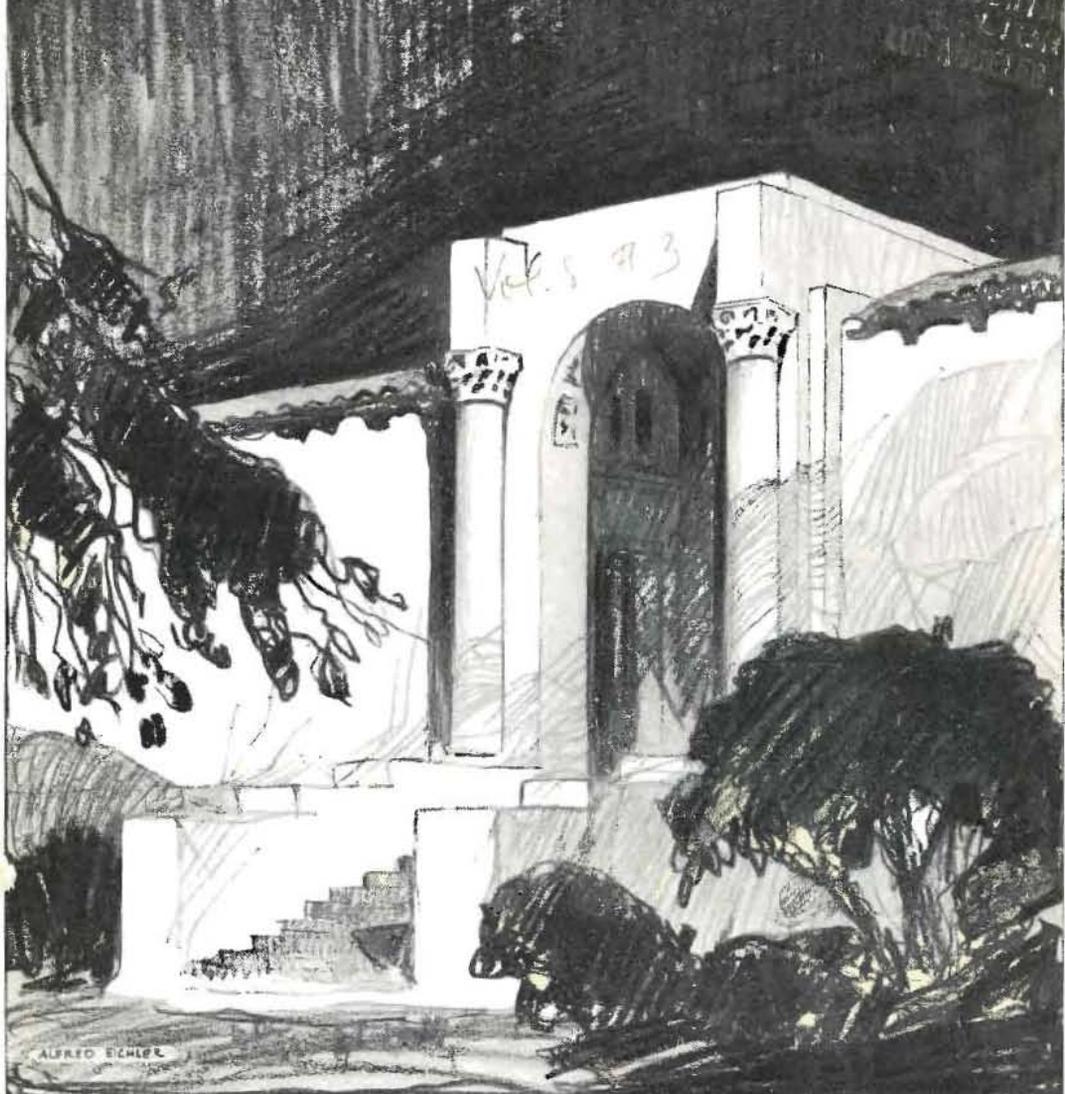


California Highways and Public Works



ENTRANCE TO SCIENCE GROUP, SANTA BARBARA STATE TEACHERS COLLEGE

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Reducing the Hazard From Fires Starting Along State Highways

By T. H. DENNIS, Maintenance Engineer.

THE Division of Highways' Fire Hazard Reduction program was initiated early in 1928 by Mr. B. B. Meek, Director of the Department of Public Works. Prior to that time fire reduction along state highways was more or less incidental to the roadside grading.



T. H. DENNIS.

During 1928 some 660 miles of highway roadside were cleared at a cost of \$37,850. The largest single operation consisted of clearing 29 miles of 80-foot right of way on the southernly portion of the Ridge Route.

The program this past year involved an expenditure of \$54,000 on 885 miles of roadside. The work extended along the Redwood Highway through Sonoma, Mendocino and Humboldt counties; the Pacific Highway, east and west of the Sacramento River to Redding; the Mother Lode Highway between Auburn and Sonora; the Mountain laterals, between Sacramento and Placerville, Clay and Jackson, Lodi and San Andreas; the All Year Highway, between Merced and Yosemite; as well as the Inland Coast laterals between Gilroy and Califa, San Lucas and Hanford, and Santa Maria and Maricopa. Hazards were also reduced along the coast and Inland Highways in San Luis Obispo, Santa Barbara, Ventura, Los Angeles, San Bernardino, and San Diego counties. This year's program now under way has been extended somewhat, and will involve the clearing of 1020 miles of roadway at a cost of \$76,750.

