Melones Dam on Stanislaus River.

## The New Division of Water Resources

**T**HE LAST legislature created a new division of the Department of Public Works to be known as the Division of Water Resources. This division is directed by the State Engineer and embraces all activities in the department pertaining to water, water rights, irrigation districts, hydraulic investigations, dams, flood control and reclamation, and includes all work under the former Divisions of Water Rights, and of Engineering and Irrigation as well as important new duties delegated by the 1929 legislature.

The work of the new Division of Water Resources classifies itself naturally into five subdivisions, as follows: Water rights, Water resources investigation, Irrigation districts, Dams and flood control and Reclamation, and the organization of the division has been set up to place a deputy state engineer in charge of each of these main divisions with the exception of irrigation districts which are vested in the State Engineer personally.

The act establishing the Division of Water Resources became effective August 14th last and on this date the Director of Public Works appointed Edward Hyatt State Engineer and the following deputies:

Harold Conkling in charge of water rights.

A. D. Edmonston in charge of water resources investigation.

R. L. Jones in charge of flood control and reclamation.

J. J. Haley, Jr., administrative assistant.

### FORMER DIVISIONS CONSOLIDATED

The work of the Division of Engineering and Irrigation and the Division of Water Rights has been somewhat along parallel lines for about 10 years and the consolidation of these offices has been considered at several times during this period but was not deemed desirable until the 1929 legislature met. The reason for this was that the water rights situation in California in 1913, when the Water Commission was created, was in an extremely confused and unsatisfactory condition. This was due among other causes to the fact that there was no central state authority, so that until the last few years the work of the Division of Water Rights has necessarily been to some extent exploratory in investigating past court decisions and water law and in setting up and standardizing methods of operation. This work being so specialized has made it inadvisable to combine the two offices heretofore. However, procedure is now well established



EDWARD HYATT.

by experience and precedent and the time for consolidation has come.

*A study of the work of the two divisions and the possibility of consolidation indicates clearly that such combination can now be made, not only with economy to the state but*



J. J. HALEY.

*with better service to the public dealing with water matters. Duplication of effort in dealing with two state offices on water matters will be eliminated under the new division and a more effective administrative set-up, as well as a more economical one, will be the result.*

**NEW DUTIES ADDED**

In addition to the work of the two former divisions the new Division of Water Resources has been delegated new duties. A state-wide investigation of water resources has been



R. L. JONES.

going forward intermittently under the Division of Engineering and Irrigation since 1921 and the result, an incomplete report on this subject, has been given close attention by the state and by the 1929 legislature. The action of the legislature was to direct a further intensive investigation of the whole subject of water resources and the prepara-

tion of a state-wide plan for submission to the 1931 legislature and appropriations to carry on this work were made. To make the investigations and report in the limited time allowed will require a great amount of hydraulic research within the next sixteen months and this work will be done by the Division of Water Resources.

**SUPERVISION OF DAMS**

A second item of state-wide importance is the supervision of dams. The legis-

lature placed in the department, to be exercised through the State Engineer, authority over all dams in the state over a minimum size and height with directions to check up and approve all dams now existing, to supervise construction of new dams and to supervise operation and maintenance of all dams. There are more than 500 dams now existing in California over the minimum size. An appropriation was made to carry on this work during the next two years.

**FLOOD CONTROL**

The work of the division in connection with flood control and reclamation is also of considerable importance and will be increased through a state and federal program on the Sacramento-San Joaquin Flood Control Project.



A. D. EDMONSTON.

**RIVER**

**RECTIFICATION**

Bank protection and river rectification work throughout the state are under the direction of the division, a small fund being available to take care of such work on a cooperative basis. Maintenance of the Sacramento Flood Control Project is delegated to the division as well as new construction activities on the project under state direction. For the next

two years this will comprise an extensive program.

Irrigation district activities, while possibly not as large as a few years ago, are of the greatest importance to the state. Irrigation districts in California are under close supervision by the State Engineer's office and bond issues by such districts are under the supervision of the California Bond Certification Commission, consisting of the Attorney General, Bank Superintendent and the State Engineer.



HAROLD CONKLING.

(Continued on page 21.)

# The California Highway Patrol

By FRANK G. SNOOK, Chief of the Division of Motor Vehicles

PRIOR TO 1923, various methods and systems of enforcing traffic laws and regulating traffic were employed in the counties of California. In some, special officers operated under the district attorney, in others under the sheriff, and still others under the board of supervisors.

Early that year, while the legislature was in session, the Supreme Court handed down a decision in the case of *Logan vs. Shields*, the practical effect of which was to prevent counties from employing traffic officers under existing county government acts.

## AN EMERGENCY ACT

Traffic enforcement was in a chaotic condition for a time. Then, as an emergency proposition, the legislature passed an act empowering the chief of the Division of Motor Vehicles to enter into contracts with the various boards of supervisors to employ traffic officers, such officers to be paid out of the counties' share of motor vehicle registration receipts.

While this new system was workable to a certain degree, it was highly unsatisfactory as actual practice proved. About twenty counties entered into contract at once with the division, but several others refused to do so. Some entered into contracts for a time and then withdrew. There was the constant danger of friction.

## SERVED TWO MASTERS

Meanwhile traffic officers were put in the position of trying to serve two masters. Double headed authority existed and the officers did not know whether to take orders from the supervisors who actually appointed them and fixed their salaries or the state officials who supervised their work.

If a county decided to withdraw from the system, the law was so ambiguous that the state was without authority to put its own men in. There was a lack of uniformity in traffic enforcement. Every county paid a different salary for its officers. The men could not be moved from one county to another. In some sparsely-settled mountain counties the receipts from motor vehicle registrations were so small that there was insufficient money to employ officers.

With these conditions in mind, we decided to draft a bill that would put the state in



FRANK G. SNOOK.

direct and undisputed control of the traffic officers. Meanwhile public sentiment had crystallized in favor of the change so that when the measure was placed before the legislature it carried the endorsement of the supervisors, the development and safety groups, the labor bodies and practically every other interested group. This sentiment was reflected in the legislature and the bill was passed with almost no opposition.

The measure received the enthusiastic support of Governor C. C. Young. In signing it he issued a statement characterizing the bill as "one of the most constructive pieces of legislation passed by the legislature."

## GOVERNOR FOR BILL

"It is not an untried experiment," said Governor Young, referring to the statewide patrol features of the new act. "It has been tried out in several states and has attained a notable success."

The new act authorized the following:



EUGENE W. BISCAILUZ.

1. Creation of the California Highway Patrol, to be administered by the Division of Motor Vehicles, subject to the approval of the Director of the Department of Public Works.

2. Appointment of a superintendent of the patrol and his assistants by the division chief, subject to the approval of the Director of Public Works, and the reappointment of all existing traffic officers operating in the counties for a probationary period of one year.

3. Establishment of training schools for officers of the patrol, creation of traffic districts in the organization of the patrol, establishment of night patrols and all other organization details necessary to put the state force on a high plane of efficiency.

#### PUT ON PROBATION

Under this arrangement, inspectors, captains and traffic officers, operating in the various counties, attain a civil service status after the probationary period of one year. Thereafter they will be rated in efficiency in accordance with the civil service act.

The new law provides that, whenever vacancies shall exist in the patrol, the supervisors of the county in which the vacancy occurs shall submit a list of prospective appointees for the place who shall take civil

service examinations. In the event of failure on the part of the supervisors to submit such a list, the division files its own list of candidates for the place with the Civil Service Commission.

#### AUTHORITY UNDIVIDED

This arrangement assures the cooperation and good will of the supervisors without endangering the principle of undivided and undisputed authority of the state organization.

Special authority is provided in the law for moving officers from one county to another in case of emergency, the single restriction being that an officer may not remain outside his home county for more than a week without the consent of the supervisors.

We are now engaged in the organization of the patrol and are well advanced in the details.

A first step was the appointment of a superintendent. This matter was given weeks of constant study, and the field of prospective candidates was well combed before a selection was made.

#### BISCAILUZ MADE PATROL HEAD

In the appointment of Eugene W. Biscailuz, former undersheriff of Los Angeles County,

(Continued on page 13.)

### MOTORISTS OF STATE WELCOME TEST OF THEIR MOTORING KNOWLEDGE

Californians do not desire exemption from examination for operator's licenses. To the contrary motorists welcome a test that will reveal their knowledge of the laws and practices governing the operation of motor vehicles.

This is the statement of Frank G. Snook, Chief of the Division of Motor Vehicles. It is based on the fact that less than ten requests have been received for exemption from the tests for operator's license.

This is particularly significant when the number of motorists involved is considered.

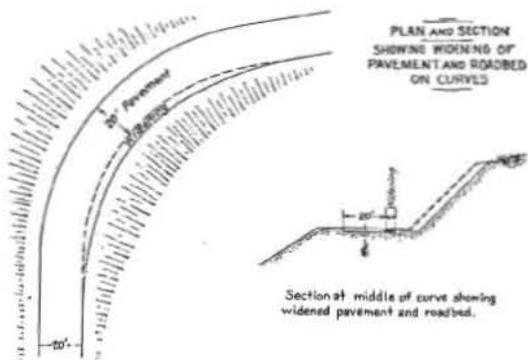
Since July 11, 1929, Division of Motor Vehicles now a part of Department of Public Works, has been engaged in giving operators examinations to all applicants whose operators license were issued prior to January 1, 1927. Up to and including August 23, 1,169,908 licenses were issued following the examination of applicants. Since January 1, 1927 and up until the time the examination began a total of 1,065,712 licenses have been issued. Accordingly there were on that date an approximate total of 2,235,680 licenses in the state that are now legal. Excellent cooperation in giving these examinations has been extended by police officials in various cities.

## Curve Widening Program is Adopted

THE Division of Highways has recently adopted the policy of widening the pavement and roadbed on all curves having radii of less than 500 feet. The widening which is applied to the inside of the curves, varies from a minimum of two feet for curves of 400-foot radius or greater to a maximum of four feet for curves of 200-foot radius or less. The transition from normal unwidened roadway to fully widened roadway is made in a distance of approximately 80 feet. In every case the pavement edges follow mathematically precise curves which insure pleasing appearance and are easy to lay out.

The widening policy has been adopted in line with the best modern highway engineering practice in an effort to build into California roads the maximum degree of safety, ease and riding efficiency. Curve widening is being practiced in various forms by a number of highway organizations usually, however, in connection with sharper curves and narrower roadbeds than are used on modern state highways. With the general adoption of the 10-foot width for single traffic lanes, 20-foot width for two-lane pavements, wide shoulders, moderate speed limits, and definite restrictions of vehicle dimensions, curve widening seemed unnecessary. In the last year or two, however, speed limits throughout the country have undergone decided upward revision in response to popular demand.

A properly aligned and superelevated curve produces at reasonable safe speeds, little or no steering effort or swerving sensation. A passenger riding with eyes closed should be practically unable to distinguish between straight and curved road. Various driving tests indicate that on properly superelevated curves of about 1000-foot radius or more a car can be guided safely without appreciable effort at any practical speed within a 10-foot traffic lane. On curves of from 500- to 100-foot radius the steering effort and sensation of curving become appreciable and speed restriction is often necessary on the shorter radii if the driver is not familiar with the road. On curves of less than about 500-foot radius speed restriction is necessary and there is a definite lurching effect at high speeds due to the sudden change from straight to curved progress. A too sudden change from a



straight to a curved path is productive of accidents. The change in direction should be accomplished gradually to avoid the lurching and weaving tendencies. It is to assist in this easier change of direction and to eliminate as much as economically possible the hazard which the sharp curve presents, that the widening of roadbed and pavement are introduced.

Standard widening as applied to California highway curves modifies or overcomes the tendencies encountered on the sharp curves within practical limits and provides greater safety and driving ease in the following ways:

1. Sight distance is increased, which adds to safety.
2. With the aid of a traffic stripe 10 feet from and parallel to the inside edge of the pavement, traffic in both lanes is directed along a path which corresponds closely to a parabolic transition between straight line and curve. The approximate length of 80 feet for the widening transition was selected carefully with a view to securing a combination of the most natural, convenient, and economical transition for average, reasonable, practical speeds. Safety and driving ease are thereby increased.
3. In case a car traveling at excessive speed does lurch, additional passing room is provided on the outside of the curve, toward which the car will swerve. The additional width allows more room for maneuvering the car and so adds safety.
4. Greater clearance, with increased safety and beneficial psychological effect, is provided between passing vehicles of unusual width.

(Continued on page 9.)

## Clippings, Letters and Comment

**T**HE MILLION yard job on the Bayshore Highway just south of San Francisco bids fair to shine forth as one of the most extensive undertakings on highway work in the state. This job is only 3.5 miles long, but it embraces many types of construction and each in a big way. A long reinforced concrete arch underpass for a railroad spur track to Visitation Valley through lands of the Crocker Estate, costing about \$40,000; a 65,000 rubble masonry retaining wall, a double 8-foot by 9-foot reinforced concrete box culvert 100 feet long, placed on piles, the care of a 44-foot water main of the Spring Valley Water Company involving a 500-foot tunnel and a \$17,000 wooden suspension bridge over a slide; 805,000 cubic yards of roadway excavation with 150,000 cubic yards of slides and a probability of as much again; a 7-inch bituminous macadam pavement 40 feet wide and much culvert sewer and right of way problems, make this project an outstanding piece of engineering.

But, anyone using the completed portion south of South San Francisco, may easily see that the expenditure of this vast sum is warranted to complete this link of a coming great highway. It is hoped to construct hard pavement on this highway soon, as the heavy traffic is making maintenance costs on the temporary pavement almost prohibitive.

### Saving Trees Along the Highways.

The Stockton *Record* editorializes as follows:

It was gratifying to be assured by R. E. Pierce, district engineer of the Highway Commission, that the state program for the widening of Cherokee Lane will not interfere with the shade trees along that heavily traveled thoroughfare. A survey has been made, he declared at last night's meeting here, and it was found that only a few straggling trees would have to come down.

Although the state desires a 100-foot right of way, he explained, the roadbed will only be 40 feet wide, with four 10-foot traffic lanes and 8-foot parking spaces on the sides. This will not interfere with the trees, the engineer indicated.

The local people want their highways to be wide enough and adequate to handle our constantly increasing traffic but they also want the trees, which mean so much in the way of comfort and beauty, spared if at all possible.

### Planning For Proper Width of Highway.

This from the Pasadena *Star News*:

It is evident that the vision of California's most ardent boosters of a quarter of a century ago was not broad enough. It is true that those faithful, far-seeing men and women sensed, with prophetic instinct, the coming of a remarkable period of development in this state. But the fulfillment is greater than the vision. This is seen in streets and highways. Not enough width has been provided for actual needs of traffic today, much less to meet the requirements of the expanding future.

Favored are those municipalities which laid out broad streets—especially their main arteries. Other municipalities which did not use this foresight, are hastening to make up for their remissness. Many street widening projects are in progress in different cities and towns of the state.

And the same as to highways. There has been widening of state and county highways over long stretches of mileage. In some instances the second widening in a few years is being made. The State Highway Commission is urging that future highways should be planned 80 feet wide, to take care of the amazing growth in volume of high-road traffic.

Eighty feet is conservative. It will not be long until highways 120 feet wide will be required, and even 200 feet may be demanded in main arteries leading to and from big centers of population.

California, the truth is, faces such phenomenal development that even the wisest and farthest-sighted can not lay down now exactly what the near future may require.

### Federal Aid Given to 7022 Miles of Road.

During the fiscal year 1929, the federal government cooperated with the states in the improvement of 7022 miles of federal-aid highways, bringing the total mileage of the system improved with federal aid to 78,096, according to figures of the Bureau of Public Roads of the United States Department of Agriculture. The year's mileage was improved in the 48 states and Hawaii by state highway departments working in cooperation with the federal bureau. There are approximately 188,000 miles of main interstate and intercounty highways in the federal-aid system, of which the above mileage and approximately an equal mileage built by the states without federal assistance is now improved.

### Highway Maintenance Men Also Fire Fighters.

A big emergency fire-fighting force was placed at the command of State Forester M. B. Pratt under the terms of a cooperative agreement signed by the State Department

of Public Works and the Department of Natural Resources.

By provisions of the agreement, maintenance crews of the highway will be subject to call by state rangers at all times for combating fires in and adjacent to highway rights-of-way, according to Fred G. Stevenot, State Director of Natural Resources.

The highway workers, it is provided, shall work under the command of the forest ranger or inspector in charge of the fire until relieved. The Department of Public Works has further agreed that its highway maintenance men, when they discover a fire near their work, shall independently take charge of its suppression until members of the state fire patrol reach the scene of direct operations.

Salaries of the maintenance men while employed in fighting fire will be paid by the state forest service, except where the blaze was caused by highway maintenance operations, when the costs will be defrayed by the Highway Commission.

"This agreement," said Stevenot, "is another fine example of practical cooperation between state agencies, made possible by the coordination of state departments and closer relationships that have resulted from Governor Young's cabinet of department chiefs."

### Has New Suggestion For Interstate Signs.

More courtesy in interstate highway signs, is the suggestion made to the Department of Public Works by E. V. King of Sacramento, who writes as follows:

Permit me to submit, for your consideration, the following suggestions outlined as briefly as possible:

There seems to be, and I suppose always will be, a friendly rivalry among states which at times reaches a stage that could hardly be called friendly, especially in neighborhoods of adjacent boundary lines.

California's magnanimity would be accentuated by her primary step to change this feeling to one of high respect from its neighbors which would ultimately spread to other states creating good will and higher respect for each others prerogatives. In other words doing a good turn and having it found out by accident assures its own reward.

To bring about the desired effect let us suppose you motor to Nevada, crossing the state line you will see a sign reading "Nevada" on one side and "California" on the other with several apathetic uninteresting notices what you should or should not do, which of course is very necessary but would fail to impress you and consequently you would journey on without another thought.

Suppose on your return you saw a beautiful, massive sign or arch reading on the Nevada side:

THE WESTERN GATE  
OF A SILVER STATE  
TO ITS GOLDEN MATE  
CALIFORNIA

### REMAINS FOUND OF PREHISTORIC SHARK IN STATE HIGHWAY CUT

Remains of prehistoric animals have been uncovered in a large cut, 60 feet in depth, now being excavated on a section of state highway in Kern County. This cut is being handled by hydraulic methods, the material being washed into the fill without the use of any grading equipment. A dragline clears the channel of rocks and boulders. The deposit of the remains of prehistoric animals includes a number of teeth, which savants declare came from a prehistoric shark. These teeth are in a remarkable state of preservation, some having a perfect enamel with no scars or blemishes.

and on the California side:

THE EASTERN GATE  
OF A GOLDEN STATE  
TO ITS SILVER MATE  
NEVADA

The tourists traveling the Santa Fe Trail could be pleasantly greeted while entering Arizona from California with:

ARIZONA  
WHERE THE DESERT MOON CASTS A  
MYSTIC GLOW ON THE SILHOUETTE  
OF A NAVAJO

Entering from Arizona into California one could read:

CALIFORNIA  
WHERE GOD HIMSELF A GARDEN BUILT  
AND ALL THE POPPIES TINGED WITH GILT

A similar sign with appropriate inscriptions could be established on our northern gateway into Oregon. I believe these gateways would become the talk of the nation.

### Protective Work Wins Editorial Commendations.

The following editorial is from the columns of the *Imperial Valley Press*:

Travelers from the valley to Los Angeles by auto, who wondered why the state was spending money erecting huge mounds of earth along the highway beyond Kane Springs, had the answer given them in Sunday's storm.

Practically useless the greater part of the year, the flood protection system built by the State Highway Commission proves its worth in a single day when the wild waters rush down through gorges and the dry desert becomes an inland sea.

In former years such an occurrence played havoc with automobile traffic to and from the valley on the Salton Sea route. Sunday's storm, thanks to the protective system, did little or no damage to the highway. The railroad, without such protection, is placed out of commission.

People who have never seen it, can not imagine the force and fury of these desert torrents which are

created in a minute, rush wildly on their course, sweeping all in their path, and disappear as quickly as they start, leaving costly damage in their wake.

The highway flood protection system is worth every cent it cost, even if its only benefit is to prevent a huge repair bill on the highway. The fact that it also prevents loss of time in transporting people and merchandise is additional justification for its construction.

### Ban Peddlers From Highway Right of Way.

The *Venice Vanguard* publishes this article:

The state highway between Santa Monica and Oxnard is not to be fringed with a line of peddlers vending everything from peanuts to firewood.

This was the decision given yesterday by Justice of the Peace John L. Webster of Malibu township, who presided at the trial of a man arrested Sunday evening near Topanga Canyon for selling firewood from the coast road right of way.

Although Judge Webster did not inflict a penalty in this case, he warned that a second offense of this nature would be punishable, and reiterated the statement that it is against the law to use any portion of the state highway as a sales-stand, also stressing the fact that these stands add neither to the beauty of the scenery nor to the motoring public's safety.

### Courtesy of Highway Employees Appreciated.

The following letter addressed to Commissioner Fred S. Moody comes from Ross A. Curran of San Francisco:

About a fortnight ago, I motored from San Francisco to Tallac on Lake Tahoe by way of Placerville and found the road, with a few exceptions, in that splendid well-kept state so characteristic of California highways. There were, however, as perhaps you know, places where the road was being widened or otherwise under repair. At all of these places regulation of traffic was not only expeditiously but most courteously handled, and I must confess to a pleasant astonishment when in every instance I was thanked by a director of traffic for submitting to the inevitable delay and which men obviously working under high pressure sought to make as short as possible.

To you and your associates on the Commission, I am prompted to offer this just tribute, and to express through you to your employees my appreciation of their attitude.

### Applauds Work of Fire Protection.

S. Parker Frisselle, chairman of the San Joaquin Advisory Council of the California State Chamber of Commerce, writes as follows:

The effective work done this year by the Division of Highways, in the removal of fire hazards from state highway rights-of-way, has been an important step in the prevention of grass, grain and timber fires.

The San Joaquin Valley Regional Advisory Council of the California State Chamber of Commerce

wishes to express its deep appreciation for this vital work. We hope that you will be able to continue and to expand this effort in future seasons.

### Cortelyou Lauds Cooperation of Santa Monica and Oxnard.

The following article is from the August 7 issue of the *Santa Monica Outlook*:

"A splendid example of intelligent legislation." Thus did S. V. Cortelyou, district engineer for the California State Highway Commission yesterday laud the action of Santa Monica's city commissioners in voting a setback ordinance that will in years to come make it possible to develop Lincoln Boulevard as an important link in the state highway system.

By actual check, Mr. Cortelyou explained, the Coast road in front of Santa Monica is the heaviest traveled state highway in California, with the prospect that the continued increase of this traffic will be limited only by facilities to care for it.

Under these conditions, the problem of the State Highway Commission is to find arteries for through travel that are so located as not to complicate still further the problem of congestion with which the local authorities must cope. In the selection of Lincoln Boulevard for this new highway route, Mr. Cortelyou believes that the Santa Monica commissioners have taken a very forward step, and one that should be followed immediately by the city of Los Angeles in voting a similar setback through Venice and the territory adjacent.