In the main this work has been confined to locations where the highways are bordered

by grain, grazing, or heavy brush areas. Various methods of eradication have been tried out. These included cultivation, mowing, spraying with oils and chemicals, and burning. Of these methods of control burning has been most effective, though considerable risk attends the work particularly when the adjacent fields are dry and inflammable. This risk has been overcome to a large extent by our present practice of spraying the road-sides early in the spring with 27+ gravity Diesel oil.

The spraying last year was handled by five state-owned and four rented outfits. Each unit consisted of a 3½-ton truck, carrying a 1000-gallon tank. At the rear a platform supported a number 2 Trahern spiral gear centrifugal pump, powered by a 1½ h.p. engine. The oil was pumped through a ¾-inch hose, which supplied five orchard type sprays set in a 6-foot section of ¾-inch steel tubing. Oil was applied at a rate of from 1/10 to 1/6 gallon per square yard of surface treated.

The oil spray imparts a brownish-green color to the roadsides, and within a week's time the growth has withered and dried to the stage where it can be readily burned. This method, however, is too expensive for general application, as the cost per mile of treating a 9-foot area both sides of the roadway, exclusive of burning, is \$70 to \$115, respectively, for the 1/10 or 1/6 gallon application. This cost is based on Diesel oil at 4 cents per gallon, and its application at 2½ cents per gallon. Due to this high cost we limited the treatment last year to a 4½-foot area adjacent the fence lines, where the growth is heavy and particularly difficult to eradicate except by burning. This strip usually served as an effective fire break for the burning performed after the roadside growth was matured and dried up.

The progress was necessarily slow, as the spray was hand directed, and application thus limited to walking speed. The weight of the spray and hose imposed a considerable burden on the operator. During the past winter our Headquarters Equipment Department redesigned the spraying unit, resulting in greater progress and ease of application. This outfit consists of a trailer unit to be attached

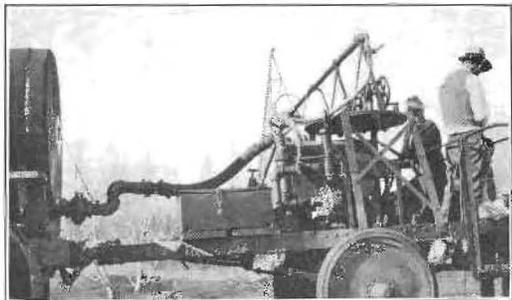


Weed spraying unit attached to 1000-pound truck.

to a tank truck. This trailer carries the pump unit, together with a telescopic outrigger arm, which supports a $\frac{1}{2}$ -inch rubber hose. The outlet end of the hose is attached to a 9-foot spray bar. The operator stands on a platform on the trailer and easily controls the position of the outrigger and raises or lowers the spray bar as required. A similar outrigger arrangement has been built for installation on the regular heavy oil spreader trailer units, and it is expected these units will give greater volume per day, because of the greater pump capacity. Our best progress in light hours with this unit is two 9-foot strips along 8 miles of roadway.

Portions of the work last year were contracted to carry out peak load, but the results were not entirely satisfactory. The contractor was interested mainly in the amount of oil spread, and made little effort to avoid spraying trees, shrubs, or even guard rails, which greatly increased the subsequent burning costs. We favor doing the work by contract, providing we can safeguard against such promiscuous spraying.

Burning costs have averaged between \$20 and \$30 per mile, depending on the amount of protective measures required. Considerable care is necessary in this phase of the work, as a slight change in wind might easily



A close-up view of the weed spraying unit.

blanket the highway with smoke, causing a grave hazard to traffic. To guard against this contingency, our men are instructed to control all traffic through the burning zone.

They are also instructed to secure the consent and aid of the owner before burning in front of his property. If this is refused, no burning is done, as we feel the work is primarily for the owner's benefit, and our men should not be obligated to assume his responsibility. In general, we do not expect to carry on this work after April 1.

This year we are carrying on extensive experiments with a nonpoisonous agent which is sprayed on the roadsides similar to the Diesel oil. The killing action is very similar to that of the oil, though it is claimed that burning is unnecessary, as the growth shrivels up and disappears. Claims are also made that after several yearly applications the ground becomes sterile and future growth is eliminated. Needless to say, we are very much interested



Spraying arm in working position.

in having this prove a success, as it eliminates burning, which greatly disfigures the roadsides.

The results of this work the past two years have been very encouraging, few if any, preventable fires starting along our highways. In this part of our work we have had the hearty cooperation of the Department of Natural Resources, Bureau of Forestry, also of several county organizations which had equipment available.

While this phase of hazard reduction is of particular interest to the grower and cattleman, there is yet another which presents a problem of state-wide interest. I refer to the protection of our state and national forests.

Early in 1924 a cooperative agreement was concluded with the U. S. Department of Agriculture, Forest Service, whereby the Division of Highways' employees were pledged to re-

(Continued on page 24.)

Sending the Highway Patrol to School

By JAMES J. BORREE, Head of the Bureau of Schools and Education of California Highway Patrol.*

LEGISLATORS, police and traffic chiefs, and all others interested in the subject, have come to realize that any police or traffic force must be properly trained in its duties to meet modern requirements successfully.

To put a man in a uniform, pin a badge on him, give him a revolver and send him out



J. J. BORREE.

alone on a motorcycle to patrol the highways without preliminary training is fundamentally unsound. To train him adequately in his duties before he starts is practical and economical. Men can not serve efficiently, even though willingly, unless they know what they are doing and unless such knowledge has been fashioned into methods of work.

It is with this thought in mind that we have developed plans for the training schools for highway patrol officers, required by section 30 of the new motor vehicle act. The plan, as developed in its tentative stages, is twofold in scope:

* In this article J. J. Borree, head of the bureau of schools and education of the highway patrol, tells of plans being outlined for the highway patrol school for traffic officers. General Borree spent 27 years as an officer in the regular army, was eight years Adjutant General of California, now holds the rank of brigadier general in the regular army.

1. Immediate establishment of schools in Los Angeles and Sacramento for two weeks of preliminary work to instruct new men to be added to the patrol at once. These new men are being added to carry out provisions of the act requiring the establishment of night patrols.

2. Later establishment of a permanent school at some convenient point where every officer in the patrol may ultimately undergo a three-months course of intensive training.

The course of instruction in the preliminary two-weeks schools will be curtailed of necessity because of lack of time. Its primary purpose will be to instruct the new men in the rudiments of patrol work so that they may not enter their new field altogether untrained. Later, the men getting this preliminary instruction will be required to finish their general traffic education in the general three-months training school. This, of course, can only be done gradually because of physical limitations and the necessity of leaving an adequate number of men on the highways at all times.

It is in this general three-months school that our major effort will be put. The tentative plan is to draw as many men as can be spared from each unit at one time to a central location, put them in charge of experienced instructors and under rigid discipline for the three-months period.

These men, or such as have passed successfully through this intensive training, will be returned to their squads and another contingent of men drawn and ordered to the school. It is not contemplated that the number of men in the school will exceed 60 at any one time.

In this manner it will be possible to train all the officers in the patrol in a period of about one year.

Inclusive of physical training and close order drill the work will require 402 hours of actual instruction. This, however, does not include night study periods.

The life at the schools will follow very closely the routine of barracks life in the regular army. First call will be at 6.30 a.m. with assembly 15 minutes later. There will be 30 minutes of physical drill and close order with breakfast at 7.30 o'clock.

Classes will run from 8.30 to 11.30 a.m. and from 1 to 4 p.m.

There will be frequent study periods in the evenings from 7 to 9. Lights will be out at 10.30 p.m. and every man will be required to be in bed.

It will be seen from this daily schedule that the school will be a serious business with plenty of work and little time for play. Here is the outline of school courses:

Discipline, courtesy, physical drill and military close order, personal and official conduct, contact with public, 22 hours.

First aid, 25 hours; physical contact, 5 hours; target practice, 10 hours; motor care and equipment, 20 hours; court procedure, preserving and preparing evidence, arrests, prisoners, warrants, etc., 30 hours; geography, arithmetic and memory test, 10 hours.

Accidents, including evidence and investigations, preventative measures, safety studies, clearing highways, etc., 20 hours.

Administration, communications, reports, efficiency, 30 hours.

California Vehicle Act, brakes, lights, motor registrations, traffic violations, 158 hours.

The faculty of the school will include a commandant, a senior instructor, assistant senior instructor and five subordinate instructors. Attached to the staff will be a cook, a cook's assistant and three waiters and dishwashers.

In addition to the regular faculty, judges, district attorneys and others will lecture on court procedure and allied subjects at various times. The American Red Cross Society will give a 25-hour course in first aid without cost to the state while motorcycle and automotive agencies will detail experts to give instruction on care of equipment. Several members of the Highway Patrol Headquarters Staff will lecture on brakes, lights, weights, accidents and other subjects.

We feel reasonably certain, from the scope of the course of training, that every patrolman, after undergoing this three-months of instruction will be able to patrol the highways properly and intelligently, to enforce the Motor Vehicle Act and that such instruction will prove a large factor in making our highways safe to the traveling public.

It is our hope to teach the recruit the elements of professional courtesy and to teach every old officer that improvement of the service demands they not only maintain themselves in excellent physical condition but that they improve technique of their daily work constantly.

We hope to instill into the officers a sense

Where, How and What Of Accidents Along State Highways

A RECAPITULATION of accidents for the year October 1, 1928, to September 30, 1929, on the state highways of California brings out the following facts:

In 49.78 per cent, a collision between two cars was involved.

In 85.02 per cent, the driver's condition apparently normal.

In 81.36 per cent, passenger cars were involved.

38.07 per cent show no violation of road laws.

80.13 per cent occurred on straight roads.

56.93 per cent occurred at street intersections.

31.14 per cent involved pedestrians at crossings with no signals.

71.85 per cent involved pedestrians apparently in normal condition.

61.21 per cent occurred where the road surface was dry.

66.13 per cent occurred during clear weather.

49.69 per cent occurred in daylight.

Approximately 60 per cent of all accidents occur within the urban areas.

A Garden is a lovely thing, God wot.

Rose plot;

Fringed pool;

Ferned grot.

The veriest school of peace; and yet the fool
Contends that God is naught!

—From Grayson's "Friendly Road."

of the dignity of their calling and the necessity of developing good will through courtesy. Strict discipline will be insisted upon because discipline produces courtesy, firmness and self respect.