As explained by the state highway engineer, the importance of fixing the setback line for Lincoln Boulevard through Santa Monica to make it a 100-foot street later on is this:

The cost of improving a street remains about the same from year to year, but the cost of acquiring the necessary rights-of-way rises steadily and becomes almost prohibitive after permanent improvements are completed and property values begin to sky-rocket.

Questioned as to what the city of Oxnard had done to obtain such a wide and well-paved link of the Coast Highway through its limits, Mr. Cortelyou reported that Oxnard carried out this improvement without either state or county aid, and had not only paid for the main highway, but assumed a second assessment to create a parallel by-pass road connecting with the state highway at both ends of the city.

### CURVE WIDENING PROGRAM IS ADOPTED

(Continued from page 6.)

The actual design of the widening is based on a careful study of modern contemporary practice and represents the best efforts of the engineers of the California Division of Highways to incorporate into their highway designs the maximum of safety and service for present and future automotive traffic, with due regard for the high speeds which almost surely will prevail in the future.

NATIONAL—Since 1916, Indian reservations have been given 568 miles of highway improvements at federal expense and 279 miles on a state cooperative basis, costing a total of \$10,500,000.

# The Civil Service Candidate

## As the Examiner Sees Him

By C. S. POPE, Construction Engineer

THE WRITER has had so many opportunities to observe the causes which operate to prevent candidates who take the State Civil Service examinations in highway work, from attaining the grades they seek, that a statement of these observations may be of advantage to future candidates. From time to time, during examinations, these causes have been jotted down, and may come under one or another of the following heads:



C. S. POPE

- (1) Lack of study of the requirements as given in the Civil Service bulletins calling for the examinations.
- (2) Lack of education.
- (3) Lack of experience in construction.
- (4) Lack of experience in executive control.
- (5) Lack of study of the trend of highway construction.
- (6) Lack of experience in surveying and the handling of field parties.
- (7) Inability to explain to examiner the information which the candidate really has.
- (8) Attempts to impress the examiner that the candidate was better informed or more experienced than he really was.

Many applicants who enter examinations do not read with sufficient care the Civil Service bulletins which outline the educational and experienced requirements which must be met before success may be attained in an examination. A study of the details of these bulletins would often prevent the candidate from attempting an examination for which he was clearly not qualified.

Lack of education may be of two kinds, the one technical and the other practical. Many men may have secured degrees at college who have done no additional studying since graduation, have done no studying particularly relating to highway matters, and have not in general kept themselves informed on the progress of highway work.

Many men enter engineering work in a junior capacity and apparently with the same

viewpoint toward their work that a laborer or tradesman has toward his job, and without realizing that they are taking a position as an assistant in a technical profession whose standards are being constantly increased. Success in engineering work depends upon a proper application of scientific laws, particularly those of physics, chemistry and mathematics. Many men who have entered engineering work without this fundamental training are disappointed because they fail of advancement, but are apparently unaware of their weakness or make no effort to correct it. This statement is not made with any intention of discouraging a man who may be without formal educational training, but who is willing to study and work to increase his fitness for the position he seeks. Many men in such condition have succeeded in attaining advancement to responsible positions and there are many very good correspondence courses, particularly those of the extension departments of state universities, by which they can profit.

Many candidates state that they have started a correspondence course but have discontinued their studies. It is realized that it is difficult to study under certain conditions, but study is certainly essential to progress.

Practical education would include a knowledge of practical highway construction and might be obtained either in the state highway organization or outside of it, but it is particularly essential if the candidate does not have a technical education to begin with. Many candidates fail to have a proper knowledge of design, nor do they seem to have made any study of the subject.

Lack of experience in construction or even observation of construction is often a cause leading to the elimination of the candidate. The ordinary types of construction with which candidates should be familiar are grading in both mountain and valley locations, rock surfacing, oiling, bituminous macadam, bridges or other concrete or timber structures, culverts, and the various types of pavements. Candidates often show a decided lack of knowledge of why structures are built as they are and of the reasons for the placing of

(Continued on page 15.)

# Road Improvements Made Possible by New Contracts Awarded in August

The following summary shows the award of contract from July 26th, to August 31st, inclusive, the sections to be improved under these contracts and the character of their improvement:

#### Stockpiling for Skyline Boulevard.

Tieslau Brothers, Berkeley.—Producing and stockpiling crushed gravel or stone screenings between La Honda Road and Saratoga Gap on the Skyline Boulevard. Contract price, \$18,245.

#### Surfacing for Victory Highway.

Meyer Rosenberg, San Francisco.—Application of bituminous surface treatment, 18 feet wide, on a section of the Victory Highway, 6.9 miles in length between Soda Springs and Donner Lake. Contract price, \$18,583.50.

#### Arrowhead Trail Project.

George Herz & Company, San Bernardino.—Grading and surfacing with oil-treated crushed gravel or stone, a section of the Arrowhead Trail, 13 miles in length, between Barstow and 1 mile east of Yermo. This project begins at the north end of Barstow and connects at its eastern end with the project under construction 1 mile east of Yermo. Contract price, \$160,005.85.

#### Tahoe-Southern California Improvement.

Fred W. Nighbert, Bakersfield.—Grading a roadbed 33 feet in width and placing a surfacing of oil-treated crushed gravel or stone 20 feet wide on the section of the route between Lake Tahoe and southern California, via the eastern side of the Sierras. This contract is in Inyo County between the southerly county boundary line and Little Lake, and is 9.8 miles in length. Contract price, \$111,920.10.

#### Golden State Highway Project.

Valley Paving and Construction Company, Visalia.—Grading roadbed 36 feet wide and widening and resurfacing the existing 15 feet of cement concrete base with asphaltic concrete 20 feet in width, on a section of the Golden State Highway, also known as the Valley Route. This section is in Tulare County between its southerly boundary and Pixley, and is 12.2 miles in length. Contract price, \$287,674.

Lilly-Willard and Biasotti of Stockton.—Grading and surfacing with untreated crushed gravel or stone, 20 feet in width, a section on the main Valley Route, between a point 2.5 miles north of Turner Station and the Mariposa Road, in San Joaquin County. This section is 1.1 miles in length. Contract price, \$30,428.

#### Widening With Rock Borders.

Smith Brothers, Eureka.—Widening with oil-treated rock borders a section of the Napa Valley Route, 5.3 miles in length, between Napa and Greenwood Corner. Contract price, \$14,772.50.

#### New Bridge on Tahoe Route.

Lord and Bishop, Oroville.—A reinforced concrete girder bridge across Tallac Creek in El Dorado County, on the Placerville-Lake Tahoe Route. Contract price, \$8,848.50.

#### Eliminating Four Curves.

Fredrickson and Watson and Fredrickson Brothers, Oakland.—Grading roadbed 34 feet wide and surfacing with bituminous macadam 20 feet on a section 3.1 miles in length between Napa Wye and the Solano County line. This improved alignment will eliminate three sharp curves and one reverse curve. Contract price, \$69,004.60.

#### Revision of Alignment.

Matich Brothers, Elsinore.—Grading and paving with Portland cement concrete 0.7 mile in Orange County, between Serra and San Juan Capistrano. The roadbed is to be 40 feet wide and pavement 20 feet wide. This project is a revision of alignment and replaces five short radius curves with two curves of longer and safer radii. Contract price, \$31,751.

#### Improving Surface.

M. J. Bevanda, Stockton.—Constructing bituminous macadam surfacing at different locations between Los Alamos and a point on the Coast Highway 6.5 miles north of that place. Contract price, \$11,551.90.

W. A. Dentanville, Salinas.—Constructing bituminous macadam surfacing from a point about 7 miles north of Salinas to San Juan, about 2.4 miles altogether. Contract price, \$9,900.

#### Rose Canyon Work.

R. E. Hazard Contracting Company, San Diego.—Grading 5.4 miles between Balboa Avenue and Torrey Pines road to a roadbed width of 46 feet. This section will be a part of the main line route between San Diego and Los Angeles, and is generally known as the Rose Canyon Route. It constitutes an improvement of the present traveled way via La Jolla and shortens the distance 4.5 miles. Contract price, \$103,530.80.

De Waard & Sons, San Diego.—Reinforced concrete girder bridge across Rose Canyon in San Diego consisting of seven 30-foot spans. Contract price, \$30,515.

#### Opens Recreational Areas.

H. W. Rohl Company, Los Angeles.—Grading 24-foot roadbed on a section of the Arroyo-Secco Highway in Los Angeles County, between La Canada and a point 2.2 miles northerly. The project includes a large amount of reinforced concrete cribbing to hold the banks on steep mountain slopes. This section is a part of the Arroyo-Secco road, climbing up from the canyon to the ridges in the high country above Pasadena. It will open up additional recreational regions. Contract price, \$244,532.40.

#### Macadam Surfacing, Rock Borders.

J. E. Johnston, Stockton.—Placing bituminous macadam surfacing over present cement concrete pave-

ment and placing rock borders on each side of pavement, for a total length of 11.3 miles between Roseville and one-half mile north of Andora subway in Placer County; between Dry Creek and Morrison's Crossing in Yuba County; between Bretana and Dunnigan in Yolo County; between Geneva (Berlin) and a point 2.6 miles north, in Colusa County. Contract price, \$58,700.

#### Graveling Surface.

Hemstreet & Bell, Marysville.—About 3.5 miles of gravel to be spread on a section of the Oroville-Willows lateral between a point one-half mile west of Butte City and the Chico road in Glenn County. The gravel is to be treated with fuel oil. Contract price, \$5,652.50.

#### Redwood Highway Improvement.

Heafey-Moore Company, Oakland.—Surfacing with bituminous macadam a section of the Redwood Highway between Mill Creek and Trinidad, 10.6 miles in length in Humboldt County. The surfacing is to be 20 feet wide over the present crushed rock surface. Contract price, \$38,564.50. (Rock and oil to be furnished by state.)

Heafey-Moore Company, Oakland.—Surfacing with bituminous macadam 20 feet wide over existing crushed rock surfacing 14.9 miles between one mile south of Orick and the northerly county boundary of Humboldt County. Contract price, \$62,445.

J. C. Compton, McMinnville, Oregon.—Surfacing with bituminous macadam under same specifications as above contract a section in Del Norte County between Elk Valley and Smith River, 3.8 miles in length. Contract price, \$12,186.

#### Better Alignment, Better Grades.

C. Miles, Sacramento.—Grading and surfacing with crusher run base, bituminous surface treated, a section of the Bishop-Mono Lake road in Mono County, between Mattley Ranch and Leevining. This section is 2.2 miles in length and the surfacing will be 20 feet wide. This project includes improvement in the present road by a revision and betterment in alignment and grades. Contract price, \$54,567.

#### Increasing Traffic Capacity.

Monarch & Breen, Portland, Oregon.—Grading section 38 feet wide in San Diego County, between Miller Creek Tecate Divide, 3.9 miles in length. This is a part of the San Diego-El Centro road. The new alignment and grades on this section will make an increased traffic capacity possible. Contract price, \$73,897.20.

#### Two Grade Crossings Eliminated.

Otto Parlier, Tulare.—Undergrade crossing beneath the Southern Pacific tracks at Califa in Madera County. This subway will eliminate the present grade crossing at Berenda, 4 miles south of Califa, and will also eliminate the grade crossing at Califa on the Pacheco Pass route by combining the two crossings at this location. The subway will consist of concrete abutments with wing walls and grading and paving approximately 280 feet of roadway with Portland cement concrete 34 feet wide. The superstructure is to be placed by the Southern Pacific Company. Contract price, \$31,463.50.

### NONRESIDENT CARS

Since January 1, 1929, the Department of Public Works has checked 76,451 nonresident cars through border checking stations located at Yuma, Daggett, Dunsmuir, Clam Beach, Donner and Meyers.

## Salinity Studies Along Delta Are Now In Progress

The investigation of the behavior of salinity in the delta of Sacramento and San Joaquin rivers in relation to the inflow of fresh water into the delta and to the tidal action, has been carried forward very actively both in field and office. Salinity samples are being taken at 70 regular stations throughout the bay and delta regions every four days. During and following the period of minor flood conditions in Sacramento and San Joaquin rivers, daily observations were made of the salinity conditions at 25 representative stations. Sixteen tidal cycle surveys over 24-hour periods were made at eight stations to ascertain the relation of salinity both as to stage of tide and to depth of water. In order to determine the distribution of salinity at the mouths of the Sacramento and San Joaquin rivers, eight surveys have been made at each of the two stations established near Antioch above the mouth of the San Joaquin River and near Collinsville above the mouth of the Sacramento River. Samples were taken simultaneously at each station on each survey at points about 200 feet apart and for several depths. About 1000 samples in total were obtained and analyzed in these sixteen surveys. Continuous records are being obtained at 17 stations extending from the Presidio on San Francisco Bay to Sacramento on the Sacramento River and to Stockton on the San Joaquin River. The United States Coast and Geodetic Survey, War Department, and the California Debris Commission have cooperated splendidly with this office in furnishing data and supplying equipment for this work.

Relative salinity content of water diverted for irrigation and water pumped out as drainage from representative islands is being determined. More than 3000 samples of water have been taken to date in this investigation. These have all been analyzed to determine the chlorine content, by the State Highway Laboratory under the direction of Mr. T. E. Stanton, Materials and Research Engineer.

The engineering advisory committee, Messrs. H. L. Haehl, Thos. H. Means and George A. Atherton, met in Sacramento on July 26, reviewed the work accomplished by this office, and advised as to the continuance of the work.

A court has decided that a cow in the road always has the right of way. This indicates that the courts are just learning what the cows have always known.—*San Diego Union.*

## THE CALIFORNIA HIGHWAY PATROL

Continued from page 5.)

we have secured a man of the highest caliber. Mr. Biscailuz did not seek the job, and, indeed, it was only after considerable persuasion that we were able to convince him he should make a personal sacrifice to serve his state and country as head of the California Patrol.

The appointment of Mr. Biscailuz met with universal approval. I have received scores of letters and telegrams containing congratulatory messages.

The new superintendent is going about the job in a businesslike manner. His first step has been to undertake a survey of the various squads, operating as independent units up to now, with a view to correlating and standardizing their work.

This will require some weeks. Nothing will be done hastily and without due deliberation.

### ORGANIZING DISTRICTS

Meanwhile other plans are under way for the organization of traffic districts in accordance with the new act and the creation of night patrols. I consider the latter most important, inasmuch as a large percentage of our fatal accidents occur at night.

We believe the officers will like their new superintendent, Mr. Biscailuz, and we believe they are going to be proud to be members of the new California Highway Patrol. We want to popularize the patrol, to give it prestige. That can be accomplished only when every officer sets himself in tune with the general scheme and comes to a realization of the dignity of his job.

Biscailuz has announced that he will rate the efficiency of his officers not on the number of arrests on their respective beats, but on the number of accidents. I am heartily in sympathy with the idea he is trying to express there, as, I am sure, is B. B. Meek, director of the Department of Public Works. Both Mr. Meek and myself feel that the traffic officer's most important work is to reduce accidents.

### ASKS COOPERATION

We have a great deal to do in perfecting this organization and expect to be pretty busy for several months. The new patrol is our responsibility. We asked for it and the legislature gave it to us. Its success or failure will now depend upon our administration of it.

Let me say here that I am glad the Division of Motor Vehicles has been made a part of the Department of Public Works, for I be-

## FLOOD CONTROL FOR SACRAMENTO AND SAN JOAQUIN RIVERS

At the meeting of the Reclamation Board held on July 24, the Board approved the report of the special committee, consisting of A. M. Barton, Stephen W. Downey and R. L. Jones, concerning the construction program for the year ending June 30, 1930, and adopted the program therein recommended. The program for construction is as follows:

	U. S.	State	Local
West Intercepting Canal—			
Project No. 6-R. W. ....		\$5,000	-----
Construction .....	\$12,500	12,500	-----
Clearing Butte Slough, Sutter and Tisdale By- passes, Project No. 6...		65,000	-----
Sycamore Slough Gates...	8,000	4,000	\$4,000
Feather River levee, Star Bend .....	33,640	16,820	16,820
Feather River levee, Lake of the Woods .....	34,244	17,122	17,122
Removing levees, Feather River .....	-----	15,000	-----
Clearing Feather River—			
Eliza Bend .....	-----	2,500	-----
Star Bend .....	-----	1,500	-----
Lake of the Woods .....	-----	5,000	-----
Above Marysville .....	-----	18,558	-----
Feather River levee, Hamilton Bend .....	6,000	3,000	3,000
Clearing American and Sacramento rivers .....	-----	7,500	-----
Control works at Nelson Bend .....	14,000	14,000	14,000
Totals .....	\$108,384	\$175,000	\$54,942

The foregoing program and report were approved by the California Debris Commission, by the construction committee of the Flood Control Association of Sacramento and San Joaquin Rivers System, and by the Feather River Associated Levee Districts. The levee construction involved is all on the Feather River, and the program is satisfactory to all interests concerned. In fact, no objections whatever were made to the program as finally presented.

At the same meeting, the Reclamation Board, by resolution, requested the Department of Public Works to prepare the necessary plans and estimates for the various units of work involved.

Preliminary surveys were made for new project levee construction on the Feather River at Star Bend and Lake of the Woods. Each of these lines was approximately one mile in length, and they were made for the purpose of preparing a fairly accurate preliminary estimate of the cost of these units.

IDAHO leads the states in mileage of national forest roads and trails, with 1776 miles of roads and 8848 miles of trails.

lieve the change will do much toward bringing the builders of our state highways closer to those charged with the patrolling of these highways. It is my hope that the closest of cooperation may prevail, for we have many problems in common.

Lastly and most important of all, we must have the assistance, cooperation and confidence of the motorist to make the California Highway Patrol a success. We invite criticism from the public and suggestions that will enable us to handle our work better.

## Program Adopted For Water Study in San Joaquin Valley

A PROGRAM for the investigation of water conditions in the San Joaquin Valley has been outlined by the Division of Water Resources. The investigation comprehends an inventory of the local water supplies, an inventory of the irrigable lands classified as to their ability to pay for a water supply, an estimate of the immediate and ultimate water requirements of these lands for full development and of the amount of water required to be imported to meet these requirements, and an estimate of the physical works necessary for making available an adequate and dependable water supply for this area. In connection with this investigation the following has been accomplished to date:

1. All of the irrigable lands in the valley south of Fresno River have been classified, about 5,000,000 acres. This work is being continued and extended toward Stockton.

2. A crop survey of the entire area is underway. The major part of Tulare County and a part of Kings County have already been covered. This survey will also cover entire valley.

3. In cooperation with the irrigation districts, all of those wells on which observations have been obtained for the past several years, and on which actual elevations are not available are being referred to the datum of the United States Geological Survey. Provision has been made for obtaining a set of observation on all of the wells, totaling between 2000 and 3000 on or about October 1.

Office studies have been carried forward to determine the economic location of exchange canals from the San Joaquin River to the Kings River and Kings River to Kern River. These studies together with a field trip disclosed that it is physically feasible to deliver Kings River water into Kern County.

### SACRAMENTO VALLEY INVESTIGATION

A program similar to that for the San Joaquin Valley has also been outlined. The work to be included in this investigation will be parallel to that for the San Joaquin Valley except that it also comprehends a plan for making available an adequate and dependable water supply for the industrial area on Suisun Bay and for the control of salinity in the delta of the Sacramento and San Joaquin rivers.

### SOUTHERN CALIFORNIA INVESTIGATION

In connection with the investigation on the Mojave River, six tentative points of measurement of stream flow have been selected to determine the water supply in that basin. Arrangements have been made for the continuation of stream gaging in the Santa Ana River watershed and for the continuation of the study of the flood problems of this area in conjunction with the United States Department of Agriculture.

## Progress of Work At Various State Institutions Told

THE Division of Architecture announces that plans have been approved and bids advertised for two buildings at the Mendocino Hospital with a total capacity for 240 patients. Working drawings are being completed and will be ready for advertising for bids about September 20th for the reconstruction of what is known as "Ward 7" at Mendocino. The portion of this new group provided for in the 1929 budget will add 120 patients to the capacity of the institution.

At Patton a contract has been awarded and work in the field is underway under a 1929 appropriation for a ward building which is to house 50 tubercular male patients.

At Agnew, the Director of Institutions has approved the use of plans now available for patients' ward buildings and other buildings at the farm provided for in the 1929 budget, with a view to getting this construction under way promptly.

A similar course of procedure is to be given consideration in connection with the new institution for insane in the south. Action by the Division in this instance is awaiting selection of a site.

Bids for a ward building for patients at Sonoma State Home for the feeble-minded, provided for in the 1929 budget will be opened on October 1st. This building will accommodate 80 patients but is intended to replace an existing building which has been condemned. Preliminary work on the reconstruction of the north wing of the main building at Sonoma recently damaged by fire and which housed a large number of patients, is now under way in the field.

It will probably be agreed in connection with a ward building for 80 patients at Pacific Colony, to use plans now available.

At Folsom Prison a change in field organization is being made which will speed construction work on the cell block, hospital and administration unit which has been under way for some time.

### NATIONAL PARK TRAVEL

According to the National Park Service, United States Department of the Interior, automobile travel to the national parks has made tremendous strides in the last six years. In 1923 a total of 191,287 private automobiles entered 12 of the western parks; in 1928 the number was 439,049 cars, 129 per cent more than in 1923; and the 1928 figure for one of the parks was 420 per cent greater than the 1923 figure.

Rastus: "I tells you, Sambo, I done found out de difference between men and de women at las!"

Sambo: "What—what is it?"

Rastus: "Wall, a man'll gib two dollers for a one dollar thing dat he wants, an' a woman'll gib one dollar fer a two dollar thing she don't want!"

In connection with the snow survey work, authorized by the last legislature, considerable progress has already been made in establishing contacts with the users of water from the various streams which will lend cooperation in laying out courses, constructing stations and furnishing observers. Equipment is now being collected and arrangement and plans being made to carry on this work.

## THE CIVIL SERVICE CANDIDATE AS THE EXAMINER SEES HIM

(Continued from page 10.)

reinforcement and its importance in certain locations.

Lack of experience in executive control is often shown by candidates who apply for a job which requires the running of a field party or the controlling of inspectors, in which work they have never had any experience. The contacts which must be maintained with contractors and the public in a harmonious manner are most important, and are considered by examiners in judging the fitness of a candidate to have charge of work.

Lack of study of the trend of highway construction is one of the surest means to obtain a poor rating when trying for a position of advanced grade. The examiners themselves are usually eager to obtain all the information possible along these lines, and to have candidates come before them who have taken no interest in the study of the progress of highway design and construction immediately prejudices them against the candidate. Employees who do not study, who take no magazines relating to highway work, belong to no engineering society, have not read the manuals issued by the departments for their benefit, have no books on highway engineering, materials or inspection, and who, in general, feel that they just have a job, do not arouse the interest of the examiner.

Lack of experience in surveying is often a cause of a candidate being unsuccessful in his examination, since surveying and mapping are the essential foundations of all highway work. Experience in location surveys and construction surveys are essential to a well rounded career in highway engineering, and employees who do not make a study of these subjects will find great difficulty in progressing.