Target practice will be given because firearms in the hands of the unskilled are almost as great a menace as in the hands of the criminally-minded. Instruction in jiu jitsu and physical contact will train our officers to cope with the criminal and first aid will teach them to give succor to victims of accidents.

The course of physical instruction will be such as to encourage the officers to continue it after leaving the school on the general theory that men enjoy life to a fuller degree when they feel fit.

Winter Traffic Count on State Highways

THE winter traffic count on state highways was taken January 12 and 13.

This count has been made on the Sunday and Monday nearest the middle of January and of July for the past six years. The check is made between the hours of 6 a.m. and 10 p.m. each day. For purposes of analysis the record is kept separate by hours. Vehicles are segregated under the following classifications: Passenger cars, light trucks, heavy trucks, trailers, buses and horse-drawn vehicles. Traffic was recorded at 921 separate stations during this count.

Traffic, as a whole, was much lighter than during the count of January, 1929. This is accounted for by the snow storm which occurred during the week end. Many miles of roads were covered with snow and only necessary through traffic was on the roads. During Sunday those who enjoyed snow sports were able to indulge their fun much nearer home than usual. Past records led us to expect a 9 per cent gain in traffic over that of the previous year. The actual figures, as compared with the 1929 count, indicate the effect of weather conditions.

	For Sunday		For Monday	
	per cent	per cent	per cent	per cent
	Gain	Loss	Gain	Loss
Main north and south routes	21.9		2.6	
Laterals between inland and coast routes	5.3		11.3	
Interstate connections	17.4			1.0
Recreational	44.7			5.3
Average all routes	36.2			14.5

As there are more motor vehicles registered now than one year ago, the reduction in business to those catering to the traveling public through decrease in traffic by over one-third, represents a large sum even for a single day.

The gain and loss in traffic, expressed as a percentage of the January, 1929, 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	3.9		23.0	
2	San Francisco-San Diego		32.0	6.5	
3	Sacramento-Oregon Line		3.8		5.3
4	Sacramento-Los Angeles		13.6	6.4	
5	Stockton Santa Cruz		12.3	14.6	
6	Sacramento-Woodland Jct.		3.7	23.7	
7	Tehama Jct.-Benicia		12.2		8.4
3	Ignacio-Cordelia	1.7		20.9	
9	San Fernando-San Bernardino		2.1	2.2	
10	San Lucas-Sequicia National Park	24.1		15.8	

Rt. No.	Description	Sunday		Monday	
		gain per cent	loss per cent	gain per cent	loss per cent
11	Sacramento-Riverton	17.6		25.0	
12	San Diego-El Centro	6.5		8.5	
13	Salida Sonora		28.5		8.5
14	Albany-Martinez		12.3	4.7	
15	Rt. 1 near Calipella-Grass Valley		24.0		7.2
16	Hopland-Lakeport		40.9		43.9
17	Roseville-Nevada City	31.0			24.1
18	Merced-El Portal		37.8		16.6
19	Rt. 9 West of Claremont-Riverside		27.3	9.3	
20	Redding to Rt. 1 near Arcata		26.6		49.7
21	Rt. 3 near Richvale-Quincy	13.1			8.1
22	San Juan Bautista-Rt. 32	45.5		13.7	
23	Saugus-Bishop		29.7		25.0
24	Rt. 4 near Lodi to Valley Springs		41.7		11.4
25	Nevada City-Downsville		87.8		77.1
26	San Bernardino-El Centro		3.5		2.5
27	El Centro-Yuma		8.5	10.4	
28	Redding-Nevada Line		8.6		54.0
29	Red Bluff-Nevada Line		50.2		27.4
30	Route abandoned				
31	San Bernardino-Jean		No count	account snow	
32	Rt. 4 near Califa-Rt. 2 at Gilroy			1.4	24.7
33	Rt. 1 near Bakersfield-Paso Robles	45.5		82.4	
34	Rt. 4 near Arno-Pine Grove		6.0	13.9	
35	Peanut-Kuntz		66.0		71.5
37	Auburn-Collfax	0.7		3.8	
38	Meyers-Nevada Line		52.9		64.8
39	Tahoe City-Nevada Line		Road closed	account snow	
40	Rt. 13 near Montezuma-Rt. 23-Mono Lake		41.3		34.2
41	West and East of Hume		No count		
42	Saratoga Gap at Redwood PK. Gate		No count	account snow	
43	San Bernardino-Big Bear Lake		No count	account snow	
44	Boulder Creek-Redwood Park		4.5	15.2	
45	Willows-Rt. 3 N. of Biggs		21.6		19.5
46	Rt. 1 near Klamath River-Rt. 3 near Cray		42.2		38.6
47	Orland-Chico		10.7		14.2
48	McDonalde-Wendling		10.3		7.2
49	Calistoga-Lower Lake	43.5			3.0
51	Santa Rosa-Schellville	11.5		10.0	
52	Alto-Tiburon		40.7		50.0
53	Fairfield-Lodi		21.9		3.0
54	Near Michigan Bar-Central House		29.4		26.2
55	San Francisco-Spring Valley Dam		13.7	33.6	
56	S. of Carmel Inter. of Carmel Valley and Big Sur Roads		71.0		50.5
57	Santa Maria-Bodfish	17.3		21.6	
58	Mojave-Topoc		32.2		.3
59	Lancaster-Balleys		45.2		15.1
60	El Rio-San Juan Capistrano		63.5		7.2
61	La Canada-Mt. Wilson Rd.	30.2			17.7
63	Big Pine-Oasis		85.3		75.0
64	Mecca-Blythe		43.2		44.2
65	Auburn-Sonora		38.3		18.0
66	Manteca-Rt. 5 nr. Mossdale School		4.9	23.7	
67	Pajaro R.-Rt. 2 nr. San Benito River Bridge		20.4		10.7
68	San Francisco-Burlingame	5.2		89.6	
70	San Quentin Road	12.2		20.3	
78	Ukiah Jct. Rt. 1		35.7		
71	Crescent City-Oregon Line		11.3		2.7
	Totals		36.2		14.5

TRAFFIC CENSUS

January 1929, and 1930
Count 6 a.m. to 10 p.m.

Route 1. Sausalito to Oregon Line District IV

Station location	January, 1929		January, 1930	
	Sun.	Mon.	Sun.	Mon.
Sausalito to Ferry Building	485	275		
Sausalito-Hyde Street Ferry	3,638	1,444		

(Continued on page 25.)

How California Cares for the Blind

By P. T. POAGE, Assistant Architect.

THE CARE of the blind may be divided into three general classes, Educational, Industrial and Benevolent. The State of California has long recognized that proper education of the blind youth and training and employment of the adult blind in useful industrial occupations very largely reduces



P. T. POAGE.

the need for benevolence. In line with this policy it maintains two major institutions, the California School for the Blind in Berkeley and the Industrial Home for the Adult Blind in Oakland. During 1929 a beginning was made toward establishing in Los Angeles a second industrial institution

to serve the southern part of the state.

CALIFORNIA SCHOOL FOR THE BLIND

The California School for the Blind is maintained under the State Department of Education as an integral part of the state's educational system. Its history may be said to date back to 1860 with the organization in San Francisco of the "Society for the Instruction and Maintenance of the Deaf and Blind," which induced the state to erect a building for carrying out the purposes of the society at Fifteenth and Mission streets.

The Deaf, Dumb and Blind Asylum, as it became known, rapidly grew beyond the possibilities of the site and on the recommendations of a legislative committee a new site was selected in Berkeley and the cornerstone of a new building was laid there in 1867. A severe earthquake on October 21, 1868, caused serious damage to the building and loss to the contractor.

On January 17, 1875, fire totally destroyed the building and in the same year reconstruction commenced. That the new buildings which are still used by the School for the Deaf were then considered to be of the best construction, is indicated by a description by Mr. Warring Wilkinson, principal of the Asylum at the time:

"The construction of the buildings is of the most substantial character. Nothing has been sacrificed to show, but every regard has been paid to comfort, safety and durability. A massive, concrete sub-foundation of Portland cement underlies all the walls. The foundations are of stone, granite water table, and superstructure of plain brick, with granite sills, galvanized iron cornice, and slate roof. The partition walls throughout are of brick, interlaced and bonded strongly with iron. All the staircases are of stone, and a spiral stone staircase, at the extreme end of the sleeping apartments, renders it impossible for the children to be cut off should fire, by any chance, obtain possession of the middle portion. The exterior walls are lined, and the interior are built with hollow brick, and plastered without the use of lath or furring, so that there is no wooden communication between the different stories. The basement floor is laid three inches thick, with artificial stone. With all these precautions, it is difficult to see how fire can obtain lodgment, and, if it does, the loss will be confined to a single building, the distance between the different 'homes' being ninety feet."

The stigma of the name "Asylum" was removed in 1905 and the school became known as the California Institution for the Deaf and Blind. A still greater forward step was made in 1921 when the legislature divided the institution into two separate schools, the California School for the Deaf and the California School for the Blind.

With the separation, the School for the Blind was given a portion of the grounds on which have been built new buildings specially planned for the needs of the blind. With the assistance of Dr. R. S. French, able principal of the school, the Division of Architecture has planned and constructed the buildings which make possible the physical separation until it is now practically completed, and the standard of the school has been steadily raised to the point where the students are no longer considered as unfortunate wards of the state but as students in a part of the public school system which differs from the common schools only in the special methods of instruction required.

It is interesting to note the progress in institutional planning as illustrated by following the construction of this institution from its early days. First we have the congregate type of plan, of the original building in San Francisco and of the first development in Berkeley, in which all functions of the institution were provided for under one roof without due regard for their separation.