Inability to explain to the examiner the information which the candidate really has is a serious obstacle to his passing the examination. As a rule, the examiner will do all in his power to put the candidate at his ease, as their purpose is not to find an excuse for rejecting him but more to bring out the information which will indicate whether or not he will be of value to the state in the position which he seeks. If candidates will bear in mind that the examiner has probably had to talk to a great many candidates of various kinds before he came along, and may be more or less disgusted with their inability to express themselves, he will have a better understanding of the means of approach which he should use in presenting his claims for acceptance in a grade.

Attempts to impress the examiners that the candidates are better informed or more experienced than they really are is usually not attendant to success. The examiners have had a great deal of experience in meeting people, and can readily detect the bluffer. Applicants should bear in mind that the examiners are not unfriendly, but they have had to interview a great number of applicants of various kinds. They are frequently behind schedule through giving applicants who were poorly prepared or unable to express themselves more than their allotted time, to afford them an opportunity to demonstrate the necessary qualifications and may be more or less at the point of giving up in despair in their efforts to develop

necessary information from people who at first contact do not seem to have it.

Many candidates suffer from the habit of securing glowing tributes to themselves from former employers. They thus attempt to build up a paper record for themselves which will indicate to the examiner that the state would suffer a great loss if they are not employed or granted the increase in rating for which they apply. While it is true that a candidate should be rated as fully and justly as possible, it is also true that a candidate who has been overrated in the opinion of his employer naturally is handicapped when appearing before the Civil Service examiner. Some department heads lack the firmness or judgment to give a sufficiently strict and honest evaluation of the characteristics of their employees, and this tendency soon shows up when a number of recommendations are received, each bearing the imprint of good fellowship rather than a correct and just analysis of the candidate's abilities.

It is my belief that the examiners are usually just in their analysis of a candidate's capabilities, and so far as my experience goes, they have been willing to discuss matters with a candidate who has been unsuccessful in order to point out to him the causes which prohibited them from giving him a better grade than he received. Many candidates assume at once that they have been unfairly dealt with, whereas, if they would analyze, for themselves, some of the causes which lead to their failure as outlined above, they would no doubt be in a position to correct these difficulties in future examinations.

### "HOW TO CASH IN ON THAT ACCIDENT POLICY"

Always drive fast out of alleys.

Always race with locomotives to crossing. Engineers like it; it breaks the monotony of their jobs.

Always pass the car ahead on curves or turns. Don't use your horn, it may unnerve the other fellow and cause him to turn out too far.

Demand half the road—the middle half. Insist on your rights.

Always speed; it shows people you are a man of pep.

Never stop, look or listen at railroad crossings. It consumes time.

Drive confidently, just as though there were not eighteen million other cars in service.

Always lock your brakes when skidding. It makes the job more artistic.

Always speed up to cars ahead of you; also speed up to stop intersections; then slap on the brakes; it helps the tire manufacturers increase sales and gives you additional time in the repair shop for brake linings.

If the mechanism of your motor when running does not sound good, don't stop to investigate—keep on going just to see what happens.

Always pass cars on hills. It shows you have more power; and you can turn out if you meet a car at the top.

Never look around when you back up. There is never anything behind you.—Contributed.

**SASKATCHEWAN**—A 1000-mile continuous gravel road directly across the province, which will be completed this year at a cost of more than \$1,000,000, is a feature of a \$20,000,000 four-year road program just begun. About 2000 miles is to be added to the improved provincial system.

## Progress Reports From the Counties

### ALAMEDA COUNTY

The contract for widening of the section of the Oakland-San Jose road between Hayward and Niles has been let to Hanrahan Company of San Francisco. The work is just starting and consists of regrading the roadbed and widening the pavement from 18 feet to 22 feet by constructing an 11-foot Portland cement concrete strip on the easterly side of the existing pavement and surfacing the existing pavement with asphaltic concrete.

This work is similar to that done on the section between Warm Springs and Milpitas and will be a big step in the reconstruction of this road between the East Bay cities and the Santa Clara Valley and the coast route to Los Angeles.

### CONTRA COSTA COUNTY

Traffic using the Martinez road will appreciate the new work through Pinola and Hercules as traffic is now carried over much of this section on finished pavement. The Portland cement concrete work is progressing rapidly. When this section is completed, the road from Oakland to the Carquinez Bridge will be a widened boulevard that will serve for the present the extremely heavy and rapidly increasing traffic over this section.

### DEL NORTE COUNTY

The Holdener Construction Company, who have the contract for oil surfacing 35 miles of the Redwood Highway from the Oregon line to the new Hiouchi Bridge over Smith River, expect to have the work entirely completed within another month.

The Holdener Construction Company also have the contract for producing and stockpiling approximately 5700 cubic yards of crushed rock for a light bituminous surface over the 22 miles of the Roosevelt Highway in Del Norte County, between Crescent City and the Oregon line. It is expected that sufficient rock will be produced in order that state forces may begin placing of the surfacing by the first of September.

The Webber Construction Company have just completed the placing of additional crushed rock surfacing over 4 miles of highway between a point 5 miles east of Crescent City and the new Hiouchi Bridge over Smith River, on the Redwood Highway. They have also stockpiled sufficient crushed rock for letting to contract the placing of a 2-inch by 20-foot bituminous macadam surface over the entire 4 miles.

Bids were opened for the construction of the 2-inch by 20-foot bituminous macadam surfacing on August 14, and J. C. Compton was the low bidder on the work.

J. E. Johnston, who has the contract for grading and surfacing the Redwood Highway between Klamath River and Wilson Creek, has practically completed all the grading and surfacing work and the road is open to public travel throughout. He is now completing the necessary protection work along the ocean shore near the northerly end of his contract. It is expected that the contractor will have the job complete by the end of September.

Mr. J. E. Johnston also has the contract for grading and surfacing between the southerly Del Norte County line and the head of Richardson Creek, a point 2 miles south of Klamath River. The grading and surfacing have been sufficiently completed so that traffic has been carried over the work during the past winter and it is expected that the contractor will complete the finishing work within another month and additional drainage work by the middle of September.

By the end of the summer season it is expected that all the Redwood Highway and Roosevelt Highway in Del Norte County, with the exception of approximately 7 miles of the J. E. Johnston contracts, will have received a light bituminous surface or a higher type oil surface, and will be in excellent condition to carry over the winter.

### FRESNO COUNTY

Convict Camp Number 19, near Hume on the Kings River Canyon Route, is now in full operation, there being about 120 convicts on the work and two power shovels employed. Activities at present are confined to the 5 miles of road between north line of General Grant Park and the convict camp.

Contractor Tieslau has started operations on his contract, which provides for an 18-foot oil-treated gravel surfacing between Coalinga and Parkfield Junction.

### HUMBOLDT COUNTY

The Webber Construction Company has the contract for producing and stockpiling bituminous macadam rock along the Redwood Highway for a 20-foot by 2-inch bituminous macadam between a point 1 mile south of Orick and the northerly Humboldt County line. The rock as yet produced is not sufficient to permit the starting of the placing of the macadam surfacing immediately, but it is expected that the contract for the placing of the macadam surfacing will be completed in the late spring of next year.

The Engelhart Paving and Construction Company have a contract for placing additional surfacing and stockpiling rock for bituminous macadam pavement on approximately 3.3 miles of the Redwood Highway between Big Lagoon and Orick. The work is approximately one-third complete.

Kern & Kibbe have the contract for placing additional crushed rock surfacing over 4.3 miles of the Redwood Highway, from Trinidad southerly to Little River, and for stockpiling rock for bituminous macadam pavement over the same distance. The surfacing was completed about August 20th and the stockpiling of the macadam rock is under way.

W. C. Elsemore has completed approximately one-third of his contract of producing crushed rock for bituminous macadam pavement between Mill Creek and Little River, a distance of about 6.4 miles.

Bids were opened on August 14th for placing the bituminous macadam over the entire stretch between Mill Creek and Trinidad, and Heafy-Moore Co. of Oakland were the low bidders.

The reconstruction of the highway between Mad River and Mill Creek, 0.9 mile, by Ellison & Smith, contractors, is about 75 per cent complete and it is expected that traffic will be carried over the new work before the winter rains set in.

Contractors Kennedy & Hayles have made splendid progress on their contract for grading and surfacing the Redwood Highway between Arcata and Mad River and it is expected that they will complete their contract by the last of September.

The Butts Construction Company, who have the contract for the construction of the new bridge over Mad River, have made good progress and it is expected that the next season's tourist travel will be carried over the new bridge.

The construction of the overhead crossing of the highway, over the Northwestern Pacific Railroad and the Arcata and Mad River Railroad, approximately 1 mile north of Arcata, is under way by the Mercer-Fraser Company ofureka.

The completion of the last four named contracts is expected in time to permit traffic over the entire distance between Arcata and Mill Creek by early next spring.

The grading of the new highway between Loleta and a point approximately 7½ miles south of Eureka, a distance of 5.7 miles, is under contract to E. C. Coats of Sacramento. The grading work was approximately half complete on the last of August.

#### INYO COUNTY

From the southerly boundary to Little Lake, a distance of approximately 3.8 miles, Fred W. Nighbert has recently entered into a contract to grade and place an oil-treated surface; thence to Olancha, a distance of approximately 25.5 miles, the plans have been prepared for the grading and the placing of oil-treated surface which work will be advertised soon. In the meantime a dust palliative has been applied under maintenance appropriations, and the work executed under the supervision of A. C. George, Foreman.

From Olancha to the northerly boundary, an excellent oil-treated surface is in place with the exception that the portion from Cottonwood Creek to Diaz Lake, a distance of approximately 10.3 miles, G. W. Ellis has a contract for the grading and placing of an oil treated surface.

On the Westgard Pass lateral, Route 63, between Big Pine and Zurich, a dust palliative has been applied by maintenance funds under the direction of Dwight Wonacott.

#### KERN COUNTY

On Route 57, east of Bakersfield, between Bakersfield and Kern Canyon, Contractors Force-Currigan and McLeod, good progress has been made in laying base course and oil-treated surface. The contractor is now grading between the city limits and a point 3 miles easterly. A large cut 60 feet in depth, including about 80,000 yards, is being handled by hydraulic means, the material being washed into the fill without the use of any grading equipment. A drag line clears the channel of rock and boulders.

On the contract from Pentland Junction to San Emigdio Road, east of Maricopa, C. W. Hartman, Contractor, good progress is being made and it is expected to complete the work by the end of next month. A 4½-inch x 26-foot surface of local crushed rock is being used and several applications of fuel oil made for binding purposes.

From Mojave to the northerly boundary of Kern County, several constructive operations for improvement are under way.

That portion of the highway between Mojave and Cinco, a distance of approximately 17.2 miles is being graded to be followed by the placing of an oil-treated surface. This is being carried out by two contractors, namely: Bartlett & Mathews and the Southwest Paving Company.

Plans are being prepared for early grading and the placing of an oil treated surface from Cinco to 7 mile north of Ricardo, a distance of approximately 16 miles. Incidentally this section includes the scenic Red Rock Canyon, and when completed will provide a mecca for tourists who love the various moods of nature.

From this point on to the northerly boundary of the county, there are two other contracts under way for the same type of work, one by G. W. Ellis, and the other by Bartlett & Mathews-Black & Hagey, for a distance of approximately 24.1 miles.

Between Mojave and east via Route 58, under maintenance, we have just completed the placing of a dust palliative for a distance of approximately 30.8 miles. This work was carried on under the direction of Ed Monroe, Foreman.

An armor coat is to be placed on 4 miles of pavement west of Wasco, on the pavement from Oildale Junction to Beardsley Canal north of Bakersfield, Route 4 and on approximately 6 miles of Route 4 at certain locations south of Bakersfield.

Work is also in progress filling deep borrow pits between the south end of the Kern River Bridge north of Bakersfield and the Kern County Fairgrounds.

#### KINGS COUNTY

A day labor allotment of approximately \$13,000 has been approved for widening the roadbed and improving

drainage between Hanford and a point 8 miles east of Route 10. Work will be under way within a short time.

#### LOS ANGELES COUNTY

A line change immediately north of the Newhall Tunnel has been surveyed and plans forwarded to the central office. This change eliminates some very bad curves and it is expected construction will be under way this fall.

Work on paving crescent-shaped areas on the Ridge Route is being done by Gibbons & Reed, Contractors. These areas were left unpaved when alignment on this route was straightened by the state day labor forces. Emulsified asphalt is being used in this work.

Work of grading the Newhall Alternate Line between Tunnel Station and Santa Clara River is being done very rapidly. Le Tourneau and Lindberg are the contractors on this work. It consists of grading a 46-foot roadbed 8.6 miles long and eliminates from this route the Newhall Tunnel and several dangerous curves in the vicinity of Newhall and Saugus. It is expected this work will be completed about December 1st.

A contract on the Foothill Boulevard between Glendora and Claremont is rapidly nearing completion. This consists of 5.5 miles of asphaltic concrete pavement, 30 feet by 6 inches. The Griffith Company is the contractor.

The first contract on the La Canada-Mt. Wilson Highway for grading 2.5 miles of 40-foot roadbed was awarded to H. W. Rohi Company on August 14th. Grading work is in progress.

#### MADERA COUNTY

Work is now under way on the contract between Berenda Crossing and Califa. This contract provides for a 36-foot roadway and a 20-foot x 9-foot Portland cement concrete pavement. This will be on new alignment west of the Southern Pacific Railroad, eliminating the present grade crossing at Berenda, continues north through Califa and thence crosses the Southern Pacific tracks and present highway to the east and swings back to a connection with present road about 7/10 mile north of Califa. The contract includes all but the subway proper, bids for which were opened on July 31st. The completion of this project will eliminate two grade crossings, the one at Berenda and the one on Route 32 at Califa.

#### MARIN COUNTY

With the completion of the road from San Quentin to San Rafael, the 4.9 miles north of San Rafael, and the section in Sonoma County from Santa Rosa to Willow Brook, the Redwood Highway affords a clear highway to Cloverdale for those traveling via San Quentin, but the section of old road from San Rafael to Sausalito, especially over the Corte Madera Grade and through the many small towns still handicaps the tourist traveling via Sausalito. The remaining sections to complete the road from San Rafael to Petaluma are to be advertised for contract very shortly. A new bridge and extensive channel changes are under construction on new alignment at Novato Creek.

Granfield, Farrar & Carlin's contract from San Rafael to Alto, also the connection from Alto to the old road, will materially help to ameliorate this condition; the grading is progressing rapidly and the surfacing is to be advertised in a short time.

In the meantime the California Highway Commission is improving a portion of the old route, resurfacing 0.56 miles of pavement in the town of San Anselmo with asphaltic concrete. The contract was let to A. J. Raisch & Co. of San Francisco.

#### MARIPOSA COUNTY

The Basich contract, covering 6½ miles of grading and rock surfacing on the Yosemite Lateral, was completed on July 30th. Oil-treating of the gravel surface

(Continued on page 22.)

## How California is Developing an Adeq



By W. H. ROCKINGHAM,

ONE OF THE activities of the Division of Architecture of the State Department of Public Works during the past three years, and a most interesting one from the standpoint of plan and the various branches of engineering involved, is the development of the National Guard Training Camp at San Luis Obispo, California.

Prior to the year 1928, the National Guard had been using for encampment purposes, a site at Del Monte.



W. H. ROCKINGHAM.

This site, from the standpoint of delightful location and hospitality of the residents of the vicinity, was very satisfactory, but due to the fact that during the five years just preceding 1927 the National Guard had very rapidly increased in numbers from 3200 men to approximately 5600 men, this site had become too limited in area

training corps, had prevented the National Guard from holding its training periods at times most convenient to units and men. The National Guard, therefore, desired a permanent training camp which would be suitable in area and topography to accommodate it in its full strength and allow for proper training in all its various branches. It was further desired that such a camp should be so geographically located as to best serve all parts of the state and that climatic conditions should be the most desirable.

### THE NEW SITE

With the purpose in view of selecting a suitable site, Brigadier General R. E. Mittelstaedt, The Adjutant General of the State of California, together with his officers of the National Guard and officers of the United States War Department, inspected various possible sites throughout the state and finally decided upon one near San Luis Obispo. All points being considered, the San Luis Obispo site was thought to be the most favorable for the activities of the National Guard encampment. Through the cooperation of prominent citizens of San Luis Obispo, it was made possible for the National Guard to enter into a 25-year lease of the site with an option to purchase. Such a lease was entered into in 1927 and comprised approximately 2000 acres of land. Upon this original lease the camp proper was located. Since 1927, however, additional adjacent land has been acquired

## ate Encampment for the National Guard



Engineer, Division of Architecture

and with mountainous government land which also adjoins to the north, the camp has area sufficient to give wide scope for field training in maneuvering and combat tactics.

The site is situated upon the highly improved state highway, between San Luis Obispo and Morro Bay, approximately four and one-half miles from San Luis Obispo and eight miles from the ocean at Morro Bay. The state highway crosses the site near its southern boundary.

### A GENERAL VIEW

The camp proper is located in the southern portion of the site, entrance to which is made from the highway. Immediately upon entering the camp from the highway, a comparatively level valley is entered, which is approximately 700 feet wide and 2500 feet long. This level area is used as a parade ground and also for an aeroplane landing field. On each side of this valley the terrain rises; on the east side, resulting in a plateau upon which the regimental camps are established; on the west side, continuously rising into hills of considerable height. To the north the terrain rises with hills and ravines and at the northern boundary of the original lease, it rises precipitously into the mountains. The camp proper is at an elevation of approximately 300 feet above sea level.

Within a half mile of the camp, the Southern Pacific Railroad Company has siding facilities, and this, together with the improved

highways connecting with San Luis Obispo, and the coast, makes for great convenience in the handling of supplies and equipment and also in transportation of men during encampment.

### PLANNING THE CAMP

In the spring of 1927, the Division of Architecture was called upon to plan a military camp on the above site. Although the construction proposed immediately was only a small part of the final plans, it was necessary to lay plans for an ultimate camp which would accommodate upward of 5000 men, it being known that in the succeeding years the camp would enlarge to reach such an ultimate capacity. The site as acquired by the National Guard existed merely as a cattle range; therefore, the first engineering necessity was a survey. The survey was made by the division's civil engineering parties which resulted in a topographical map covering an area of approximately 350 acres and showing thereon the topography in 1-foot contours. Upon this map, with the cooperation of Adjutant General Mittelstaedt, a camp with a capacity of five regiments, together with necessary warehouse facilities, recreational facilities, corrals, rifle ranges, etc., was laid out. As above mentioned, four regimental areas were established on the plateau lying to the east of the central level section which is the parade ground and aeroplane landing field. One regimental area lies on slightly

higher ground than the parade ground and to the north thereof. Centrally located between the regimental areas and in a small comparatively level space, branching easterly from the parade ground, are located the headquarters building and recreational facilities. Also in this area are located a large truck shed and regimental warehouse. To the west and in a position commanding a view of the parade ground and of regimental areas, is located the caretakers' cottage and also the officers club building. Between the caretakers' cottage and the officers' club building, a prominence exists whereupon is located the flag pole. This location makes the flag visible from all parts of the encampment.

#### THE FIRST UNIT

In the latter part of 1927, construction was started on the first unit which was known as Regimental Area No. 2, together with the necessary warehouse and corrals. At this time also, the installation of the systems for water supply, sewage disposal system, garbage disposal and horse corrals, was started. This initial construction was completed and the camp occupied in July of 1928 with facilities for accommodating one regiment. During the year of 1928, a second regimental area was developed known as Regimental Area No. 1 adjacent to the original construction. A swimming pool was also installed and Post Exchange, Officers' Club House, Headquarters Building, caretakers' cottage and additional warehouse, which resulted in the camp being open in the summer of this year with a capacity of two regiments. Plans are now going forward for the construction, in part, of still another regiment; therefore, it can be seen that this camp is very rapidly developing.

#### FEDERAL AND PRIVATE FUNDS

The camp is being built by United States War Department appropriations of federal funds. These funds cover all construction except such buildings as the Post Exchange, swimming pool, etc., which have been constructed with funds derived by subscription from the National Guard personnel.

#### DETAIL OF CAMP

In order to convey an idea as to the character and scope of this camp, it may be well to describe in general the various units constructed.

A typical regimental area covers an approximate area of ground 700 feet square. It consists of sixteen kitchen and mess buildings, one for officers and fifteen for enlisted men; four lavatory buildings, one for officers and

three for enlisted men; two hundred and seventy tents, sixty for officers and two hundred and ten for enlisted men; and one infirmary. Aside from the above area, each regiment requires its regimental warehouse.

The kitchen and mess buildings as well as lavatory buildings, are of permanent frame construction with asphalt felt shingle roofing and concrete floors. These buildings are equipped with the most modern sanitary fixtures and piping. All buildings are completely wired for electricity with modern illumination. The kitchen in each case is equipped with a coal or wood burning range with a water back and hot water storage tank. The lavatory buildings are equipped with showers, wash basins, and other sanitary fixtures and hot water is developed in these buildings by means of a wood or coal fired boiler with a large size hot water storage tank, assuring every facility for the comfort of the men. The tents are of canvas or duck, and are erected each year upon wooden platforms built for the purpose. At the end of each encampment period, these tents and platforms are taken down and stored for use in the ensuing year.

Each regiment is laid out with the enlisted men's kitchen and mess buildings in a row facing an area 100 feet wide. On the opposite side of this area is located the officers' line of tents with the officers' kitchen and mess building and lavatory building at one end thereof. To the rear of the enlisted men's kitchen and mess buildings, are located the lines of enlisted men's tents, each line of tents representing accommodations for one company. These lines of tents face on the company streets which give access to the company's kitchen and mess building above mentioned. Lavatories are located on the opposite side of the enlisted men's tent areas from the kitchen and mess buildings. Each regimental area has its system of electrical distribution controlled from a switchboard located at the corner of the regimental area. All tents are provided with electric outlets. All regimental areas and streets are lighted by means of suitable fixtures installed upon the permanent poles carrying the distribution circuits the approximate connected electrical load of each regiment being 50 kilowatts.

The post exchange and the swimming pool have already been constructed as a part of the recreational facilities. These features are centrally located, the post exchange catering to the requirements of the men in the matter of selling confections, tobacco, etc. The swimming pool is a concrete structure 50 feet wide by 100 feet long, and is fully equipped with chlorinating, recirculating and filtering equipment.

#### WATER SUPPLY, SEWAGE, GARBAGE

The considerations relative to water supply, sewage disposal and garbage disposal, were quite extensive and interesting. The water supply is obtained from a live stream known as Chorro Creek, running through the camp site. The water from this stream is clear and palatable and from investigations the amount to be obtained is satisfactory for caring for the camp at its ultimate capacity. The water supply is obtained by pumping from this stream by means of two centrifugal pumps, 300 gallons and 500 gallons per

minute, respectively. These pumps deliver water into a reservoir. The reservoir is formed by a cut and fill and is lined on the inner side with gunite on mesh reinforcement. Its capacity is approximately two and one-half million gallons. The water is led from the reservoir to the encampment and distributed to all units of the camp by means of welded steel pipe ranging from 10 inches in diameter at the reservoir to 4 inches in diameter at the extreme points of the system. Local connections are made from this water distribution system for the various services, with pipes of varying smaller sizes.

Aside from piping within the buildings, there is in the neighborhood of six miles of piping installed in the distribution system. Although the water from Chorro Creek is cool and clear during the summer months as its source is in the high mountains lying to the north of the camp, the water supply is safeguarded by the installation of chlorinating equipment, thus rendering an absolutely safe domestic supply for the camp.

Due to the character of the terrain on which the camp is constructed, the matter of sewage disposal was quite a problem. With the cooperation of Mr. Gillespie, Chief of the Bureau of Sanitary Engineering, of the State Department of Health, a system was planned which has worked out satisfactorily. The collecting system of sewers is composed of about four miles of vitrified sewer pipe 8 inches and 6 inches in diameter. This system delivers sewage to the Imhoff tank where it is clarified and the effluent collected in an adjacent sump. By means of an electrically driven pump, the effluent is forced through approximately 4700 feet of 6-inch diameter welded steel line to the storage reservoir of a neighboring farmer. The Imhoff tank is constructed of concrete and is approximately 50 feet long, 16 feet wide and 22 feet deep. Adjacent to the Imhoff tank is a sludge drying bed for handling the sludge for digestion in the Imhoff tank.

Garbage, which in a camp of this size accumulates in large quantities, is disposed of in an incinerator constructed for that purpose. The incinerator is located several thousand feet from the camp proper and is of masonry construction and fired by oil with a mechanical burner.

#### ROAD WORK

In the development of the plot plan of the camp, the Division of Architecture indicated the locations of necessary roads to give the most direct communication between the units of the camp. The actual work, however, of surveying and drawing up the specifications for these roads was handled by the Division of Highways of the State Department of Public Works through their Division Office at San Luis Obispo. The system of roads installed at the camp is such as to give the utmost ease and efficiency in movement between the various units of the camp.

To the north of the camp proper and located with the mountains as a background, there have been installed two rifle ranges, one of 200 yards and the other 300 yards range. The target pits for these ranges are of concrete construction. The target pits for both ranges are connected by a passage. There are 14 6-foot by 6-foot sliding targets on 12-foot spacing for each range. A permanent system of signal wiring has been installed between positions on the firing line and target pits. This wiring is installed by means of leaded conductors in underground conduit.

#### A REAL MILITARY ESTABLISHMENT

The electric service to the camp was installed by the Midland Counties Public Service Corporation.

This company installed their lines throughout the camp, following the principal streets and upon their poles suitable fixtures were installed to give very satisfactory general illumination of the streets. The power company's service lines carry 10,000 volts and transformers have been installed to reduce this voltage to 110 and 220 volts for use in the various units of the camp.

The description herein has merely touched on some of the major features of this camp. A vast amount of work has been done in preparing the ground for the various purposes such as the planting of the parade field and the grading and planting of grounds surrounding the various buildings, which makes the camp even at this stage of partial completion, a real military establishment, functioning properly in every respect and the object of favorable comment from persons of high standing in military life.

The Division of Architecture has been working on the development of this camp for three years, and during this period there has been a maximum of cooperation by the Adjutant General and members of his staff. It is anticipated that the future will bring continued additions to the camp until it reaches a capacity to accommodate the full force of the National Guard.

## THE NEW DIVISION OF WATER RESOURCES

(Continued from page 3.)

The history of the development of this division is of interest. The Department of Engineering, headed by the State Engineer, was established in 1907 and at that time embraced practically all of the engineering activities of the state government, including highway construction and the San Francisco Harbor. At this time there was no active state supervision of irrigation districts nor was there state highway work of consequence. In 1910, the first highway bond issue was passed and the Highway Commission established, and later the San Francisco Harbor was put entirely under the direction of the harbor board. Irrigation district activities increased at a very rapid rate from 1913 on and became the principal work of the State Engineer for some years. In 1921 the Department of Public Works was created and the former Department of Engineering was made the Division of Engineering and Irrigation under the Department of Public Works and has remained in this status until the 1929 consolidation.

In 1914, the State Water Commission was created to have charge of the administration of water rights in California, the Commission consisting of three members. In 1919, the Commission was changed to consist of one executive member and two per diem members, and in 1921 this also came under the new Department of Public Works as the Division of Water Rights.

MINNESOTA—Every horse-drawn vehicle using public highways at night must now carry a red or yellow rear lamp or reflector.

## PROGRESS REPORTS FROM THE COUNTIES

(Continued from page 17.)

is under way under day labor and will be completed about August 7th.

Oil mixing of surface between Mariposa and El Portal on the Yosemite Lateral is in progress and will be completed in about one month.

### MENDOCINO COUNTY

The contract for grading several line changes and building three timber bridges on the road from McDonald to the Sea, was let to W. C. Colley of Berkeley. The work is well under way, piles having been driven for the timber bridges at Flynn Creek and at the North Fork of the Navarro River, and it is expected that the work will be completed before the winter rains start.

In order to continue the construction of this road to modern standards, the work has been programmed by stages, to do as much work each biennium as funds will allow, scattering the work so as to eliminate the worst stretches as soon as possible, with the hope that in the next few years the complete road can be resurfaced and surfaced.

State forces are widening and straightening the roadway between the sidehill viaduct about 4 miles north of Lane's Redwood Flat, and Red Mountain Creek. When this portion of narrow road along the steep bluffs of the South Fork of Eel River is completed, the last very narrow section of the Redwood Highway will have been eliminated. The road is being graded to a 24-foot standard roadway width and surfaced with 8 inches of crushed rock surfacing.

### MONO COUNTY

At Hilton Creek, 1.57 miles grading by D. C. Follis, is nearing completion.

Between McGee Creek and Convict Creek, 3 miles grading, crushed rock base, oiled surface course, by Montfort & Armstrong. Work recently commenced. At Leevining Creek, Route 23, Tioga Junction, 2.18 miles grading, oiled macadam surface. Contract recently awarded to C. Miles, who is establishing his camp.

There is also under way a day labor job, 3 miles, grading and surfacing of a portion of Route 23, in the vicinity of Walker River Canyon, near Coleville, nearing completion. This work is under the supervision of Paul Peak, Foreman.

A dust palliative extending from the summit of Sherwin Hill to Mono Lake, a distance of approximately 54.3 miles will do a great deal to make the travel pleasurable on this stretch, until a more permanent type of pavement can be placed. This work has been carried out by maintenance funds under the direction of Dwight Wonacott, Foreman.

Two log bridges on the Sonora Pass Road, have just been completed and are now open to traffic. The bridges were constructed under the direction of Frank L. Smith, Bridge Superintendent. These are the last of the eight structures eliminating the fording of crossings which have caused the traveling public great inconvenience in the past, on account of the high water caused by the melting snow in the early spring.

### NAPA COUNTY

Bids for the construction of oil-treated crushed rock shoulders between Napa and Greenwood Corners were recently opened, the low bidder being Smith Bros. Co. of Eureka. Contract will probably be awarded immediately.

Bids were opened August 7th for widening the roadbed and constructing a bituminous macadam surface on the section from Greenwood Corner to Solano County line. This improvement will include a line change that will eliminate two existing right angle turns, will materially improve the grade, and will shorten the distance about  $\frac{1}{2}$  mile.

### THE SKYLINE BOULEVARD

Twohy Bros. & J. P. Shea's contract on the section from La Honda road to Saratoga Gap is complete except watering and rolling the surface and some extra work on slide control.

A contract has been let to Tieslau Bros. to furnish 4199 cubic yards of screenings in stockpiles, the state forces to place same and oil to obtain an armor coat, when the road can be opened to the public. This should be completed by about the middle of September.

### ORANGE COUNTY

The contract for a line change 0.7 of a mile in length between Serra and San Juan Capistrano was awarded to Match Bros. on August 13th. This work consists of a 46-foot graded roadbed with Portland cement concrete pavement, 20 feet by 7 inches. Grading is in progress on this section.

A contract for a line change to connect up the overhead crossing of the A. T. & S. F. Railway at Irvine is in progress. This consists of grading 0.7 of a mile and paving with Portland cement concrete, 30 feet wide.

A contract for paving one-half width between Santa Ana and Anaheim was awarded on June 11th to Griffith Company. This section is 4.9 miles long. The paving work is being done in cooperation with Orange County, the state paying for a strip of pavement 28 feet by 7 inches and the county paying for a like amount.

### SAN DIEGO COUNTY

Plans have been completed for rock borders on the coast route between the city limits of San Diego and Oceanside. Bids were opened on August 21st, the low bidder being the R. E. Hazard Contracting Company of San Diego.

A contract for grading the Rose Canyon Road between Balboa Avenue and Torrey Pines Road was awarded on August 13th to the R. E. Hazard Contracting Company. This section is 5.4 miles long and is to be a 46-foot graded roadbed.

A contract for grading a 36-foot roadbed from Viejas Creek to Guatay Creek on the San Diego-El Centro Highway was recently completed by the Hauser Construction Company. This section is 7.2 miles long.

The construction of 3.9 miles of graded roadbed 36 feet wide has recently been completed by the Nevada Contracting Company, from Pine Valley to Guatay Creek on the San Diego-El Centro Highway.

The contract for grading a roadbed 36 feet wide and placing of Portland cement concrete pavement 20 feet by 7 inches is in progress between Pine Valley and Kitchen Creek on the San Diego-El Centro Highway. Basich Bros. are the contractors.

A contract for 4.5 miles of 33-foot graded roadbed between La Posta Creek and Miller Creek on the San Diego-El Centro Highway was awarded on May 27th to the Nevada Contracting Company. Grading is in progress on this section.

A contract for grading 3.9 miles of 36-foot roadbed from Kitchen Creek to La Posta and paving with 20 feet by 7 inches, Portland cement concrete, was awarded on June 25th to Basich Bros. Grading is now in progress. This section is on the San Diego-El Centro Highway.

### SONOMA COUNTY

The 11.44 miles of second-story Portland cement concrete pavement 20 feet wide between Santa Rosa and Willow Brook is completed. It is an excellent job reflecting credit on all of those concerned and is receiving much praise from both local people and the traveling public.

The resurfacing of the Black Point Cutoff between Fairville and Vineburg Junction is progressing nicely, all grading and crusher run base being completed and much surface laid and oiled. Extension of culverts will be completed about the same time as the surfacing and traffic ought to have possession of the road in a few weeks.

## TULARE COUNTY

Bids were opened Wednesday, July 31st, for a 12-mile improvement in Tulare County between Delano and Pixley. The low bidder was Valley Paving & Construction Company. The improvement consists of resurfacing with asphaltic concrete 20 feet in width, the present 15-foot base, which is in very poor condition and grading a roadbed 35 feet wide. All curves around railroad reservations will be increased in radius to conform with present standards.

## VENTURA COUNTY

The last link of the new Roosevelt Highway connecting Santa Monica with Oxnard was completed by Jahn & Bressi Contractors on August 15th. This work was delayed by heavy slides at various places. This completed the pavement 20 feet wide by 7 inches thick of Portland cement concrete between these two cities.

## CONTRACTS ACCEPTED

Contract for grading 7.2 miles between Viegas Creek and Guatay Creek in San Diego County on the San Diego-El Centro highway, approximate cost, \$279,000, Hauser Construction Company of Oakland, contractor; accepted July 30, 1929.

Contract for grading and paving with Portland cement concrete 3.3 miles between Pismo and Arroyo Grande in San Luis Obispo County; approximate cost, \$139,000. Cornwall Construction Company of Santa Barbara, contractor; acceptance date, July 30, 1929.

Contract for grading and surfacing with crushed gravel a section of the Yosemite Highway in Mariposa County has been accepted as completed. The section improved under this contract is 6.3 miles in length and extends from the westerly boundary of Mariposa County to Orange Hill. The cost of the work was approximately \$200,000. Basich Bros. Construction Company of Los Angeles, contractor; acceptance date, August 6, 1929.

Contract in Santa Barbara County covering grading and surfacing with asphaltic concrete between Stony Creek and Tecolote Creek, 3.4 miles, on Coast Route, at an approximate cost of \$122,900; Sam Hunter of Santa Barbara, contractor; acceptance date, August 9, 1929.

Contract for grading and surfacing with oil-treated crushed gravel or stone between Roseville and Rocklin, Placer County, 2.9 miles, approximate cost, \$55,100; J. E. Johnston of Stockton was the contractor; acceptance date, August 19, 1929.

Contract for grading and surfacing with screened gravel between Bieber and Adin, Lassen County, 12.5 miles; approximate cost, \$124,000; Coolidge and Scott were the contractors; acceptance date, August 19, 1929.

Contract covering grading and paving with Portland cement concrete about 11.6 miles between Hueneme Road and Little Sycamore Creek on Rt. 60 (Oxnard-Santa Monica Highway), in Ventura County, at an approximate cost of \$625,000; Jahn and Bressi Construction Company of Los Angeles, contractor; acceptance date August 25, 1929.

Contract covering surfacing with pit run gravel between Logandale and Willows, Glenn County, covering 5 miles and costing approximately \$33,600; E. C. Coats, Sacramento, contractor.

## Record of Bids and Awards

BID OPENINGS FROM  
JULY 24, TO AUGUST 31

**DEL NORTE COUNTY**—Between Elk Valley and Smith River, 3.8 miles to be surfaced with bituminous macadam. Dist. I, Rt. 1, Sec. C. J. E. Johnston, Stockton, \$16,780; Healy-Moore Co., Oakland, \$19,212; Smith Bros. Co., Eureka, \$16,650; Holdener Const. Co., Sacramento, \$20,521. Contract awarded to J. C. Compton, McMinnville, Oregon, \$12,186.

**EL DORADO COUNTY**—Bridge across Tallac Creek about 8 miles north of Meyers. Dist. III, Rt. 38, Sec. A. R. B. McKenzie, Red Bluff, \$9,999. Contract awarded to Lord and Bishop, Oroville, \$8,848.50.

**GLENN COUNTY**—Between one-half mile west of Butte City and Chico Road, 3.5 miles to be graded and treated with fuel oil. Dist. III, Rt. 45, Secs. B & C. J. E. Johnston, Stockton, \$8,083; Albert G. Ralsh, San Francisco, \$6,166. Contract awarded to Hemstreet & Bell, Marysville, \$5,652.50.

**HUMBOLDT COUNTY**—Between one mile south of Orick and northerly county boundary, 14.9 miles to be surfaced with bituminous macadam. Dist. I, Rt. 1, Sec. K. J. E. Johnston, Stockton, \$67,105; Smith Bros. Co., Eureka, \$63,058. Contract awarded to Healy-Moore, Oakland, \$62,445.

**HUMBOLDT COUNTY**—Between Mill Creek and Trinidad, 10.6 miles to be surfaced with bituminous macadam. Dist. I, Rt. 1, Sec. I. Smith Bros. Co., Eureka, \$45,173; J. E. Johnston, Stockton, \$46,632; Mercer-Fraser Co., Eureka, \$53,667. Contract awarded to Healy-Moore Co., Oakland, \$38,564.50.

**INYO COUNTY**—Between southern boundary and Little Lake, 9.3 miles to be graded and surfaced with oil-treated crushed gravel or stone. Dist. IX, Rt. 23, Sec. G. A. D. Drumm, Jr., Fallon, Nevada, \$124,492; G. W. Ellis, Los Angeles, \$142,805; Southwest Paving Co., Los Angeles, \$135,336. Contract awarded to Fred W. Nighbert, Bakersfield, \$111,920.10.

**LOS ANGELES COUNTY**—Between La Canada and 2½ miles northerly, 2.6 miles to be graded. Dist. VII, Rt. 61, Sec. A. Dimmitt & Taylor, Los Angeles, \$210,322; J. P. Holland, San Francisco, \$274,021; J. G. Donovan, Los Angeles, \$247,361; Guy F. Atkinson, San Francisco, \$277,893; Geo. Mitchell Co., Huntington Park, \$323,296; Herbert M. Baruch, Los Angeles, \$350,049; Francisco & Ellington, Inc., Los Angeles, \$318,629; Isbell Construction Co., Fresno, \$298,561; George Pollock, Sacramento, \$270,842; Nevada Contracting Co., Fallon, Nevada, \$317,097; Crook & Henne, Los Angeles, \$384,211; Campbell-Reichert Co., Alhambra, \$284,492; Eltinge T. Brown, Los Angeles, \$303,414; C. G. Willis & Son, Los Angeles, \$288,903; Edson J. Davis, Venice, \$397,087. Contract awarded to H. W. Rohl Co., Los Angeles, \$244,532.40.

**MADERA COUNTY**—Near Califa, subway crossing under S. P. tracks; consisting of 2 concrete abutments with wing walls, grading 280-foot approaches with Portland cement concrete. Dist. VI, Rt. 4, Sec. C. Fredrickson & Watson Const. Co., Oakland, \$34,951; Healy & Tibbetts Const. Co., San Francisco, \$38,857; Ward Engineering Co., San Francisco, \$46,346; H. C. Whitty, Sanger, \$34,429; A. J. Grier, Oakland, \$38,992; C. Dudley Velbiss, Oakland, \$34,559; Robert Heaney, Hayward, \$28,237; The Adams Co., Angels Camp, \$39,564; Noble & Clark, Visalia, \$35,280; MacDonald & Kahn, Inc., San Francisco, \$41,348. Contract awarded to Otto Parlier, Tulare, \$21,463.20.

**MONO COUNTY**—Between Mattly Ranch and Leeving, 2.3 miles to be graded and surfaced with crusher run base, bituminous surfaced treated. Dist. IX, Rt. 23, Secs. G & H. Contract awarded to C. Miles, Sacramento, \$54,567. (Only one bid submitted.)

**NAPA COUNTY**—Between Napa and Greenwood Corner, 5.3 miles to be widened with oil-treated rock borders. Dist. IV, Rt. 8, Sec. B. A. Teichert & Son, Sacramento, \$15,962; L. C. Seidel, Oakland, \$15,052. Contract awarded to Smith Bros. Co., Eureka, \$14,772.50.

**NAPA COUNTY**—Between Napa Wye and Solano County line, 3.1 miles to be graded and surfaced with bituminous macadam. Dist. IV, Rt. 8, Sec. B. Theslau Bros., Berkeley, \$82,227; Hemstreet & Bell, Marysville, \$80,581; M. J. Vevanda, Stockton, \$73,533; J. E. Johnston, Stockton, \$76,452. Contract awarded to Fredrickson & Watson, Oakland, \$69,004.60.

**NEVADA AND PLACER COUNTIES**—Between Soda Springs and Donner Lake, 6.9 miles of bituminous surface treatment. Dist. III, Rt. 37, Secs. B, G & C. L. C. Seidel, Oakland, \$19,846. Contract awarded to Meyer Rosenberg, San Francisco, \$18,583.50.

**ORANGE COUNTY**—Between Serra and San Juan Capistrano, 0.7 of a mile to be graded and paved with Portland cement concrete. Steele Finley, Santa Ana, \$35,755; Geo. Mitchell Co., Huntington Park, \$40,823; Gruce Bros., Inc., Long Beach, \$39,170; Wells & Bressler Co., Santa Ana, \$42,214; McCray Co., Los Angeles, \$40,123; C. R. Butterfield, San Pedro, \$34,863; Basich Bros. Const. Co., Los Angeles, \$34,744; C. G. Willis & Son, Los Angeles, \$36,820. Contract awarded to Match Bros., Elsinore, \$31,751.

**PLACER, YUBA, YOLO AND COLUSA COUNTIES**—Pla. Co., between Roseville and one-half mile N. Andora Subway, 1.4 Mi.; Yuba Co., between Dry Cr. & Morrison's Crossing, 1.5 Mi.; Yolo Co., between Bretana & Dunnigan, 5.5 Mi.; Colusa Co., between Geneva (Berlin) & 2.6 Mi. N., 2.6 Mi.; total 11.3 miles to be surfaced with bituminous macadam and widened with untreated and oil-treated crushed gravel or stone. Dist. III, Rts. 3 & 7, Secs. A, C & B. C. W. Wood, Stockton, \$62,712; U. E. Lee, San Leandro, \$69,966. Contract awarded to J. E. Johnston, Stockton, \$58,700.

**SAN BENITO AND MONTEREY COUNTIES**—From 7 miles north of Salinas to San Juan, 2.4 miles to be surfaced with bituminous macadam. Dist. V, Rt. 2, Sec. A. Granite Const. Co., Watsonville, \$12,450. Contract awarded to W. A. Dontanville, Salinas, \$9,909.

**SAN BERNARDINO COUNTY**—Between Barstow and 1 mile east of Yermo, 13 miles to be graded and surfaced with oil-treated crushed gravel or stone. Dist. VIII, Rt. 31, Secs. G & H. A. D. Drumm, Jr., Fallon, Nevada, \$179,057; Isbell Const. Co., Fresno, \$201,424; S. J. Hales, Santa Ana, \$176,405; Dillon & Boles, Los Angeles, \$206,584; Edison J. Davis, Venice, \$176,832. Contract awarded to George Herz & Co., San Bernardino, \$169,695.85.

**SAN DIEGO COUNTY**—Between Balboa Ave. and Torrey Pines Road, 5.4 miles to be graded. Dist. VII, Rt. 2, Sec. E. De Waard & Son, San Diego, \$110,564; Ignace P. Lipp, Hollywood, \$154,851; McWilliams and Ritchey, Los Angeles, \$151,198; Yglesias Bros., Inc., San Diego, \$123,786; Crook & Henna, Los Angeles, \$142,331; Campbell-Reichert, Alhambra, \$134,613; J. D. Harms, Los Angeles, \$115,061; E. L. Gates, Sacramento, \$161,729; Geo. Pollock, Sacramento, \$131,093; Lewis Const. Co., Los Angeles, \$112,953; W. T. Malcom, Walnut Creek, \$130,937; South Coast Land Co., Los Angeles, \$199,745; Geo. Mitchell Co., Huntington Park, \$166,884; Wells & Bressler, Santa Ana, \$175,025; Triangle Rock and Gravel, San Bernardino, \$127,140; McCray Co., Los Angeles, \$124,502; J. G. Donovan & Son, Los Angeles, \$128,876; Jahn & Bressi, Los Angeles, \$116,783; Watson & Sutton, San Diego, \$113,009; Dimmitt & Taylor, Los Angeles, \$155,270; C. R. Butterfield, San Pedro, \$140,141; Nelson & Sloan, Chula Vista, \$145,762; Isbell Const. Co., Fresno, \$131,721; C. G. Willis & Son, Inc., Los Angeles, \$111,620. Contract awarded to R. E. Hazard Contracting Co., San Diego, \$106,830.80.

**SAN DIEGO COUNTY**—Between Miller Creek and Tecate Divide, 3.9 miles to be graded. Dist. VII, Rt. 12, Sec. F. International Transfer & Warehouse Co., Calexico, \$94,627; Mathews Const. Co., Sacramento, \$112,488; Watson & Sutton, San Diego, \$112,067; C. G. Willis & Sons, Inc., Los Angeles, \$86,827; J. G. Donovan & Son, Los Angeles, \$125,631; C. R. Butterfield, San Pedro, \$88,295; Isbell Const. Co., Fresno, \$92,358; Nevada Contracting Co., Fallon, Nevada, \$88,371. Contract awarded to Monarch & Breen, Portland, \$73,897.20.