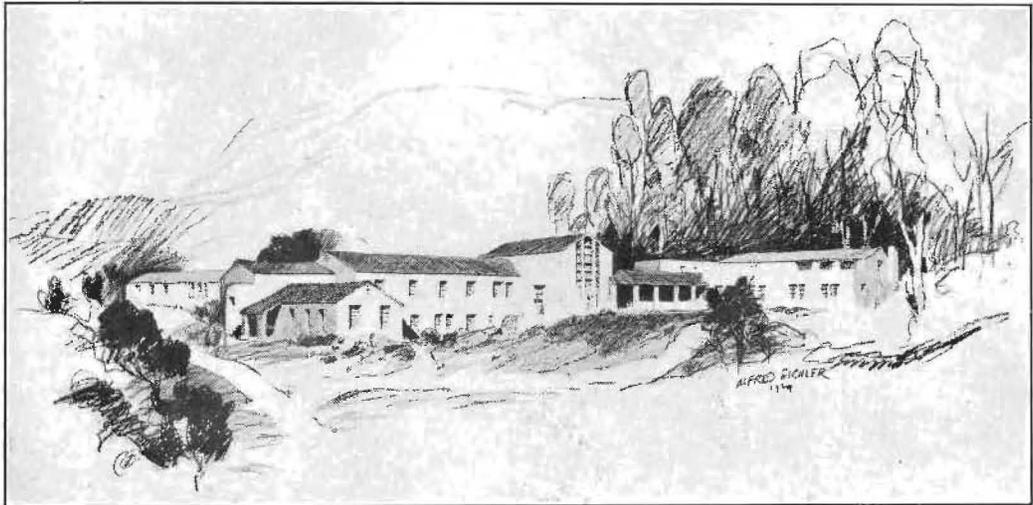
Then after the fire of 1875 we see the advancement to the cottage plan whereby living accommodations are furnished in dormitories entirely separated from administration and educational activities.

The last step, exemplified by the present school, has been the elimination, to a large degree, of the old institutional feeling by a further development of the cottage plan, keeping the dormitory buildings small and dividing the students into small groups within the buildings. Institutional feeding in one large dining room has also been eliminated.

The first unit of the new school was a dormitory for girls, for which funds were appropriated by the 1923 legislature. This building contains living quarters for approxi-

structed to provide a kindergarten room and rooms for vocational training such as basketry, weaving, piano tuning, general shop work, etc.

The complete separation of the blind from the deaf was permitted in 1929 with the completion of the boys' dormitory which is similar in general theory of plan to the girls' dormitory mentioned above. This building is somewhat rambling in plan, adapting itself freely to a hillside site and planned to permit entrance at ground level to both the first and second floors. Segregation is made in groups according to ages, with separate play rooms, and a common dining room with complete kitchen adjoining. Communication between the different floors is by means of ramps rather than stairs. This is a feature not pro-



BOYS' DORMITORY, CALIFORNIA SCHOOL FOR THE BLIND.

mately fifty girls, divided into groups of three or four, with a separate sleeping room for each group.

A large living room with a fireplace at the far end provides ample recreation space for the entire group. A completely equipped kitchen serves the dual purpose of feeding and of providing a practical laboratory for instruction in cooking as a part of the school curriculum. Classrooms are included in the building for instruction in sewing and other domestic arts.

In 1926, the second unit, the school building, was completed. In it are included general classrooms; special rooms for music, science and commercial work; the school library, the administration offices, and an auditorium equipped with a pipe organ. During the coming year an addition will be con-

vided in the other buildings, but considered very desirable.

The buildings are of fire-resistive construction, the walls and floors being of concrete and the roofs of clay tile. Free interpretations of Spanish and Italian motives, adapted to suit the requirements of modern planning, have given pleasing variation to the different units, still maintaining a complete harmony of the whole.

INDUSTRIAL HOME FOR THE ADULT BLIND

The state had long made provision for numerous classes of its unfortunate or defective citizens before attention was directed to the needs of the adult blind. Mining and other industries requiring the use of high explosives contributed largely to the number of adult blind until they became quite numerous and

demanding admission to the Asylum in Berkeley. The trustees of the Asylum resisted and their contention that it was established for scholastic and not industrial purposes was sustained by the courts.



Not to be discouraged so easily, the champions of the cause sought legislative action and in 1885 the legislature authorized the establishment of the Industrial Home for the

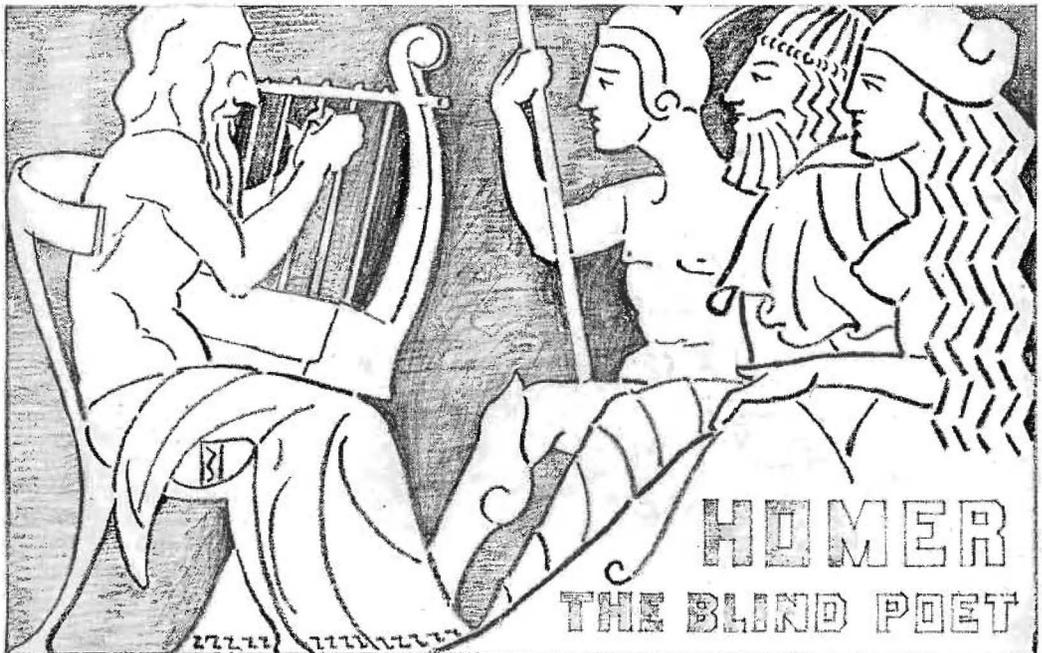
Adult Blind to be managed by the trustees of the deaf, dumb and blind asylum. A site of five acres at Thirty-sixth street and Telegraph avenue, Oakland, containing an 18-room house and two barns was leased with an option to buy, and a two-story shop was erected.

The dissimilarity of the problem of educating the blind youth and that of training, industrially, the adult was soon apparent and in 1887 the Home was established as an entirely independent institution. In the same year, money was appropriated for the purchase of the site and for the construction of a three-story wood frame dormitory, and a residence for the superintendent.

In 1909-1910 the State Engineering Department, forerunner of the Department of Public Works, took its first major part in the development of the institution in planning and building the first permanent building, containing dormitories for women, general kitchen and dining rooms, and the administrative offices. This and the men's dormitory which followed in 1914 were of fire-resistive construction providing needed safety for this type of inmate. These buildings followed the so-called "Mission" style so popular at the time.

No further permanent construction was undertaken until 1922-1923 when a dormitory

(Continued on page 34.)



The two panels shown on this page are part of the wall decorations at the new Industrial Home for the Blind.

Standard Highway Specifications Revised

A REVISED edition of the Standard Specifications for highway and bridge construction is now being distributed among contractors, materialmen, and others interested in state highway work.

The 1930 specifications apply to work advertised on and after March 12, 1930. In line with the present custom, a proposal form will be issued for each job advertised, which will contain special provisions supplementing and amending the Standard Specifications to apply to each particular job.

For the convenience of contractors and engineers who are familiar with the 1929 edition, changes appearing in the revised edition dated January, 1930, are outlined below. This summary is necessarily brief, and for complete information reference is made to the full text.

Section 2, article (d), Proposal Forms has been rewritten in line with our present practice of registering proposal forms furnished to prospective bidders.

Section 2, article (k), Competency of Bidders has been rewritten in line with our present practice requiring prequalification before bidding on state highway work and requiring that proposals shall be accompanied by a statement setting forth a plan for prosecution of the work and a list of the machinery, plant, and other equipment available for use on the proposed work.

Section 3, article (f), Failure to Execute Contract has been revised to provide that the time allowed to execute the Contract and furnish the bonds start from the date the bidder receives notice that the contract has been awarded in lieu of the former provision starting with the date of award.

Section 5, a new article, lettered (j) has been added relative to plant and equipment, requiring that the contractor shall provide adequate and suitable equipment for the work and shall discontinue the use of unsuitable equipment and unsatisfactory plants.

Section 6, article (b), Source of Supply and Quality of Materials: A new paragraph has been added covering local materials when sources are designated in the special provisions. This is similar to the section relative to local materials, formerly included in the special provisions, and provides that when all of the acceptable material at designated sources has been exhausted, the State will reimburse the contractor for the cost of moving his plant to a new source of supply, and will make an adjustment for the difference in length of haul involved.

Section 6, article (d) Special Methods of Test: In the test for hardness and toughness of crushed rock and gravel a requirement has been inserted for loss in the Los Angeles Rattler after 100 revolutions as well as the loss after 500 revolutions.

Section 7, article (c) Patents has been rewritten to require that the contractor assume all costs arising from the use of patented materials, processes, etc.

Section 7, article (g) Preservation of Property: A new paragraph has been inserted, requiring that the contractor shall be liable for any damage by his employees or agents to duly authorized road signs located within the right of way.

The section on Clearing and Grubbing has been revised to permit stumps and large roots which are to be buried 3 feet or more under a fill to remain in place providing that such stumps are cut flush with the existing ground.

In the section on Earthwork the provision of article (e) that the State pay for grading construction roads has been eliminated, and the contractor is required to grade such construction roads as may be necessary at his own expense.

In that portion of the section on earthwork relating to excavation for structures a new paragraph has been added to article (p), Backfill, prohibiting the puddling of backfill in cases where the foundation material is such that it will soften when saturated, and in the case of high abutments or retaining walls where puddling might develop hydrostatic pressure behind the walls.

In the section on subgrade, the article covering subgrade for paving on existing rock or gravel surfacing has been omitted, also the article covering subgrade for second story concrete pavement has been omitted since the former specification will not apply with the newly adopted design using a cushion course for second story concrete.

The section on sand cushion has been entirely rewritten and entitled "Cushion Course." This section provides for the use of sand, gravel, or broken stone up to one inch in size, and calls for material with a cementing value of 50 pounds per square inch, or permits material with a low cementing value to be bound with heavy fuel oil.

In the section on Untreated Crushed Gravel or Stone Surfacing the cementing value has been increased from 80 pounds to 100 pounds. A new article (g) has been added to provide for stockpiling material for future maintenance at the rate of 100 tons per mile. Under the article "Measurement" provision is made that binder material actually entering into or becoming a part of the surfacing shall be included in the pay quantities.