**SAN DIEGO COUNTY**—Reinforced concrete girder bridge across Rose Canyon in San Diego near Balboa Ave. Dist. VII, Rt. 2, Sec. E. Barclay & Schaniel, San Diego, \$32,560; Dawson and Johnston, San Diego, \$35,458; McWilliams and Ritchey, Los Angeles, \$37,896; Greene Construction Co., Los Angeles, \$34,896; John Simpson & Co., Los Angeles, \$44,458; Geo. Mitchell Co., Huntington Park, \$39,100; Oberg Bros., Los Angeles, \$33,562; R. R. Bishop, Long Beach, \$31,879; A. R. and C. O. Bodenhamer, Hemet, \$41,607. Contract awarded to De Waard & Son, San Diego, \$30,515.

**SAN JOAQUIN COUNTY**—Between 2.5 miles north of Turner Station and Mariposa Road, 1.1 miles to be graded and surfaced with untreated crushed gravel or stone. Dist. X, Rt. 4, Sec. E. J. R. Reeves, Sacramento, \$31,445.50; Gannon & McCarty, Stockton, \$35,090; M. J. Bevanda, Stockton, \$33,527. Contract awarded to Lily, Willard & Biasotti, Stockton, \$30,428.

**SAN MATEO, SANTA CLARA AND SANTA CRUZ COUNTIES**—Between La Honda and Saratoga Gap, 13.8 miles to be stockpiled with crushed gravel or stone. Dist. IV, Rt. 55, Secs. D, E & A. Teichert & Son, Sacramento, \$19,270. Contract awarded to Tleslau Bros., Berkeley, \$18,245.

**SANTA BARBARA COUNTY**—Between Los Alamos and 6½ miles north, constructing at different locations, 2.4 miles of bituminous macadam surface. Dist. V, Rt. 2, Sec. R. Sam Hunter, Santa Barbara, \$11,599. Contract awarded to M. J. Bevanda, Stockton, \$11,551.

**TULARE COUNTY**—Between southerly boundary and Pixley, 12.2 miles to be graded and paved with asphaltic concrete. Dist. VI, Rt. 4, Sec. A. Force, Currihan & McLeod, Oakland, \$312,672; Steele Finley, Santa Ana, \$308,725; Hanrahan Co., San Francisco, \$322,912; A. Teichert & Son, Sacramento, \$323,908; Western Roads Co., Oakland, \$327,957; Gibbons & Reed Co., Burbank, \$339,530; R. E. Hazard Co., San Diego, \$308,735; Chas. U. Hauser, Glendale, \$322,266; George R. Curtis, Los Angeles, \$320,303; Union Paving Co., San Francisco, \$289,624. Contract awarded to Valley Paving Co., Visalia, \$287,674.

## AWARD OF CONTRACTS DIVISION OF ARCHITECTURE

**STOCKTON ARMORY**—Sorensen and Hagmark of San Francisco—For general work on additional buildings for the Stockton State Armory. Contract price, \$21,300.

P. C. Brandt of Stockton—For plumbing on above buildings. Contract price, \$2,323.

**STATE AGRICULTURAL PARK, Sacramento**—Campbell Construction Company—Main entrance gate to the State Fair Grounds. Contract price, \$1,550.

**PATTON STATE HOSPITAL**—Orvial Schupbach of Riverside—For general work on a unit for tubercular males. Contract price, \$35,663.

Harry M. Rouse, Riverside—For electrical work in the kitchen and bakery building. Contract price, \$4,476.

Security Construction Company of Riverside—For general work for the kitchen and bakery building. Contract price, \$79,950.

F. B. Jones, Pasadena—For heating and plumbing work on unit for tubercular males. Contract price, \$5,284.

**PRESTON SCHOOL OF INDUSTRY**—Collins Electrical Company of Stockton—For electrical work on Refectory Buildings. Contract price, \$2,581.

**WHITTIER STATE SCHOOL**—Saunders Brothers, Whittier—For installation of water pipe line and pump. Contract price, \$11,452.

**PICO MANSION** (near Whittier, Los Angeles County)—T. R. Hyatt of Alhambra—For construction of caretaker's cottage. Contract price, \$1,560.

**STATE CAPITOL BUILDING**—Schraeder Iron Works—For structural steel alterations. Contract price, \$2,235.

## WATER PERMITS AND APPLICATIONS

Applications for Permit to Appropriate Water Filed with the State Department of Public Works, Division of Water Resources, During August, 1929.

Application 6300, INYO COUNTY—C. H. Devenso and Edward Schober, Bishop, for .33 c.f.s. from unnamed spring tributary to no stream to be diverted in Sec. 10, T. 21 S., R. 39 E., M. D. M. for domestic and agricultural purposes on 40 acres.

Application 6391, HUMBOLDT COUNTY—Thos. H. Selva, Eureka, for .01 c.f.s. from unnamed spring tributary to Mattole River to be diverted in Sec. 30, T. 2 S., R. 1 W., H. M., for irrigation and domestic purposes on 8 acres. Estimated cost \$300.

Application 6392, HUMBOLDT COUNTY—P. M. Schmoek, Scotia, for .017 c.f.s. from Eel River to be

diverted in Sec. 31, T. 2 N., R. 1 E., H. M., for irrigation purposes on 1.51 acres. Estimated cost \$400.

Application 6393, STANISLAUS COUNTY—Lloyd B. and Elizabeth M. Crow, San Francisco, for 7.5 c.f.s. from San Joaquin River to be diverted in Sec. 17, T. 6 S., R. 9 E., M. D. M., for irrigation purposes on 480 acres. Estimated cost \$600.

Application 6394, LASSEN COUNTY—Richard Talbot, Portland, Oregon, for 20,000 acre feet from Deep Cut Creek tributary to Secret Creek to be diverted in Sec. 19, T. 31 N., R. 16 E., M. D. M., and Sec. 24, T. 31 N., R. 15 E., M. D. M., for irrigation and domestic purposes on 8000 acres.

Application 6395, SIERRA COUNTY—Belle C. Brown and Wm. S. Brown, La Porte, for 65 c.f.s. from Whisky Creek and an unnamed ravine tributary to Slate Creek and North Fork Yuba River to be diverted in Sec. 16, T. 22 N., R. 10 E., M. D. M., for mining purposes. Estimated cost \$2,000.

Application 6396, SIERRA COUNTY—Belle C. Brown and Wm. S. Brown, La Porte, for 25 c.f.s. from North Branch of Slate Creek tributary to Slate Creek and North Fork Yuba River to be diverted in Sec. 21, T. 22 N., R. 10 E., M. D. M., for mining purposes. Estimated cost \$1,000.

Application 6397, SAN JOAQUIN COUNTY—W. H. McFall, Manteca, for 1.47 c.f.s. from Lone Tree Creek tributary to San Joaquin River to be diverted in Sec. 14, T. 1 S., R. 7 E., M. D. M., for irrigation purposes on 117.45 acres. Estimated cost \$1,000.

Application 6398, LASSEN COUNTY—Antone Avilla, Adin, for 33 ac. ft. from Quaking Asp Gulch tributary to Pit River to be diverted in Sec. 7, T. 36 N., R. 10 E., for stock watering purposes. Estimated cost \$200.

Application 6399, VENTURA COUNTY—Senior Canyon Mutual Water Co., Inc., Ojai, for 1 c.f.s. from a tunnel tributary to Senior Canyon to be diverted in Sec. 21, T. 5 N., R. 22 W., S. B. M., for domestic and irrigation purposes on 160 acres. Estimated cost \$65,000.

Application 6400, RIVERSIDE COUNTY—O. P. Sanders, Riverside, for .25 c.f.s. from unnamed spring tributary to no stream to be diverted in Sec. 8, T. 4 S., R. 2 E., S. B. M., for domestic and irrigation purposes on 20 acres. Estimated cost \$750.

Application 6401, CALAVERAS COUNTY—Ralph G. Houston and Raymond W. Miller, trustees for district to be formed, Linden, for 150 c.f.s. and 100,000 ac. ft. from Calaveras River tributary to San Joaquin River to be diverted in Sec. 31, T. 4 N., R. 11 E., M. D. M., for irrigation and domestic purposes on 12,000 acres.

Application 6402, SAN BERNARDINO COUNTY—T. E. Hunt, 322 S. Vendome St., Los Angeles, for 10 c.f.s. from Arrastre Creek and Baldwin Lake to be diverted in Sec. 22, T. 3 N., R. 2 E., S. B. M., for irrigation and domestic purposes on 800 acres. Estimated cost \$90,000.

Application 6403, EL DORADO COUNTY—Lora J. Knight, Santa Barbara, for 1 c.f.s. from unnamed spring tributary to Lake Tahoe to be diverted in Sec. 21, T. 13 N., R. 17 E., M. D. M., for irrigation and domestic purposes on 40 acres. Estimated cost \$2,000.

Application 6404, EL DORADO COUNTY—Geo. Cunningham, Lotus, for 2½ c.f.s. from South Fork American River to be diverted in Sec. 18, T. 11 N., R. 10 E., M. D. M., for mining purposes. Estimated cost \$1,200.

Application 6405, SAN BERNARDINO COUNTY—J. E. Honck, Box 47, Sky Forest, for .25 c.f.s. from 2 springs tributary to Hook Creek and Deep Creek

to be diverted in Sec. 26, T. 2 N., R. 2 W., S. R. M., for domestic purposes. Estimated cost \$2,500.

Application 6406, RIVERSIDE COUNTY—Metropolitan Water District of Southern California, Los Angeles, for 3000 c.f.s. from Colorado River to be diverted in Sec. 14, T. 3 S., R. 23 E., S. B. M., for municipal purposes for cities and inhabitants of said district.

Application 6407, SISKIYOU COUNTY—Fred J. Blakeley, Portland, Oregon, for 25 c.f.s. and 2000 ac. ft. from Elliott Creek tributary to Applegate River to be diverted in Sec. 21, T. 48 N., R. 10 W., M. D. M., for irrigation, domestic and industrial purposes. Estimated cost \$50,000.

Application 6408, SIERRA COUNTY—L. E. Grainger, Nevada City, for 3 c.f.s. from Kimberland Ravine tributary to Kanaka Creek and Middle Yuba River to be diverted in Sec. 8, T. 18 N., R. 10 E., M. D. M., for power purposes. Estimated cost \$500.

Application 6409, SISKIYOU COUNTY—Telluric Mines and Power Co., Seattle, Wash., for 6 c.f.s. from Knownothing Creek to be diverted in Sec. 1, T. 9 N., R. 7 E., H. M., for power purposes. 205 h.p. to be developed. Estimated cost \$72,000.

Application 6410, EL DORADO COUNTY—Emil E. Larson, Placerville, for .5 c.f.s. from South Fork Brush Canyon tributary to South Fork American River to be diverted in Sec. 4, T. 19 N., R. 12 E., M. D. M., for irrigation and domestic purposes on 60 acres.

Application 6411, SIERRA COUNTY—Standard Mining Co., Downieville, for 2.50 c.f.s. from Sailor Ravine tributary to North Fork Yuba River to be diverted in Sec. 22, T. 20 N., R. 10 E., M. D. M., for power purposes. Estimated cost \$2,000.

Application 6412, YUBA COUNTY—Maurice E. Lawton, Strawberry Valley, for .05 c.f.s. from Sticker Spring tributary to Sly Creek to be diverted in Sec. 20, T. 20 N., R. 8 E., M. D. M., for operation of hydraulic ram. Estimated cost \$600.

Application 6413, LASSEN COUNTY—Antonio Saralegui, Reno, Nevada, for 10,000 ac. ft. from Long Valley Creek to be diverted in Sec. 10, T. 23 N., R. 17 E., M. D. M., for irrigation purposes. Estimated cost \$25,000.

Application 6414, EL DORADO COUNTY—Raymond A. Young, Sacramento, for 200 g.p.d. from unnamed spring tributary to Bryant Creek to be diverted in Sec. 15, T. 11 N., R. 17 E., M. D. M., for domestic purposes. Estimated cost \$25.

Application 6415, SIERRA COUNTY—James W. Flannery, San Francisco, for 150 c.f.s. from Canyon Creek tributary to North Fork Yuba River to be diverted in Sec. 10, T. 21 N., R. 10 E., M. D. M., for mining purposes. Estimated cost \$125,000.

Application 6416, SISKIYOU COUNTY—Paul Harris, Walker, for 0.5 c.f.s. from Salt Creek tributary to Horse Creek to be diverted in Sec. 27, T. 49 N., R. 11 W., M. D. M., for irrigation purposes on 30 acres in Secs. 26 and 35, T. 47 N., R. 11 W., M. D. M. Estimated cost \$300.

Application 6417, LASSEN COUNTY—Antone Avilla, Adin, for 500 ac. ft. from Quaking Asp Gulch tributary to Pit River to be diverted in Sec. 13, T. 36 N., R. 9 E., M. D. M., for stock watering purposes. Estimated cost \$1,000.

Application 6418, SUTTER COUNTY—Rowena B. Coulter, Grimes, for 12.5 c.f.s. from Sacramento River tributary to Suisun Bay to be diverted in Sec. 13, T. 11 N., R. 2 E., M. D. M., for irrigation purposes on 500 acres.

Application 6419, SAN DIEGO COUNTY—Chicago Nippe Manufacturing Co., Los Angeles, for 4 c.f.s. and 1200 ac. ft. from surface and underground Live Oak Creek tributary to San Luis Rey River to be diverted in Sec. 33, T. 9 S., R. 3 W., S. B. M., for irrigation and domestic purposes on 877 acres in Sec. 33, T. 9 S., R. 3 W., S. B. M.

Application 6420, MONTEREY COUNTY—Geo. P. Tolman, Watsonville, for .01 c.f.s. from unnamed spring to be diverted in Sec. 6, T. 20 S., R. 5 E., M. D. M., for domestic purposes.

Application 6421, NEVADA COUNTY—Fletcher Hamilton, San Francisco, for 50 c.f.s. from Logan, Roseco, Deadman, Rob Roy, Mt. Zion and Devil's Canyon tributary to South Fork Yuba River to be diverted in Secs. 25, 26 and 34, T. 18 N., R. 10 and 11 E., M. D. M., for mining purposes in Sec. 9, T. 17 N., R. 10 E., M. D. M.

Application 6422, RIVERSIDE COUNTY—F. Wm. Seggio, Riverside, for .007 c.f.s. from Mountain Lion Spring tributary to San Jacinto River to be diverted in Sec. 36, T. 3 S., R. 2 W., S. B. M., for irrigation and domestic purposes on Lot 2, Sec. 36, T. 3 S., R. 2 W., S. B. M. 4 acres. Estimated cost \$400.

Application 6423, DEL NORTE COUNTY—F. M. McAuliffe, Nevada Bank Building, San Francisco, for 500 c.f.s. and 300,000 ac. ft. from South Fork Smith River tributary to Smith River and Pacific Ocean to be diverted in Sec. 10, T. 16 N., R. 1 E., H. M., for power purposes. Estimated cost \$10,000,000.

Application 6424, SHASTA COUNTY—Laura E. Chandler, Castella, Shasta County, for .025 c.f.s. from Mullins Gulch tributary to Sacramento River to be diverted in Sec. 22, T. 38 N., R. 4 W., M. D. M. for irrigation and domestic purposes on 2 acres.

**Permits to Appropriate Water Issued by the Department of Public Works, Division of Water Rights, during August, 1929.**

Permit 3297, Application 6199, SAN BERNARDINO COUNTY—Issued to W. G. Van Slyke, Needles, Aug. 5, 1929, for 1 c.f.s. from Piute Stream in Sec. 18, T. 12 N., R. 19 E., S. B. M., for use of irrigation and domestic purposes on 160 acres. Estimated cost \$3,000.

Permit 3298, Application 6281, INYO COUNTY—Issued to the Pan-Inyo Mining Co., 412 Central Bldg., Pasadena, Aug. 5, 1929, for 5 c.f.s. from Jail Canyon Stream in Sec. 14, T. 20 S., R. 44 E., M. D. M., for mining, milling and domestic use. Estimated cost \$2,500.

Permit 3299, Application 6305, MENDOCINO COUNTY—Issued to Chas. S. Howard Co., San Francisco, Aug. 8, 1929, for 4.46 c.f.s. and 300 a.f. from Forsythe Creek in Sec. 18, T. 17 N., R. 13 W., M. D. M., for irrigation of 357 acres. Estimated cost \$23,000.

Permit 3300, Application 6197, TRINITY COUNTY—Issued to H. W. Hamilton, Willow Creek, Aug. 9, 1929, for 8 c.f.s. from Hennessey Creek in Secs. 3, 10 and 11, T. 5 N., R. 6 E., M. D. M., for mining purposes. Estimated cost \$1,800.

Permit 3301, Application 5944, CALAVERAS COUNTY—Issued to Fino Gold Mine Co., San Francisco, Aug. 9, 1929, for 35 c.f.s. from South Fork Mokelumne River in Sec. 29, T. 6 N., R. 14 E., M. D. M., for power purposes. 44 t.p.h. to be developed. Estimated cost \$4,000.

Permit 3302, Application 5950, EL DORADO COUNTY—Issued to Frank A. Brown, San Francisco,

Aug. 10, 1929, for 200 g.p.d. from unnamed stream in Sec. 34, T. 12 N., R. 17 E., M. D. M., for domestic purposes. Estimated cost \$100.

Permit 3303, Application 6262, AMADOR COUNTY—Issued to Pacific Gas & Electric Co., San Francisco, Aug. 13, 1929, for 550 c.f.s. from North Fork Mokelumne River in Sec. 33, T. 8 N., R. 16 E., M. D. M., for power purposes. Estimated cost \$800,000.

Permit 3304, Application 6235, SISKIYOU COUNTY—Issued to Riverside School District, Walker, Aug. 13, 1929, for .000 c.f.s. from a spring in Sec. 10, T. 46 N., R. 9 W., M. D. M., for domestic use. Estimated cost \$300.

Permit 3305, Application 6236, TRINITY COUNTY—Issued to New River Mining & Development Co., Duney, Aug. 13, 1929, for 50 c.f.s. from New River in Sec. 27, T. 7 N., R. 7 E., H. M., for mining purposes. Estimated cost \$10,000.

Permit 3306, Application 6239, SIERRA COUNTY—Issued to Addison Brown and C. J. York, Downieville, Aug. 13, 1929, for 5 c.f.s. from Slug Canyon and Holloman Ravine in Sec. 3, T. 19 N., R. 10 E., M. D. M., for power purposes. Estimated cost \$2,500.

Permit 3307, Application 6343, INYO COUNTY—Issued to American Potash & Chemical Corp., Trona, Aug. 21, 1929, for 0.0067 c.f.s. from Moscow Creek No. 1, Sec. 31, T. 23 S., R. 42 E., M. D. M., for industrial, domestic and mining purposes. Estimated cost \$11,500.

Permit 3308, Application 6344, INYO COUNTY—Issued to American Potash & Chemical Corp., Trona, Aug. 21, 1929, for 0.0067 c.f.s. from Moscow Creek No. 2 in Sec. 31, T. 23 S., R. 42 E., M. D. M., for mining, domestic and industrial purposes. Estimated cost \$1,210.

Permit 3309, Application 6345, INYO COUNTY—Issued to American Potash & Chemical Corp., Trona, Aug. 21, 1929, for 0.2222 c.f.s. from Moscow Creek No. 3, in Sec. 31, T. 23 S., R. 42 E., M. D. M., for mining, domestic and industrial purposes. Estimated cost \$1,430.

Permit 3310, Application 6346, INYO COUNTY—Issued to American Potash & Chemical Corp., Trona, Aug. 21, 1929, for 0.0111 c.f.s. from Moscow Creek No. 4, in Sec. 6, T. 24 S., R. 42 E., M. D. M., for mining, domestic and industrial purposes. Estimated cost \$1,210.

Permit 3311, Application 6347, INYO COUNTY—Issued to American Potash & Chemical Corp., Trona, Aug. 21, 1929, for .0067 c.f.s. from Knockout Spring in Sec. 31, T. 23 S., R. 42 E., M. D. M., for mining, domestic and industrial purposes. Estimated cost \$2,300.

Permit 3312, Application 5658, SAN BERNARDINO COUNTY—Issued to Geneva Katherine Baxter, Victorville, Aug. 23, 1929, for 2 c.f.s. from Sciencas or Cinka Springs in Sec. 13, T. 3 N., R. 1 W., S. B. M., for irrigation and domestic purposes. Estimated cost \$12,000.

Permit 3313, Application 6340, SANTA BARBARA COUNTY—Issued to United States Santa Barbara National Forest, Santa Barbara, Aug. 23, 1929, for .01 c.f.s. from two unnamed springs, in Sec. 29, T. 6 N., R. 27 W., S. B. M., or domestic purposes. Estimated cost \$500.

Permit 3314, Application 6296, SANTA CLARA COUNTY—Issued to Board of Trustees of The Leland Stanford University, Stanford University, Aug. 29, 1929, for 900 acre feet per annum from Los Trancos Creek in Sec. 28, T. 6 S., R. 3 W., M. D. M., for irrigation and domestic purposes. Estimated cost \$150,000.

Permit 3315, Application 6287, BUTTE COUNTY—Issued to Ralph J. Baxter, Durham, Aug. 29, 1929, for 1.3 c.f.s. from Clear Creek in Sec. 14, T. 21 N., R. 3 E., M. D. M., for irrigation of 104 acres. Estimated cost \$500

Permit 3316, Application 6286, NEVADA COUNTY—Issued to Lincoln Hutchinson, San Francisco, Aug. 31, 1929, for .61 c.f.s. from Zero Spring in Sec. 24, T. 17 N., R. 14 E., M. D. M., for domestic purposes. Estimated cost \$200

Permit 3317, Application 6228, LOS ANGELES COUNTY—Issued to Herman G. Willday, Palmdale, Aug. 31, 1929, for 600 gallons per day from a spring in Sec. 3, T. 4 N., R. 12 W., S. B. M., for domestic purposes. Estimated cost \$150.

Permit 3318, Application 6263, EL DORADO COUNTY—Issued to B. G. Cutler, Marysville, Aug. 31, 1929, for 200 gallons per day from unnamed spring in Sec. 6, T. 11 N., R. 18 E., M. D. M., for domestic purposes. Estimated cost \$100.

### PROPERTY OWNERS AGREE TO PROPER SETTING FOR SAN DIEGO COLLEGE

Agreement has been reached by the Department of Public Works with adjoining property owners at San Diego as to landscape development of the campus of the new college taken together with the adjoining properties. This assures satisfactory approaches and surroundings for the college.

Oh, bury him deep  
In some shady bower;  
He drives in the middle  
At ten miles per hour.

PENNSYLVANIA—An analysis of motor vehicle accidents occurring in one winter month revealed that 494 accidents, resulting in 27 deaths and 467 injuries, were due primarily to skidding. Accidents at bridges, numbering 50, caused 2 deaths and 48 injuries. A total of 8400 mishaps causing 185 deaths was recorded for that month.

LOUISIANA—Hard surfacing of 1650 miles on four main highways is part of the state highway program for the next two years. Two north-and-south and two east-and-west routes are to be continuously surfaced, including the Jefferson Highway and the Old Spanish Trail.

ILLINOIS—Mixers laying pavement on state highways during the past eight years, have had an average per-season mileage varying from 2.70 to 6.97 miles for individual years. In 1928, 45 per cent of the mixers were 6-bag. Equipment charges on representative paving jobs included 10.1 cents per square yard for repairs and 5.5 cents for fuel.

UTAH—Maintenance costs for various state road types during 1927 averaged: \$310 per mile for 204 miles of concrete, \$388 per mile for 55 miles of bituminous surfaces, and \$337 per mile for 1048 miles of gravel, not including new gravel added. Gravel roads carried an average daily traffic of 337 vehicles according to a check at 45 stations.

## CALIFORNIA HIGHWAYS AND PUBLIC WORKS

Official journal of the Division of Highways of the Department of Public Works, State of California; published for the information of the members of the department and the citizens of California.

Editors of newspapers and others are privileged to use matter contained herein. Cuts will be gladly loaned upon request.

B. B. MEEK ..... Director  
GEORGE C. MANSFIELD ..... Editor

Address communications to California Highways and Public Works, P. O. Box 1103, Sacramento, California.

Vol. 7                      SEPTEMBER, 1929                      No. 9

### REGISTRATION FEES

The gross receipts of paid registration motor vehicle fees in California were \$9,381,176.95 for the period of January 1, 1929-July 31, 1929, inclusive. This is an increase of \$1,238,139.45 for the corresponding period in 1928. The registration of automobiles, motorcycles, trucks and trailers for this period exceeded the same period in 1928 by 160,167.

### HIGHWAYS ARE HAPPY WAYS

By PLATT YOUNG, in Georgia Highways Magazine

Highways are happy ways. Their smile expands  
O'er mountains, hills, and peaceful meadow lands;  
The nodding trees, the laughter of the brooks,  
The budding flora of sequestered nooks,  
Reflect that smile, which brings surcease from care  
And promises each pilgrim rapture there.

Highways are happy ways, and link the plan  
Instilled by Nature in the heart of man  
To make a common way where miser blends  
His lot with him who all his substance spends:  
For since Creation's dawn, there is no fee  
To God's outdoors. Its wealth is scattered free.

Rastus had taken Mandy to the circus menagerie and was having a great time explaining all about the animals to his girl.

"Lawzee, Rastus, what's 'at?" asked Mandy, when they came to the zebra.

"Don't you know, gal You sho' has neglected yo' animology. Dat's nuthin' but a spo't model jackass."

A young London girl holidaying in the country became rather friendly with a young farmer. One evening as they were strolling in the fields they happened across a cow and a calf rubbing noses in the accepted bovine fashion.

"Ah," said the young farmer, "that sight makes me want to do the same."

"Well, go ahead," said the girl, encouragingly, "It's your cow."

Fair Maid: "Oh, sir, what kind of an officer are you?"

Officer: "I'm a naval surgeon."

Fair Maid: "Goodness, how you doctors do specialize."

# TRAVEL COUNT INDICATES DOUBLE PRESENT HIGHWAY TRAFFIC BY 1940

(Continued from page 1.)

Station location	July, 1928		July, 1929	
	Sun. 15	Mon. 16	Sun. 14	Mon. 15
<b>Belvedere Jc. E. 52 to Belvedere.</b>				
S. on 1.....	12,971	5,275	14,515	6,467
E. on 52.....	2,595	1,060	2,035	1,169
N. on 1.....	11,127	4,323	13,749	5,870
<b>San Rafael N. of Cy. at top hill.</b>	12,226	4,807	12,253	4,653
<b>Petaluma S. Cy. Lts. at Maint. Yd.</b>	8,068	3,477	9,053	3,978
<b>Petaluma N. of Cy.</b>	10,313	6,529	10,570	5,572
<b>Cotati at Jct. C.R. to Sebastopol.</b>				
S. on 1.....	11,322	4,028	9,830	4,138
W. on C.R.....	6,903	2,271	5,508	1,832
N. on 1.....	4,617	2,523	4,499	2,684
<b>Santa Rosa S. of Cy. at Triangle Service Sta.</b>	4,605	2,967	3,675	4,531
<b>Santa Rosa N. of Cy. at S. P. R. R. Xing.</b>	5,399	3,846	6,330	4,573
<b>Healdsburg S. of Cy. at N. W. P. R. R. Xing.</b>	4,055	2,602	4,526	3,146
<b>Mountain House at Jct. Rt. 48 to Doonville.</b>				
S. on 1.....	1,691	1,270	2,580	1,680
W. on 48.....	275	316	432	278
N. on 1.....	1,413	959	1,954	1,402
<b>McCrays Jct. C.R. to Preston.</b>				
S. on 1.....	2,152	1,369	2,608	1,572
E. on C.R.....	413	244	366	228
N. on 1.....	2,199	1,581	2,250	1,643
<b>Hopland at Jct. Rt. 16 to Lakeport.</b>				
S. on 1.....	1,871	1,425	2,247	1,874
E. on 16.....	776	808	711	787
N. on 1.....	2,525	2,217	2,948	2,643
<b>Ukiah S. of Cy. Lts. Jc. with Rt. 70.</b>				
S. on 1.....	1,964	1,639	2,340	2,003
E. on 70.....	873	960	1,061	1,090
N. on 1.....	2,578	2,334	3,136	2,747
<b>Ukiah N. of Cy. Lts. at Jc. Rt. 15 to Colusa.</b>				
S. on 1.....	2,254	1,756	2,694	2,235
E. on 15.....	889	626	1,019	749
N. on 1.....	1,697	1,273	2,025	1,623

**District I**

<b>Willits N. of Cy. at Jc. C.R. to Sherwood.</b>				
S. on 1.....	1,135	907	1,486	1,371
W. on C.R.....	68	90	72	106
N. on 1.....	1,131	929	1,415	1,263
<b>Mendocino-Hum. Co. Line Garberville at Jc. with C.R. to Briceband.</b>	748	689	1,201	1,164
<b>S. on 1.....</b>	1,207	1,280	1,511	1,482
W. on C.R.....	219	174	303	178
N. on 1.....	1,274	1,359	1,689	1,673
<b>Dyerville at Jc. C.R. to So. Fork.</b>				
S. on 1.....	1,530	1,210	2,320	1,620
E. on Cr.....	309	379	429	452
N. on 1.....	1,493	1,039	2,224	1,533
W. on C.R.....	226	124	261	187
<b>Fernbridge Jc. C.R. to Ferndale.</b>				
S. on 1.....	3,168	1,720	3,564	2,318
W. on C.R.....	1,109	787	1,085	822
N. on 1.....	3,168	1,772	3,498	2,359
<b>Eureka S. of Cy. Lts.</b>	4,054	2,995	4,655	3,832
<b>Eureka N. at Eureka Slough Bridge</b>	3,657	2,402	4,245	3,483
<b>Arcata N. of Cy. at Jc. Rt. 20 to Weaverville.</b>				
S. on 1.....	1,448	780	1,274	874
E. on 20.....	1,647	831	1,388	954
N. on 1.....	354	123	292	114
<b>Arcata at Maul River Store, E. on 1</b>	426	140	436	301
S. on C.R.....	2,191	1,101	2,702	1,852
N. on 1.....	2,322	1,122	2,786	1,859
<b>Orick, Jc. Rt. 1 and C.R. to Weitspeck.</b>				
S. on 1.....	649	720	1,043	941
E. on C.R.....	112	65	77	49
N. on 1.....	581	697	1,081	925
<b>Klamath River Br.</b>	487	541	1,139	1,048
<b>Crescent Cy. S. E. of Cy. at Jc. Rd. to Crescent Cy.</b>				
S. on 1.....	1,069		1,745	1,942
N. to C. C.....	1,662		2,374	2,433
E. on 1.....	1,044		1,653	1,644

Station location	July, 1928		July, 1929	
	Sun. 15	Mon. 16	Sun. 14	Mon. 15
<b>Houchi Bridge.</b>				
E. on 1.....			662	609
W. on 1.....			584	415
C.R.....			176	61
<b>Curve Half Way up Oregon Mt.</b>				
N. Bound.....			429	
<b>1 3/4 Mi. S. Oregon Line S. Bound Oregon Line.</b>	578	472	863	773

**Route 2. San Francisco to San Diego**

Station location	District IV		District V	
	Sun. 15	Mon. 16	Sun. 14	Mon. 15
<b>Colma Jct. with Rd. 2 to So. S. F.</b>				
N. on 2.....	26,521	10,906	28,353	14,083
E. on C.R.....	3,332	1,867	4,535	2,337
S. on 2.....	23,189	9,299	24,018	11,746
<b>San Bruno Jc. with Bay Shore road to So. S. F. R. 68.</b>				
N. W. on 2.....	22,203	9,205	23,843	11,468
N. E. on 68.....	3,685	3,581	2,185	1,012
S. on 2.....	26,398	11,786	26,028	13,380
<b>San Mateo S. of Cy. at 16th Ave. Redwood Cy. N. of Cy. Lts.</b>	29,103	12,698	37,084	16,124
<b>Palo Alto at Highway to Federal Tel. Sta.</b>	15,760	8,774	19,957	10,294
<b>9 Mi. N. of San Jose, N. on 2.</b>	10,907	7,928	12,813	8,033
W. on C.R.....	8,651	5,437	3,574	4,801
S. on 2.....	4,610	2,645	8,414	5,286
<b>5 Mi. N. of San Jose</b>	10,113	7,272	9,697	6,990
<b>4 Mi. N. of San Jose</b>	12,505	10,789	12,516	11,332
<b>San Jose N. of Cy. Lts. at Lumber Yard</b>	26,543	21,856	19,958	21,079
<b>San Jose S. of Cy. Lts.</b>	10,151	8,652	10,423	8,342
<b>5 Mi. S. of San Jose</b>	7,549	4,316	8,133	4,905
<b>10 Mi. S. of San Jose</b>	7,324	4,499	8,350	5,077
<b>15 Mi. S. of San Jose</b>	7,472	4,323	8,140	4,894
<b>Gilroy N. of Cy. at Jc. with Mt. Madonna Rd. to Watsonville.</b>				
N. on 2.....	8,414	5,814	8,295	6,187
W. on C.R.....	1,682	1,016	1,287	774
S. on 2.....	8,547	6,017	8,429	6,357

**Route 2. District V**

<b>San Juan Bautista N. of Cy. at Jc. with R. 67 Chittenden Rd.</b>				
N. on 2.....	5,326	3,112	5,427	3,393
W. on 67.....	3,390	1,490	3,697	1,833
S. on 2.....	4,391	2,840	4,754	3,079
<b>San Juan Bautista S. of Cy. at Jc. Rt. 22 to Hollister.</b>				
N. on 2.....	4,658	3,184	5,471	3,797
E. on 22.....	2,682	1,525	3,091	1,780
S. on 2.....	5,490	2,408	3,741	2,832
<b>S. Bt.-Mon. Co. Line.</b>	3,154	2,141	3,243	2,387
<b>Salinas N. of Cy. Lts.</b>	6,229	4,794	6,365	5,459
<b>Salinas S. of Cy. Lts.</b>	3,956	3,700	4,883	4,482
<b>Gonzales 3 Mi. W. of Town.</b>	5,185	2,772	3,764	3,114
<b>Soledad S. of Milk Plant.</b>	3,095	2,705	3,766	3,195
<b>San Lucas S. of Cy. at Jc. R. 10 to Coalinga and C.R. to Jolon.</b>				
N. on 2.....	2,329	2,063	2,771	2,313
E. on 10.....	110	155	144	171
W. on C.R.....	80	139	96	149
S. on 2.....	2,250	2,000	2,664	2,248
<b>Paso Robles N. of Cy. Lts.</b>	2,730	2,335	3,042	2,590
<b>Paso Robles S. of Cy. Lts.</b>	3,488	2,777	4,127	3,216
<b>San Luis Obispo N. of Cy. Lts.</b>	3,665	3,323	3,919	2,963
<b>San Luis Obispo S. of Cy. Lts. at R. R. Xing.</b>		No count	6,510	4,728
<b>At Pismo overhead crossing.</b>	4,654	3,150		
<b>Santa Maria N. of Cy. at Jc. R. 57 to Bakersfield.</b>				
N. on 2.....	4,036	2,742	4,619	3,141
E. on 57.....	203	96	244	128
S. on 2.....	4,056	2,776	4,624	3,233
<b>Ruellton at Intersection with Co. Rds. W. to Lemock and Easterly.</b>				
N. on 2.....	2,727	2,186	3,207	2,450
E. on C.R.....	488	373	481	367
W. on C.R.....	557	377	537	348
S. on 2.....	3,631	2,392	3,524	2,666
<b>Gaviota W. of Road to Gaviota Sta. Orella, opposite Orella station.</b>	2,881	2,169	3,303	2,381
	4,814	3,576	3,896	2,752
<b>Santa Barbara W. of Cy. at Jc. San Marcos Rd., N. on 2.</b>	5,560	3,532	6,544	5,046
<b>On San Marcos Rd.</b>	1,183	345	945	380
S. on 2.....	6,394	3,538	6,870	5,259
<b>Santa Barbara W. of Cy. Limits On 2</b>	6,307	5,406	8,411	6,821
<b>Santa Barbara 300 Ft. E. of Cy. Lts.</b>	9,324	7,768	12,755	10,530
<b>S. B.-Ven. Co. Line</b>	6,483	3,651	6,705	4,043

Route 2. District VII

Station location	July, 1928		July, 1929	
	Sun.	Mon.	Sun.	Mon.
Ventura W. of Cy. at Br.	8,959	4,646	10,465	6,081
Ventura E. of Cy. Lts.	7,472	3,672	11,667	7,552
El Rio Intersection,				
W. on 2	6,023	4,197	10,361	7,144
N. to Saticoy	1,391	1,125	2,037	1,520
S. to Onard	3,844	2,940	9,322	5,392
E. on 2	6,993	4,320	5,237	2,945
Ventura-L. A. Co. Line	6,755	3,721	7,439	2,613
West of Hollywood-Ventura Blvd. at Sepulveda St.	11,702	6,459	12,038	5,592
L. A. E. at Indiana St.	22,356	21,511	23,303	20,850
Whittier at Jet. with Hadley St.				
W. on 2	16,384	11,851	20,661	14,070
N. on Hadley	3,296	3,595	4,171	4,729
E. on 2	14,088	9,057	16,513	10,492
La Habra E. Cy. Lts. at Jr. Road to La Habra and Brea,				
N. on 2	3,572	4,173	11,534	5,456
W. to La Habra	4,174	2,793	5,126	2,781
E. to Brea	4,579	2,724	3,075	2,679
S. on 2	9,556	4,253	11,423	5,826
Anahelm N. of Cy. Lts.	14,927	9,751	15,974	10,112
Santa Ana N. of Cy. at Jr. C.R. to Orange,				
N. on 2	12,223	7,396	11,855	6,271
E. on C.R.	7,362	5,687	7,473	6,095
S. on 2	12,919	7,846	12,691	6,481
Tustin W. of Cy.	9,115	5,555	9,227	5,548
San Juan Capistrano N. of City Serra at Jet. Ora. 60-C with Ora. 2-A.	4,943	2,239		
N. of Jet.			6,532	3,583
S.E. of Jet.			10,330	4,923
W. of Jet.			7,188	3,318
Oceanside N. S. Cy. Lts.	8,485	5,278	9,606	5,222
Delmar at S. P. R. R. Xing.	8,965	3,828	9,456	4,721

Route 3. Sacramento to Oregon Line

District III

Station location	July, 1928		July, 1929	
	Sun.	Mon.	Sun.	Mon.
Sacramento N. at Jr. Garden Highway, S. on 2	12,228	12,611	*6,591	5,653
On Garden Highway	1,488	1,144	2,219	1,434
N. on 3	12,142	11,589	*6,574	6,171
Ben All Xing Jr. to C.R.,				
S. on 3	6,853	4,578	*2,568	1,478
W. on C.R.	613	349	232	164
E. on C.R.	518	586	*2,827	1,856
N. on 2	6,740	4,995	Under construction	
Jr. C.R. to Folsom N. of 12 MI. House,				
S. on 3	5,100	4,022	*2,466	1,425
E. on C.R.	636	373	445	197
N. on 2	4,599	3,584	*1,846	1,233
Reeville S. of Cy. at N. end of Guard Rail Lane.	6,016	4,165	5,325	3,548
Reeville, N. of Cy. Lts.	2,418	1,991	1,715	1,173
Marysville S. of Cy. at Jr. Ham- mington Road,				
S. on 3	2,303	2,025	1,525	1,272
Hm. Rd.	750	871	627	613
N. on 3	2,345	3,274	2,473	2,229
W. on C.R.	738	758	466	450
Yuba City N. of Cy. at Jr. Rt. 15,				
S. on 3	4,621	4,760	3,023	3,411
W. on 15	2,705	2,686	1,956	1,933
N. on 3	2,578	2,722	2,269	2,180
Richvale Wye Jr. Rt. 21 to Oroville,				
S. on 3	1,348	1,086	1,200	977
W. on 3	1,208	1,097	1,167	886
E. on 21	388	218	449	358
Chico at Jr. C.R. E. to De Saba				
S. on 3	2,940	2,414	2,945	2,498
E. on C.R.	311	246	327	319
N. on 3	3,169	2,820	3,121	2,799
Chico N. of Cy. at Jr. C.R. East,				
S. on 3	2,318	2,063	2,121	2,014
E. on U.R.	478	322	423	295
N. on 3	1,900	1,758	1,869	1,818

Route 3. District II

Station location	July, 1928		July, 1929	
	Sun.	Mon.	Sun.	Mon.
Butte-Tehama Co. Line	1,066	921	1,057	973
Red Bluff E. at Jr. with Rt. 29 to Susanville,				
S. on 3	1,446	1,378	1,439	1,285
E. on 29	652	599	869	573
N. on 3	1,662	1,452	1,847	1,579
Cottonwood S. of town at Tehama-Shasta Co. Line	2,306	1,876	2,363	2,144

\*Construction under way Ben All to Sylan Corner.

Station location	July, 1928		July, 1929	
	Sun.	Mon.	Sun.	Mon.
Redding S. of Cy. at Jr. with Rt. 28 to Alturas,				
S. on 3	2,303	2,007	2,325	2,217
E. on 28	527	567	695	654
N. on 3	2,583	2,515	2,721	2,749
Redding 3 MI. N. at Jr. with C.R. to Kennett,				
S. on 3	1,533	1,454	688	614
W. on C.R.	46	23	44	32
N. on 3	1,581	1,359	854	681
Gibson	1,693	1,427	1,549	1,323
Dunsmuir 1.5 MI. So.	2,111	1,761	2,309	1,983
Dunsmuir N. Cy. Lts. at Br.	3,769	3,375	4,603	3,276
Dunsmuir 5 MI. N. at Mott.	2,598	2,651	2,794	1,972
Weed Jet. with Klamath Falls Rd., E. on Co. Rd. 3 MI. E. of Weed	114	51	7	27
Gazelle 1 MI. North.	1,301	1,497	1,715	1,538
Yreka S. Cy. Lts.	2,421	2,342	2,456	2,277
Cray N. of Cy. at Jr. with Rt. 46 via Klamath Riv.,				
S. on 3	1,564	1,355	1,590	1,320
W. on 46	495	288	348	292
N. on 3	1,398	1,293	1,543	1,266
Oregon Line	1,564	1,372	1,599	1,351

Route 4. Sacramento to Los Angeles

District X

Station location	July, 1928		July, 1929	
	Sun.	Mon.	Sun.	Mon.
Sacramento S. of Cy. Lts.	7,174	6,591	8,364	6,739
7 MI. House at Intersection Florin Rd.,				
N. on 4	4,233	3,997	5,026	3,313
E. on C.R.	842	690	821	680
W. on C.R.	117	82	167	98
S. on 4	3,975	2,859	4,655	2,992
Old Elk Grove at Intersection Franklin-Elk Grove Rd.,				
N. on 4	3,671	2,659	4,151	2,572
E. on C.R.	822	776	792	655
W. on C.R.	566	472	526	423
S. on 4	3,158	2,194	3,703	2,179
Twin Cities Jr. Rt. 34 to Jackson,				
N. on 4	2,900	2,139	3,569	2,245
E. on 24	975	267	426	342
S. on 4	3,193	2,218	3,667	2,394
Lodi Jr. Rt. 24 to Sut. Andrea,				
N. on 4	3,318	2,587	3,375	3,058
E. on 24	1,548	1,160	1,725	1,285
S. on 4	4,413	3,139	5,062	3,667
Stockton N. of Cy. at Jr. C.R. to Lockeford,				
N. on 4	4,580	3,866		
E. on C.R.	3,162	2,815		
S. on 4	7,641	6,558		
Stockton N. of City at Cherokee Sta.,				
N. E. on 4			3,841	2,387
S. W. on 4			3,568	2,278
S. E. on C.R.			434	280
Jo. of Mariposa Rd. S. of Stockton,				
W. on 4			7,167	2,294
S. on 4			1,938	1,517
E. on Mpa. Rd.			1,122	721
French Camp Jr. Rt. 5 to Oakland,				
N. on 4	2,441	1,693	3,447	2,489
S. W. on 5	Construction		2,707	1,942
S. E. on 4	2,235	1,486	812	620
Inters. McKinley Ave. and C. R. with old S4-4-B. E. on McKin. On old S4B			2,522	1,991
W. on C.R.			1,851	1,405
Manteca N. of City	3,317	2,660	3,384	2,699
Ripon N. of City	5,016	3,613	5,562	4,021
Salida Jr. Rt. 13 to Sonora,				
N. on 4	5,331	2,893	5,285	3,903
E. on 13	380	344	421	404
S. on 4	5,300	4,089	5,302	3,966
Modesto N. of Cy.	7,389	6,258	7,282	6,212
Modesto S. of Cy. Jr. Crown Land- ing Road,				
N. on 4	8,773	8,991	9,576	9,535
S. on 4	7,106	5,618	7,178	6,311
W. on C.R.	2,573	2,553	2,586	2,567
Turlock N. of City	5,968	5,473	5,845	4,751
Turlock S. of City	4,986	3,996	4,579	3,791

Route 4. District VI

Station location	July, 1928		July, 1929	
	Sun.	Mon.	Sun.	Mon.
Stanislaus-Mer. Co. Line	4,000	3,154	4,134	3,531
Atwater N. of City	4,455	3,433	4,173	3,251
Mered N. Cy. Lts. at Br.	5,492	4,452	5,752	4,956
Mered S. Cy. Lts. at Br.	3,572	3,653	4,219	4,095
Mered-Madera Co. Line	2,589	1,931	3,084	2,213
Calif. Jet. Rt. 82 to Gilroy,				
N. on 4	2,585	1,949	3,231	2,358
W. on 32	870	695	1,142	818
S. on 4	2,989	2,642	4,216	3,693

Station location	July, 1925		July, 1926		Route 5. District IV				
	Sun.	Mon.	Sun.	Mon.	July, 1925		July, 1926		
	15	16	14	15	Sun.	Mon.	Sun.	Mon.	
Madera N. of City	4,919	3,254	3,251	3,715	Altamont at R. R. Sta.	5,971	3,620	7,075	3,536
Madera-Fresno Co. Line	4,523	3,293	5,029	3,744	Livermore E. of Cy. at Jc. C.R. to Livermore, E. on 5	2,607	1,775	7,632	4,366
Muscatel	5,955	3,900	5,529	4,068	S. on C.R.	6,363	3,853	2,768	1,716
Fresno N. of Cy. N. of S. P. R. R. King at Jet. Olive Ave.					W. on 5	4,364	2,169	4,865	2,698
N. on 4	7,955	5,723	7,410	5,221	Santa Rita Inn Jc. C.R. to Pleasanton, E. on 5	5,365	3,110	7,122	3,473
E. on Olive	2,154	1,010	2,461	1,064	S. on C.R.	1,964	642	1,354	725
S. on 4	5,536	4,899	5,874	5,460	W. on 5	6,041	3,428	7,579	3,761
W. on Olive			1,400	854	Dublin Jc. C.R. to Martinez, E. on 5	6,593	4,989	7,239	3,395
Fresno S. of Cy. at Jet. Church Ave., on 4	8,367	6,349	4,493	5,597	N. on C.R.	2,561	963	2,467	721
Malaga S. of R. R. Sta.	6,710	6,391	6,275	5,890	W. on 5	7,617	3,197	7,977	3,456
Powder, S. of City	4,977	3,257	4,718	3,254	Dublin Jc. C.R. to Niles, E. on 5	7,557	2,198	8,623	3,492
Selma S. of City	4,155	3,327	4,435	3,574	S. on C.R.	882	252	1,902	349
Kingsburg S. of City near Kings Riv. Br.	3,322	2,640	4,191	2,779	W. on 5	7,588	2,134	8,135	3,489
Goshen Jet. Junction Rt. 19 to Hanford via C.R. to Tulare, N. on 4	2,878	2,318	3,349	2,626	Hayward Jet. with Castro Valley Rd., E. on 5	7,484	2,672	10,332	4,521
W. on 19	1,899	1,867	1,665	1,662	N. W. to Castro Valley	5,352	3,125	2,739	1,549
E. on 4	2,545	2,957	3,243	2,478	S. W. on 5	997	572	7,691	2,942
E. on 4	2,192	1,429	2,087	1,553	At Alameda Co. Hospital, Hayward S. of Cy. Lts.	9,154	2,680	9,266	3,543
Visalia Wye Jet. Rt. 19 to Visalia, W. on 4	2,768	2,325	2,912	2,697	Niles N. at Hotel Bellevue	8,281	2,654	7,722	3,552
E. on 19	4,572	3,425	4,545	3,874	Niles at Jc. Niles Canyon Road, N. on 5	6,245	3,478	6,297	4,494
S. on 4	2,412	1,582	2,316	1,649	E. no C.R.	2,790	1,149	2,590	1,367
Tulare S. City Lts.	2,956	2,619	3,314	3,072	S. on 5	5,887	3,428	5,591	4,476
Tulare R. R. King S. of City R. R. Trk., W. on C.R.			295	422	Niles S. of Cy. at Jc. C.R. to Centerville, N. on 5	5,635	3,487	5,631	3,494
S. on 4			3,161	2,971	W. on C.R.	2,036	1,891	2,335	1,879
Tipton at intersection C.R. to Perterville, N. on 4	2,696	2,320	2,357	2,312	S. on 5	3,965	2,098	3,596	2,089
E. on C.R.	284	338	457	398	Mission San Jose Jc. C.R. to Livermore, N. on 5	3,931	1,483	3,316	1,317
S. on 4	2,635	2,314	3,251	2,432	N. on C.R.	1,845	1,056	2,664	1,116
Between Earlimart and Delano	2,696	2,292	3,124	2,376	S. on 5	5,619	2,427	5,115	2,396
Delano Intersection C.R. to Perterville, S. on 4	3,138	2,812	3,625	2,844	9 MI. N. of San Jose Jc. C.R. to Centerville, N. on 5	4,903	2,022	5,377	2,196
N. on 4	3,225	2,882	3,645	2,926	N. W. on C.R.	6,355	2,292	9,061	3,990
E. on C.R.	767	616	414	399	S. on 5	11,265	4,316	14,370	6,187
Famena Jet. Rt. 25 to Paso Robles, N. on 4	2,537	2,221	3,259	2,451	5 MI. N. of San Jose, San Jose N. of Cy. at Jet. with Gish Road	13,384	6,019	14,835	6,284
W. on 25	288	211	670	524	San Jose W. of City at Sanitarium	9,045	5,014	10,268	5,226
S. on 4	2,572	2,292	3,261	2,598	Los Gatos N. of City	11,015	8,941	12,241	10,031
Saco at Saco Garage	3,120	2,747	3,669	2,826	Los Gatos S. of City Lts.	6,765	2,995	3,914	5,316
Bakersfield N. of Cy. at Jet. C.R. to Oil Center, W. on 4	4,535	4,215	2,623	2,226	Santa Clara-Santa Cruz Co. Line	11,715	4,042	10,579	3,812
N. on C.R.	4,940	5,200	2,723	3,095	Santa Cruz, N. of City	9,749	2,899	8,678	2,690
S. on 4	8,195	8,635	4,799	4,438		8,254	2,668	7,296	2,888
Interx Brandtge Lane & Rt. 4, N. on 4	4,558	3,815	2,869	2,475					
S. on 4	4,899	4,298	2,530	1,928					
W. on B. L.	1,111	849	420	312					
Bakersfield 6 MI. S. of Jc. C.R. to Taft, N. on 4	3,566	2,931	2,231	1,709					
W. on C.R.	907	694	723	581					
S. on 4	3,183	2,561	1,836	1,421					
20 MI. R. of Bakersfield at Jet. Rt. 57 Maricopa Rd., N. on 4	2,478	1,953	2,900	2,052					
W. to 57	99	85	147	97					
S. on 4	2,562	1,912	3,957	3,095					
Lebec N. of Station	2,740	2,011	3,074	2,213					

District VII				
Hebre Mt. Maint. Sta. at Neonach Road	2,769	1,055	5,122	2,294
Custate at Jc. C.R. to Santa Paula, N. on 4	9,106	2,592	3,355	2,380
W. on C.R.	2,033	1,279	2,162	1,636
S. E. on 4	4,946	3,423	4,967	3,191
Saugus at Jet. Rt. 23 to Molave, N. on 4	5,252	3,370	5,120	3,427
E. on 23	4,793	2,669	3,896	2,403
S. on 4	8,298	4,995	9,107	5,654
Near Chatsworth at S. end of Sec. LA-4-E	8,509	5,415	8,891	5,463

Route 5. Stockton to Santa Cruz via Oakland District "X"				
French Camp Jc. Rt. N. on 4			3,447	2,488
S. W. on 5			2,767	1,942
S. on 4			812	626
Morndale Jc. Rt. 66 to Manteca, N. on 5		Construction	3,342	2,174
E. on 66	5,389	5,671	3,611	2,128
S. on 5	5,550	3,671	6,921	4,276
Tracy W. of Cy. at Jc. C.R. to Byron Sta., E. on 5	5,380	3,394	6,593	3,486
N. on C.R.	223	132	219	154
W. on 5	5,997	3,322	6,639	3,466

Route 7. District III				
Woodland S. of City	2,615	2,616	2,011	2,468
Woodland N. of Cy. at Brown's Corner Jc. with C.R. W. & S., E. on 7	3,072	2,493	2,922	2,843
S. on C.R.	294	232	214	205
W. on C.R.	1,504	1,239	1,336	1,234
N. on 7	1,963	1,572	1,829	1,747
Williams S. of City	1,648	1,322	1,613	1,286
Williams N. of City			1,351	1,306
Willows S. of City	1,600	1,826	1,522	1,428
Willows N. of City			2,213	2,351

Station location	July, 1928		July, 1929	
	Sun. 15	Mon. 16	Sun. 14	Mon. 15
Orland at Jet. with Rt. 47 to Chico, on 7.....	1,827	2,456	1,745	1,585
E. on 47.....	698	652	842	865
<b>Route 7. District II</b>				
Red Bluff S. of town at Road Cr. Bridge.....	1,757	1,942	1,920	1,703
<b>Route 8. Ignacio to Cordelia via Napa</b>				
<b>District IV</b>				
Petaluma Cr. Bridge.....	3,703	917	3,201	856
Schellville Jet. Rt. 51 to Santa Rosa, S. on 8.....	3,733	1,156	2,077	1,815
N. on 51.....	2,497	878	3,286	1,612
N. E. on 8.....	2,119	843	1,774	538
Napa Junction Jet. Co. Rd. to Vallejo, N. on 8.....	6,951	2,719	7,049	3,029
S. on C.R.....	9,232	4,616	6,959	3,907
E. on 8.....	5,280	2,885	*633	*382
<b>Route 8. District X</b>				
Cordelia Jet. Rt. 7 (Old).....	5,169	2,972		
New Jet. Routes 7 and 8 at Cordelia, S. on 7.....			*3,434	*2,080
W. on 8.....			*584	*877
E. on 7.....			*3,442	*2,377
<b>Route 9. San Fernando to San Bernardino</b>				
<b>District VII</b>				
Tujunga west of Sunset Blvd.....	6,114	3,111	5,430	3,214
La Crescenta W. of Penn. Ave.....	6,474	3,317	6,096	3,459
La Canada at School St.....	7,210	4,055	6,033	3,585
Pasadena E. of Cy. Lts.....	8,954	6,083	12,216	7,793
Azusa W. City Limits.....	10,670	5,408	10,768	5,784
<b>District VIII</b>				
S. Bd.-L. A. Co. Line.....	7,973	2,960	Not taken	
W. on 9.....	2,873	1,539	Not taken	
S. W. on C.R.....	2,274	1,365	Not taken	
W. on 9.....	4,925	2,824	Not taken	
Upland E. of Cy. at Jet. C.R. to Upland, W. on 9.....	2,873	1,539	Not taken	
S. W. on C.R.....	2,274	1,365	Not taken	
E. on 9.....	4,925	2,824	Not taken	
Upland at Euclid Ave. intersection, W. on 9.....	6,289	3,142	Not taken	
N. on Eu. Ave.....	3,932	2,349	Not taken	
S. on Eu. Ave.....	3,405	2,528	Not taken	
E. on 9.....	4,245	2,216	Not taken	
S. Bd. W. of City.....	5,423	4,186	Not taken	
<b>Route 10. San Lucas to Sequoia Ntl. Prk.</b>				
<b>District V</b>				
San Lucas S. of City at Jet. Rt. 2	110	155	144	171
<b>Route 10. District VI</b>				
Monterey-Fresno Co. Line.....	113	47	148	72
Parkfield Jet., W. on 10.....	170	132	259	112
S. on C.R.....	64	31	137	46
E. on 10.....	228	135	212	149
Coaltinga S. of City.....	383	319	699	568
Coaltinga 3 Mi. E. at Jet. C.R. to Oilfields, W. on 10.....	682	702	726	789
N. on C.R.....	271	351	473	446
E. on 10.....	551	587	473	526
Oilfields at Oil King School, W. on 10.....	430	425	1,167	1,260
N. on C.R.....	216	232	234	250
E. on 10.....	215	206	925	982
Kings River Bridge.....	313	319	469	451
Lemoore Jet. C.R. to Lemoore, N. on 10.....	396	370	607	567
E. on C.R.....	370	385	560	560
S. on 10.....	375	353	451	607

\*Construction under way from Junction to Greenwood Corner.

Station location	July, 1928		July, 1929	
	Sun. 15	Mon. 16	Sun. 14	Mon. 15
Hanford W. of Cy. Lts.....	1,642	2,925	1,919	2,084
Hanford E. of Cy. at Interx Co. Rds. N. to Kingsburg & S. to Corcoran, W. on 10.....	2,236	3,093	3,621	2,949
N. on C.R.....	1,825	1,668	2,105	1,565
S. on C.R.....	1,758	1,582	1,807	1,312
E. on 10.....	2,493	2,665	2,535	2,244
Goshen Jet. Jr. Rt. 14 N. to Fro J. to Visalia & South to Tulare, W. on 10.....	1,690	1,067	1,605	1,082
N. on 4.....	2,876	2,318	3,340	2,865
S. on 4.....	2,545	2,957	3,248	2,478
E. on 4.....	2,191	1,429	2,087	1,983
Visalia Wye Jr. Rt. 4 W. to Goshen & S. to Bakersfield and Rt. 19 E. to Visalia, W. on 4.....	2,795	2,235	2,912	2,607
S. on C.R.....	2,412	1,662	2,316	1,649
E. on 10.....	4,572	3,625	4,545	3,374
Visalia E. of Cy. at Exeter Jct., W. on 10.....	2,391	2,064	2,327	2,008
S. to Exeter.....	1,443	1,235	1,224	1,175
E. on 10.....	1,531	1,141	1,590	1,682
Lemon Cove Jr. C.R. to Woodlake, W. on 10.....	1,663	715	1,627	798
N. on C.R.....	1,033	359	1,032	571
E. on 10.....	2,133	740	2,127	893
Three Rivers E. of town at Jet. C.R. northerly, W. on 10.....	1,463	502	1,398	574
N. on C.R.....	245	102	182	82
E. on 10.....	1,350	501	3,161	575
<b>Route 11. Sacramento to Nevada Line via Placerville</b>				
<b>District III</b>				
Sacramento E. of Cy. Lts.....	4,352	2,071	5,026	2,885
Perkins Jr. with C.R. to Plymouth, W. on 11.....	3,199	2,423	2,444	1,864
S. E. on C.R.....	1,276	877	1,332	857
E. on 11.....	2,910	1,699	2,058	1,247
Folsom W. of Cy. Jet. Pratt Rd., W. on 11.....	1,945	1,081	1,967	977
E. on C.R.....	453	222	458	267
E. on 11.....	1,603	928	1,792	868
Folsom E. of town at High Sch., N. on 11.....			967	406
E. on 11.....			741	338
W. on C.R.....			217	710
El Dorado Jr. Rt. 65, W. on 11.....	1,206	497	1,422	709
S. on 65.....	260	103	336	179
E. on 11.....	849	531	1,055	620
Placerville W. of City.....	2,175	1,446	2,823	1,433
Placerville E. of City.....	1,995	1,368	2,435	1,395
Between Riverton and Kyburz Alpine Jct., W. on 11.....	465	222	637	339
S. on 23.....	128	163	117	93
E. on 11.....	464	366	623	366
Jc. Rt. 38 to Lake Tahoe, W. on 11.....	533	324	713	411
N. on 38.....	361	217	497	293
E. on 11.....	166	127	183	147
Lakeside at Connollys Ser. Sta. Jr. C.R. to Bijou, W. on 11.....	208	130	188	145
N. on C.R.....	393	342	460	346
E. on 11.....	440	348	561	452
<b>Route 12. San Diego to El Centro</b>				
<b>District VII</b>				
San Diego E. of Cy. Euclid Ave. at Cajon Ave.....		Road closed	7,120	4,445
El Cajon W. of Cy. Lts. at Sweetwater Bridge.....	6,267	4,053	5,124	3,812
Jacumba at Jr. C.R. to El Campo, W. on 12.....	1,125	595	1,388	746
S. on C.R.....	487	351	533	298
E. on 12.....	1,506	834	1,844	940
<b>Route 12. District VIII</b>				
On Imp-12-B.....	1,117	614	1,288	727
El Centro W. of Cy. at Jr. Rt. 26 to S. Bd., W. on 12.....	1,990	1,769	2,843	2,774
N. on 26.....	2,240	2,477	3,299	3,660
E. on Mulberry Lane.....	733	837	2,191	2,353
S. from Interx.....	3,133	3,302	4,040	4,117
<b>Route 13. Salida to Rt. 23 at Junction</b>				
<b>District X</b>				
Salida Jct. Rt. 4, E. of Jct.....	230	344	421	404

Station location	July, 1928		July, 1929		Station location	July, 1928		July, 1929	
	Sun. 15	Mon. 16	Sun. 14	Mon. 15		Sun. 15	Mon. 16	Sun. 14	Mon. 15
E. of Salida at Nelly's Jr. C.R. to Modesto.					Lakeport S. of town at Jc. C.R. to Kesbeville.				
W. on 13.....	522	535	580	459	N. E. on 15.....	1,494	1,087	1,498	1,206
S. on C.R.....	2,139	1,945	2,117	1,572	S. on C.R.....	1,021	798	960	922
N. E. on 13.....	2,248	1,935	2,168	1,581	W. on 16.....	492	280	478	344
E. on 13.....	1,456	1,179	1,742	1,259					
Oakdale W. of City.....					<b>Route 17. Roseville to Nevada City</b>				
Mountain Pass Jct. Rt. 49 to Yosemite.					<b>District III</b>				
S. W. on 13.....	750	586	1,264	632	Roseville E. of City.....	3,761	2,139	3,061	2,193
S. E. on 49.....	411	214	819	220	Auburn W. of Cy. Jct. Optar Road & Wise P. H.,			1,955	1,868
N. E. on 13.....	1,634	490	1,356	838	E. on 17.....			2,277	1,877
Sonora S. of City.....	2,364	1,740	2,424	1,618	W. on 17.....			312	290
Sonora E. of City.....	1,850	1,174	1,884	1,071	N. on C.R.....			1,935	1,808
E. End of Sullivan Cr. Br.,			820	618	Auburn S. of City at S. P. King	3,267	1,978	1,479	796
E. on Br.....			1,086	473	Auburn N. of Cy. S. on 17.....	1,479	796	657	275
N. E. on 13.....			1,884	1,071	E. on C.R.....	118	72	54	67
W. over Br.....					E. on 17.....	1,414	736	623	386
Jct. St. Highway & Rd. to Pine Cr.,			660	247	Grass Valley S. of City.....	1,485	678	1,282	631
E. on 13.....			540	273	Nevada City S. of City.....	1,559	1,236	1,969	1,509
W. on 13.....			914	296					
S. E. on C.R.....					<b>Route 18. Merced to Rt. 40 near Sequoia</b>				
Jct. St. Highway & C.R. at Fosley's,			1,612	875	<b>District VI</b>				
W. on 13.....			1,961	872	Merced 1.6 Mi. E. at Interx C.R. & 21st St.,			2,714	2,212
E. on 13.....			434	171	W. on 18.....	2,714	2,212	2,598	2,268
S. on C.R.....					E. on 18.....	2,664	2,326	2,631	2,448
Hl. Confidence and Bakers Sta.....	796	217			N. on C.R.....	1,037	766	1,037	1,419
					Merced 13 Mi. E. at Interx C.R. to Le Grand,			1,774	1,763
<b>Route 13. District IX</b>					W. on 18.....	181	63	181	63
Jct. Rt. 23.....	73	87	37	35	E. on 18.....	1,819	1,701	1,877	1,284
					Mormon Bar at Int. with C.R. to Mormon Bar,			2,418	1,465
<b>Route 14. Albany to Martinez</b>					S. on 18.....	543	237	543	254
<b>District IV</b>					N. on 18.....	2,427	1,561	2,427	1,325
Albany at Co. Line.....	21,947	13,870	26,025	15,862	Princeton at Bear Cr. Br. on 18,	1,663	999	1,618	1,631
Jct. C.R. to Richmond,					El Portal Jct. Co. Rd. El Portal,			1,850	1,211
S. on 14.....	20,958	13,217	25,426	11,968	W. on 18.....			1,819	1,257
W. on C.R.....	8,760	5,648	8,631	5,378	W. on C.R.....			381	287
N. on 14.....	15,890	8,097	16,934	8,843	<b>Route 19. From Rt. 9 West of Claremont to Riverside</b>				
Jct. Franklin Canyon Rd.,					<b>District VIII</b>				
S. on 14.....	10,741	5,080	11,276	5,192	Det. Pomona and Ontario at Chino Cross Roads,			9,612	8,887
E. on C.R.....	2,629	1,179	2,400	1,205	W. on 19.....	9,612	8,887	10,074	6,959
E. on 14.....	8,782	4,173	9,150	4,273	N. on C.R.....	179	253	98	147
Crockett 1 Mi. S. of City at Jc. C.R. to Crockett,					S. on C.R. to Chino.....	1,164	1,266	290	304
S. on 14.....	2,031	1,342	2,197	1,529	E. on 19.....	9,965	6,857	10,566	6,523
W. on C.R.....	1,179	1,175	1,152	1,258	L. A. Co. L. E. Lts. Pomona.....	16,077	7,071	11,733	7,540
N. on 14.....	1,929	1,273	1,808	1,315	East of Ontario E. City Lts. at Jc. of New S. Rd.-19-B with old road,				
Martinez W. Cy. Lts.....	1,519	692	1,127	542	W. on 19.....			4,645	3,054
Carquinez Straits Br.....	7,094	3,239	7,269	2,244	W. on 19.....			1,690	691
					Ontario Cy. Lts. N. W. on 19.....	2,563	2,298	3,873	2,274
<b>Route 15. Rt. 1 near Calipolla to Rt. 37 near Cisco</b>					At S. Rd.-Riv. Co. Line.....	3,922	2,145	4,355	2,673
<b>District IV</b>					Winerville E. of City.....	4,616	2,649	4,212	2,421
Utah N. at Jc. Rt. 1.....	889	620	1,019	749	Riverside W. of Cy. near Santa Ana Riv. Br.....	6,554	5,500	13,265	5,098
Upper Lake S. of Cy. Jc. C.R. to Lakeport,					Los Angeles Co. Line E. Cy. Lts. Pomona.....			8,534	2,159
W. on 15.....	766	683	1,198	1,181	<b>Route 20. Rt. 1 near Arcata to Redding via Weaverville</b>				
S. on C.R.....	941	892	763	566	<b>District I</b>				
N. on 15.....	851	408	927	894	Arcata N. of Cy. at Jc. Rt. 1.....	1,647	831	1,388	924
Upper Lake Jc. C.R. to Bartlett Springs,					Willow Creek Jct. C.R. to Hoopa,			144	59
W. on 15.....	927	869	404	349	W. on 20.....	131	84	135	76
E. on C.R.....	303	242	59	34	N. on C.R.....	107	71	169	87
S. on 15.....	48	51	371	320	E. on 20.....	189	121	188	86
					Humboldt-Trinity Co. Line.....				
<b>Route 15. District III</b>					<b>Route 20. District II</b>				
Hog Hollow Jct. Rts. 49 & 15,					Big Bar vicinity.....	59	86	88	79
E. on 15.....	105	58	266	354	Weaverville 3 Mi. South.....	123	133	134	297
S. on 49.....	229	104	272	217	Det. Redding and Tower House.....	319	208	259	413
N. on 15.....	163	90	379	443	<b>Route 21. Rt. 3 Nr. Richvale to Quincy</b>				
Near Venada Jc. C.R. to Bartlett Springs,					<b>District III</b>				
S. on 15.....	120	96	102	97	Richvale Wye.....	383	315	449	238
W. on C.R.....	95	53	72	66	Orville W. of Cy. at Jct. Marysville Rd.,			1,790	1,722
E. on 15.....	214	141	215	160	N. on 21.....			1,967	1,026
Williams W. of City.....	485	494	655	551	S. on C.R.....			827	598
E. of City.....	453	431	539	477	Orville E. of City.....	1,149	767	1,510	1,142
Colusa E. of City.....	802	673	909	760	Bidwell Bar Br.....	397	130	599	223
Sutter City,									
W. on 15.....	851	681	893	624					
N. on C.R.....	258	226	309	217					
E. on C.R.....	373	563	366	456					
S. on 15.....	1,049	859	1,045	896					
Marysville E. of City.....	1,654	684	1,031	656					
Smartsville E. of Cy. N. on 15.....	295	178	351	126					
W. on 15.....			362	130					
W. on C.R.....			85	52					
Grass Valley W. of City.....	573	332	727	410					
Nevada City E. of City, E. on 15.....	344	245	427	247					
<b>Route 16. Hopland to Lakeport</b>									
<b>District IV</b>									
Hopland at Jc. Rt. 1.....	779	868	711	787					

Station location	July, 1928		July, 1929	
	Sun. 15	Mon. 16	Sun. 14	Mon. 15
Miners Ranch, N. on 21.....	654	173	837	245
S. on C.R. ....	240	123	252	134
W. on 21.....	828	274	1,608	302
Derry Creek.....	190	68	329	141
Meadow Valley,				
W. on 21.....	120	105	147	125
N. on C.R.....	51	73	100	114
E. on 21.....	78	54	179	141
Quincy.....	312	269	552	266

Route 22. San Juan Bautista to Rt. 32 via Hellister

District V

San Juan Bautista S. of City at Jct. Rt. 2.....	2,652	1,525	3,001	1,789
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Route 22. District IV

Hollister Junction Jo. Rt. 32.....	1,130	614	1,055	699
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Route 23. Sausog to Rt. 11 at Alpine Jct.

District VII

Sausog Jc. with Rt. 4.....	4,738	2,069	3,896	2,405
Palmdale S. of Cy. Lts.....	2,266	1,421	2,111	1,574
Lancaster Jc. with R. 59 to Nennach,				
S. on 23.....	1,596	1,363	1,913	1,542
W. on 23.....	656	616	690	584
N. on 23.....	1,274	1,012	1,361	982
L. A. Kern Co. Ltns.....	759	518	839	540

Route 23. District IX

Mojave Jct. Rts. 58 and 23,				
S. on 23.....	495	486	821	569
E. on 58.....	109	197	151	90
N. on 23.....	577	566	624	911
Mojave Jct. C.R. to Bakersfield,				
S. on 23.....	986	850	778	619
N. W. on C.R.....	623	410	393	292
N. on 23.....	630	349	478	353
Freeman 1 Mi. N. Jc. to Rt. 57,				
S. on 23.....	374	213	415	314
N. on 57.....	62	28	87	62
N. on 23.....	385	230	334	439
Kern-Inyo Co. Line.....	459	230	435	395
Olantha Jct. C. Rd. to Keeler,				
S. on 23.....	225	160	524	347
E. on C.R.....	12	10	25	28
N. on 23.....	323	221	520	347
Lone Pine S. Cy. Lts. Jct. C. Rd. to Keeler,				
S. on 23.....	864	762	707	668
E. on C.R.....	51	41	105	109
N. on 23.....	909	833	759	687
Big Pine Jc. Rt. 63 to Ocala,				
S. on 23.....	993	648	835	586
E. on 63.....	68	99	67	70
N. on 23.....	992	610	817	554
Bishop $\frac{1}{2}$ Mi. N. at Jo. C.R. W. to Lawn & Dir: Rd. Easterly,				
S. on 23.....	1,538	1,069	1,314	1,088
N. on C.R.....	315	379	324	368
E. on C.R.....	40	29	22	21
W. on 23.....	1,662	730	997	732
Leaving Jct. Rts. 49 & 23, on 40 on 23.....	157	216	268	197
S. on 23.....	410	335	379	387
Mono-Inyo Co. Line.....	686	354	652	397
Mono 23-L.....	239	241	341	367
Bridgeport at E. Cy. Lts.....	264	307	227	365
On Mono 23 K.....	263	291	177	122
Sonora Jct., Jct. Rts. 13 & 23,				
S. on 23.....	78	143	174	100
W. on 13.....	72	87	87	33
N. on 23.....	120	195	170	213

District X

S. of Markleville Jct. Rt. 24, on 25 on 24.....	47	33	60	59
S. on 24.....	47	33	41	37
Fickets Jct., Jct. Rt. 34, E. on 23 W. on 24.....	153	116	86	63
N. W. on 23.....	128	81	90	26
N. W. on 23.....	121	117	73	38
Jct. St. Hy. & Co. Rd. at Woodfords,				
S. E. on 23.....			82	35
N. E. on C.R. to Minden.....			109	50
N. W. on 23.....			72	25

Route 24. Route 4 near Lodi to Route 23 near Silver Creek

District X

Lodi Jct. Rt. 4.....	1,543	1,186		
Jct. Rt. 24 & Co. Rd. to Ione,				
W. on 24.....	1,890	926	1,892	844
N. on C.R.....	1,060	369	1,024	302
E. on 24.....	951	605	1,024	855

Station location	July, 1928		July, 1929	
	Sun. 15	Mon. 16	Sun. 14	Mon. 15
Bet. San Andreas and Valley Springs.....	767	359	897	385
Jct. Rt. 24 & C.R. to Vallecita,				
K. on 24.....	500	312	653	285
S. ou C.R.....	168	81	175	117
W. on 24.....	601	308	641	298
Jct. Rt. 24 & Co. Rd. to Murphys,				
S. on 24.....	523	292	654	289
N. on C.R.....	421	195	485	292
E. on 24.....	732	329	852	377

Route 25. Nevada City to Downieville

District III

Nevada Cy. N. of Cy.....	382	246	418	225
Comptonville N. of Cy.....	239	230	293	151
Downieville Jct. Rts. 25 & 36,				
W. on 25.....	137	121	251	146
N. on 26.....	9	9	10	7
E. on 25.....	166	112	251	149

Route 26. San Bernardino to El Centro

District VIII

San Bd.-S. of Cy. at N. end of Santa Ana R. Br.,				
N. on 26.....	2,504	2,200	Not taken	
W. on C.R.....	3,422	2,422	Not taken	
S. on 26.....	3,961	3,153	Not taken	
Jct. Rd. to Colton at Intex with Mt. View Ave. W. of Redlands,				
E. on 26.....	3,494	2,677	4,741	5,341
S. on C.R.....	1,066	827	962	707
N. on C.R.....	1,143	817	1,661	1,549
W. on 26.....	2,714	1,924	4,246	2,800
S. E. of Redlands Jc. C.R. to Yucisca, N. W. on 26.....	2,245	1,630	2,773	2,115
E. on C.R.....	453	512	588	636
S. E. on 26.....	1,749	1,258	2,224	1,634
At S. Bd. Riv. Co. Line.....	1,872	1,223	2,386	1,736
Beaumont Jc. Jack Rabbit Trail,				
N. W. on 26.....	1,322	1,084	2,226	1,390
W. on Jack Rabbit Trail.....	858	826	1,147	870
E. on 26.....	2,150	1,479	3,051	1,945
Banning W. of Cy.....	2,139	1,560	2,637	1,913
At Jc. with C.R. to Palm Springs,				
E. on 26.....	946	752	1,115	925
S. E. to Palm Springs.....	185	151	243	184
N. on 26.....	1,057	844	1,304	1,010
Coachella S. of Cy. at Jc. C.R. to Thermal & Mecca,				
N. on 26.....	1,128	1,361	1,083	1,059
E. on C.R.....	697	751	534	547
W. on C.R.....	173	357	185	182
S. on 26.....	706	945	777	761
At Riv. Imp. Co. Line.....	608	667	861	766
Westmoreland at R. R. Xing.....	1,529	1,432	1,586	1,777
Brawley at F. Cy. Lts. Jct. with Western Ave.,				
W. on 26.....	1,860	2,034	2,356	2,596
N. on Cy. St.....	156	119	130	118
E. on Cy. St.....	1,790	1,925	2,339	2,509
S. on Cy. St.....	237	189	167	141
Brawley Jc. S. W. of Cy.,				
E. on 26.....	1,799	1,326	2,591	2,656
N. on Cy. St.....	1,628	1,312	2,456	2,642
N. W. on C.R.....	186	199	146	125
El Centro W. of Cy. Jc. Rt. 12.....	2,240	2,477	3,299	3,600

Route 27. El Centro to Yuma

District VIII

El Centro N. of Cy. at Jc. C.R. N. to Brawley & S. to Calexico,				
W. on 27.....	1,719	2,076	2,671	3,082
N. on C.R.....	175	157	146	104
S. on C.R.....	181	171	152	185
E. on 27.....	1,702	2,176	2,009	3,014
E. of Holtville.....	1,102	1,504	1,616	1,621
Sand Hills Maint. Sta.....	492	396	464	451
Yuma at SDA Plant Quarantine Station.....	1,922	1,666	2,461	1,765

Route 28. Redding to Nevada Line via Alturas

District II

Redding S. of Cy. at Jc. with Rt. 3 Montgomery Creek.....	527	567	665	654
4 Mi. E. of Pittville at Maint. Sta.,	260	178	311	306
Canby.....	142	98	182	122
5 Mi. N. Alturas at Jct. with Lakeview Rd.,	213	181	279	244
S. on 28.....			332	326
N. on C.R.....			265	193
E. on 28.....			219	121



Route 43. San Bernardino to Big Bear Lake

District VIII

Station location	July, 1928		July, 1929	
	Sun.	Mon.	Sun.	Mon.
Foot of Waterman Grade.....	2,957	831	3,328	1,937
Pinecrest Jc. C.R. to Lake Arrowhead.				
S. W. on 43.....	2,292	517	3,175	725
N. E. on C.R.....	2,126	472	3,053	667
N. W. on C.R.....	263	193	216	82
E. on 43.....	295	101	216	73
Burnside Springs Park Jct. Cy. Creek Rd.,				
N. on 43.....	437	178	639	133
W. on Cy. Cr. Rd.....	1,303	414	938	239
E. on 43.....	1,636	563	1,458	577
W. end of Br. over Big Bear Dam,				
W. on 43.....	1,361	557	1,454	592
E. over Dam.....	1,528	677	1,458	610
N. E. on 43.....	1,040	458	794	378
1 MI. from end of Rt. 43 Jct. C.R. to Pineknut,				
W. on 43.....	366	189	296	201
S. on C.R.....	446	228	149	112
E. on 43.....	570	325	325	212

Mill Creek Lower Control, S. Bd. Co.

Jct. Big Meadows, S. to Redlands	492	139	499	141
E. to Big Meadows	259	58	229	53
N. to Big Bear Lake	187	86	397	106

Big Bear Lake Desert Route

Jct. E. of Baldwin Lake, N. to Desert	132	56	141	61
W. to Big Bear Lake	143	54	121	51
S. on E. side of Baldwin Lake	59	19	34	10

Route 44. Boulder Creek to Redwood Park

District IV

Boulder Creek at Park Line....	2,128	1,259	2,311	1,326
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Route 45. Willows to Rt. 3 N. of Biagg

District III

Willows, E. of City.....	631	706	634	742
Butte Cy. W. of Cy., N. on 45....	382	361	244	323
N. on C.R.....	148	183	180	125
S. on C.R.....	486	423	510	509
E. on 45.....	390	458	513	508
Butte Cy., 3 mi. E. of Jct. Chico Rd.,				
E. on 45.....			167	94
W. on 45.....			257	242
N. on C.R.....			163	95
S. on C.R.....			47	98
Cherokee Canal Jct. with C.R. to Rickvale,				
W. on 45.....	46	62	104	82
N. on C.R.....	61	92	112	122
E. on 45.....	63	70	88	97

Route 46. Route 1 near Klamath River to Route 3 near Cray

District II

Weitchee Jc. Co. Rds.....	48	56	54	51
Thompson Creek.....	68	64	45	58
Cray N. of Cy. Jct. Rt. 3.....	495	298	348	292

Route 47. Orland to Chico

District III

Orland E. of City.....			842	695
Gianelli Bridge on 47.....			947	529
Chico W. of City, W. on 47.....	1,325	1,151	1,408	1,130
S. on C.R.....	431	453	679	620
N. on C.R.....	122	196	378	498
E. on 47.....	1,589	1,423	1,877	1,634

Route 48. Near McDonalds to mouth of Navarra River

District IV

McDonald Jct. Rt. 1.....	375	316	432	278
Booneville, on 48.....	324	491	649	446
Navarra, 2.3 miles W. of town....	47	359	514	346

Route 49. Callista to Lower Lake

District IV

N. of Callista at foot of grade....	1,329	526	1,459	610
Middletown Jct. Cobb Mt. Rd.,				
N. on 49.....	1,263	691	1,359	877
S. on 49.....	781	364	1,857	1,132
W. on C.M.R.....	1,967	1,071	660	448
Lower Lake Jc. Kelseyville & Lower Lake Road,				
S. on 49.....	649	431	884	431
E. on L.L.R.....	928	729	1,232	774
W. on K. Rd.....	414	324	531	333

Route 51. Santa Rosa to Schellville

District IV

Station location	July, 1928		July, 1929	
	Sun.	Mon.	Sun.	Mon.
Santa Rosa E. of City.....	4,160	2,458	4,248	2,420
3 MI. E. of Santa Rosa at Sonoma Cr. Dr. ....	2,873	1,161	1,608	2,544
Schellville Jct. Rt. 8.....	2,487	878	3,256	1,912

Route 52. Alto to Tiburan

District IV

Belvedere Jct. Mt. L.....	2,293	1,060	2,839	1,109
Richmond to San Rafael Ferry....	No count			

Route 53. Fairfield to Lodi via Rio Vista

District X

Demerston at Overhead Xing.....	671	570	537	371
Rio Vista at Bridge, N. on 53....			1,475	1,696
W. Br.....	1,565	1,177	2,206	1,374
S. on C.R.....			1,453	918
Walnut Grove at Bridge, W.....			1,968	1,484
E. on 53.....			1,836	1,298
S. over Br.....	518	301	547	423
West of Cawverie near Tuleton....	3,028	2,164		
East End of Tuleton Br., W. over Rr. N. on 53.....			3,218	1,760
S. on 53.....			366	233
Thornton Intersection C. Rd.,			2,447	1,932
E. on 53.....	1,549	1,109		
N. on C.R.....	762	619		
W. on 53.....	1,247	782		
Jct. St. Hy. & Co. Rd., E. on 53.			1,395	911
W. on 53.....			1,981	749
N. on C.R.....			545	402
Lodi N. of City.....	1,258	1,161	1,341	1,593

Route 54. Near Michigan Bar to Central House

District X

Central House Jct. Rt. 65 to Placerville & Jackson			650	273
W. on 54.....	284	111	541	349
N. on 65.....	322	154	594	318
S. on 65.....	263	133		

Route 55. San Francisco to Route 5 near Glenwood

District IV

Swimming Pool.....	9,341	2,486	17,368	5,275
Jct. with C.R. to Colma, N. on 55	5,718	1,934	9,725	1,825
E. on C.R.....	2,414	680	3,727	987
S. on 55.....	6,019	1,298	11,195	1,887
Jc. C.R. to Belmont at Dirt Dam,				
N. on 55.....	3,814	590	5,795	834
SE. to Belmont.....	2,488	415	2,769	456
W. to Half Moon Bay.....	4,225	798	5,660	898
Jct. Rt. 55 with Co. Rd. W. to Half Moon Bay,				
N. on 55.....			3,468	894
S. on 55.....			2,187	255
W. on C.R. to Half Moon Bay			3,305	611
S.C.I.-S.Cr. Co. Line between Saratoga Gap and Route 5.....	63	27	32	9
S.C.I.-S.Cr. Co. Line Jct. Rt. 5 & 53.....	32	19	160	39

Route 56. District V

S. of Carmel Interx of Carmel Valley and Big Sur Roads.....	1,575	944	1,972	1,194
San Simeon 1 mile S.....	240	183	286	153

Route 57. Santa Maria to Freeman via Bakersfield

District V

Santa Maria N. of Cy. at Jo., Rt. 2.....	203	96	244	188
At Interx Rt. 57 & Suez Rd.,				
S. on C.R.....	185	122	159	60
E. on 57.....	327	134	340	123
Cuyama Lateral between 2d Cuyama Xing & Kern Co. Line,				
W. on 57.....	182	59	213	96
E. on 57.....	173	53	199	81

Route 57. District VI

SLO-Ker. Co. Line.....	376	87	277	147
Maricopa W. of Cy.....	535	353	506	338
Pentland at RR Xing.....	383	392	636	773
Bakersfield Jct. Co. Rd. N. to Connor,				
W. on 57.....	129	139	198	189
N. on C.R.....	43	60	79	30
E. on 57.....	89	75	131	32
Jct. Rt. 4.....	99	85	147	97

Station location	July, 1928		July, 1929	
	Sun.	Mon.	Sun.	Mon.
Bakersfield E. Nile & School house	15	16	14	15
Easterly Cy. Lts.	2,116	1,922	2,370	2,089
Bakersfield 10 Mi. E. at Jct. Co. Club Rd. & Ker. 37-E. on 57.	1,068	192	1,095	471
Bodfish at IntX Rt. 57 with Cr. to Caliente.				
E. on 57.	279	113	270	147
S. on 57.	229	97	228	138
S. on C.R.	52	24	86	37

Route 58. Mojave to Arizona Line near Topoc via Barstow

District IX				
Mojave	169	107	121	90

Route 58. District VIII

Kramer Kern Co. Line	73	89	34	73
Barstow N. of Cy. at Jc. C.R.				
S. on 58	333	276	376	297
W. on 58	199	175	225	172
N. on C.R.	126	95	169	152
Barstow Jct. Rd. E. to Standard Oil Station Back of Harvey House, N.	446	395	418	454
E.	1,066	978	521	551
W.	75	88	88	171
Daggett Jr. Arrowhead Trail, Old Trails Hwy.				
N.	348	291	377	410
W.	756	611	826	681
E.	525	423	579	471
Vicinity Newberry Spruce	405	334	535	425
Vicinity Amboy	305	270	373	376
Near Hancock Jr. C.R. to Searchlight.				
W. on 58	283	224	294	252
N. on C.R.	92	19	23	19
E. on 58	194	237	303	299
Needles W. of Cy. Lts.	611	471	646	541
Needles 5.7 Mi. S. Jc. to Parker and Blythe.				
E. on 58	294	263	429	414
SW. on C.R.	19	41	11	26
N. on 58	319	264	440	435

Route 59. Lancaster to Bailey

District VII				
Lancaster Jct. Rt. 23.	626	616	690	584
Bailey Ranch	107	92	82	84

Route 60. El Rio to San Juan Capistrano

District VII				
Santa Monica Interx Beverly & L. A. 60-B Santa Ynez Canyon.				
W. on 60.	25,553	6,294	28,635	11,189
on Bev. Blvd.	no count		16,611	8,317
E. on 60.	29,517	8,547	53,803	22,492
Lomita on Redondo-Wilmington Rd., on 60, E. of Walnut.	10,261	6,842	13,034	8,161
Seal Beach at L. A.-Orange Co. line	20,785	8,516	24,323	10,394
Newport N. of Cy.	14,759	4,480	16,740	6,049
Newport at Interx Newport-Tustin Road.				
N. on C.R.	10,112	3,645	16,645	7,251
E. on 60.	13,113	5,545	15,710	6,120
W. on 60.	12,243	5,311	11,089	4,054
S. on C.R.	13,833	5,377	14,104	6,094
At Santa Monica Canyon and L. A. 60-B. on Santa M. Canyon Road			25,577	9,876
At Topanga Canyon & L. A. 60B on Topanga C. Rd.			25,152	12,033
At Oxnard S. of City Limits, on Ven. 60-A			9,821	3,753
Santa Monica, Interx Beverly Blvd. and L. A. 60B. Santa Ynez Canyon, E. on 60.			21,423	26,631
Malibu Ranch at Trancas Creek, L. A. 60-A. Sta. 426.		July 4, 1929		24,525

Route 61. La Canada to Mt. Wilson Rd. via Arroyo Seco

District VII				
Pasadena at N. Cy. Lts.	2,334	468	2,557	682

Route 63. Big Pine to Ocala. District IX				
Big Pine Jct. Rt. 23	65	90	67	79

Station location	July, 1928		July, 1929	
	Sun.	Mon.	Sun.	Mon.
Desert Center	84	58	84	81
Blythe S. D. A. Quarantine Sta.	157	119	88	68

Route 65. Auburn to Sonora. District III				
Auburn at Wire Bridge, American River,				
N. on 65	264	137	282	118
E. on C.R.	131	92	189	66
S. on 65	130	85	344	118
Piscerville N. of Cy. Jct. Georgetown Road.				
N. on 65	198	138	256	177
N. on C.R.	49	44	161	117
S. on 65	185	134	292	192
El Dorado S. of City	260	193		

Route 65. District X				
Central House Jct. Rt. 54 to Michigan Bar.				
N. on 65	528	498	541	349
W. on 54	318	282	659	273
S. on 65	447	375	594	318
N. of Jackson Jct. Rt. 34, N. on 65	833	813	875	515
E. on 34	1,319	957	1,282	956
S. on 34	610	298	593	351
S. of San Andreas at Sheep Camp	904	641	1,171	624
W. of Sonora, Jct. C.R. to Jamestown.				
NW. on 65	291	228	343	376
SW. on C.R.	178	156	268	194
SE. on 65	268	213	155	248

Route 66. Maebica to Rt. 5 nr. Mendota School—District X				
Mendota Jct. Rt. 5	3,330	3,971	3,611	2,128

Route 67. Pajaro River to Rt. 2 nr. San Benito River Bridge				
District V				
San Juan Bautista, N. of City at Jct. Route 2	3,390	1,480	3,697	1,533

Route 68. San Francisco to San Jose				
District IV				
San Bruno Jct. with Rt. 2 to San Francisco	3,883	2,581	2,185	1,912
N. City Limits S. S. F.	10,003	5,872	7,380	5,389
So. San Francisco at underpass.	10,007	4,321	10,434	6,840
Burlingame, Jct. 68 with Broadway, Burlingame.				
N. on 68			10,288	4,776
S. on 68			9,261	3,612
W. on Bdwy			2,596	2,060

Route 69. San Quentin Road. District IV				
San Quentin Hill	4,450	1,743	4,904	2,333

Route 70. Ukiah to Men. State Hospital				
District IV				
Ukiah Jct. Route 1	873	960	1,061	1,006

Route 71. Crescent City to Oregon Line. District I				
Crescent City N. of town at Maint. Yard	902	872	1,053	1,067
At Oregon line	315	257	462	499

HOW TIMES HAVE CHANGED

(From the Twenty-five Years Ago Column of the San Francisco Chronicle.)

June 6, 1923—A. H. Pilenburg took the breath of California motorists by making a run from San Diego to San Francisco, a clocked distance of 750 miles over the then existing roads, in six and one-half days. The previous record had been eight days.

Farmer Brown drove his flivver into town one day and left it in the public square.

"Here," yelled a policeman, "you can't park your car there."

"What you got the sign up there for? Don't it say 'Fine for Parking Automobiles?'"

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Department of Public Works

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Port of San Jose—Not appointed  
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**STATE HIGHWAYS IN CALIFORNIA SHOWING THE PRIMARY AND SECONDARY ROAD SYSTEMS AND THE DIVISION OF THE STATE UNDER THE BREED BILL.**



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