In the section on Oil Treated Crushed Gravel or Stone Surfacing a paragraph has been included under article (d) stipulating that the amount of moisture in the aggregate at the time of mixing shall not exceed 3 per cent. Article (e), Placing, has been rewritten to require that material after spreading shall be bladed into windrows and respread to the required grade and cross-section, also, that should the mixture after spreading show the moisture content in excess of 3 per cent, the moisture content shall be reduced by reworking and allowing the material to dry before final spreading.

In the section on Crusher Run Base the grading requirements have been revised to specify a 20 per cent range for material passing and retained on a 3-mesh sieve, and to specify a limit for the quantity of 200-mesh material. Article (e), Rolling, has been rewritten to specify the number of rollers required in terms of amount of crusher run base laid per day. A new paragraph has been added to article (g),

Measurement, providing that the binder material actually entering into the work shall be included in the pay quantities, and the statement in article (c) that all binder material shall be furnished by and at the expense of the Contractor shall be eliminated.

In the section on Side Forms, article (b) relating to timber side forms has been rewritten to eliminate the use of white fir, and to specify Douglas fir, common, joist and plank grade. Also, side forms are required to be at least 4 inches deep except where placed on existing pavements. The supporting stakes are specified to be of adequate length to support the forms, but in no case less than 8 inches long. In article (c), the length of supporting stake for metal side forms is the same as specified for timber side forms. Article (e), Removing has been revised to provide that after completion of waterbound macadam or bituminous macadam surface timber side forms shall be removed. The former provision is retained that side forms shall be left in place on completion of asphalt concrete surface.

In the section on Waterbound Macadam Base, article (d), Rolling has been rewritten to specify the number of rollers required in terms of the quantity of macadam laid per day.

A new section has been added entitled "Bituminous Surface Treatment." This section will be No. 21, and sets forth the specifications for the so-called armor coat work.

In the section on Bituminous Macadam Surface a requirement has been inserted in article (b) for loss in the Los Angeles Rattler test after 100 revolutions. A new paragraph has also been added requiring that material shall be clean and free from dust and shall be washed if necessary to insure perfectly clean aggregate. Article (d), Rolling has been rewritten to specify the number of rollers required in terms of the quantity of macadam laid per day. Article (f), Placing has been expanded to require that distributors apply a uniform spread of oil, and specify methods to assure a uniform distribution of oil at the junction of two applications. Also, pneumatic tires are specified for oil distributors. In article (g), the amount of bituminous binder for the first application has been increased to include a range of from one-quarter to one gallon per square yard. This article has also been rewritten to require rolling before covering the first application of oil with key rock, and that the key rock be spread by means of a blade or drag. Before the second application of bituminous binder, areas containing excessively fine material are to be removed and replaced with clean key rock.

The five sections on asphalt concrete have been combined in one section to be No. 23 in the new edition. Some changes have been made in the gradings for the various mixtures specified, but otherwise these specifications remain essentially the same.

In the section on Portland Cement Concrete Pavement, article (d), the allowance for low subgrade has been changed to provide for paying for additional thickness of pavement at the contract price up to an increase of 3/16 inch over the authorized cross-section. In article (f), Placing, the requirement that the roadway opposite the side under construction shall be kept clear and open to public traffic has been omitted. Article (g), Super-elevation has been omitted as superfluous. Article (h) will become (g), and requires that all longitudinal and transverse joints, both contact joints and weakened plane joints, be poured with asphalt by the Contractor. The article on expansion joints has been rewritten and elaborated upon as to the equipment required and method of placing expansion joints. A clause has been inserted in the article on tamping requiring a sufficient number of finishing machines to provide one machine for each

300 cubic yards of concrete laid in 10-foot widths per 8-hour day. The article on impervious membrane curing has been rewritten and expanded. In the article on Protecting Concrete Pavement, the size of specimens for flexure test has been decreased to 6 inches by 6 inches in section, also, the Contractor is required to furnish the labor to break the test specimens, while the state will furnish the moulds and testing machines.

The section on Second Story Concrete Pavement has been eliminated, as with the new design recently adopted, calling for a cushion course, there is essentially no difference between second story pavement and pavement laid on new subgrade.

The section on Steel Structures has been entirely rewritten and expanded.

In the section on Timber Structures a new article has been added requiring fire barrels and buckets be furnished and installed at the Contractor's expense.

In the section on Reinforcement a new article has been added, requiring that steel lists be submitted to the Engineer for approval. The article on placing permits the use of tie wire of either 14 or 16 gauge. The minimum clear distance between parallel bars is specified as 2 inches, and the minimum embedment is specified as 1½ inches, except for stirrups, with the provision that the embedment shall be increased where concrete is exposed to the direct action of salt water.

A new Section 34 has been added, covering construction of arched masonry parapet.

The section on Corrugated Metal Pipe Culverts has been entirely rewritten, and includes the 5-clause specification adopted as standard by the American Association of State Highway Officials.

The section on Concrete Curbs and Gutters has been completely rewritten.

The section on Guard Rails permits timber posts to be either of redwood or cedar, and the length is reduced to 5 feet 4 inches so as to permit cutting 3 posts from a 16-foot stick. The requirement for notching timber posts to receive the rails has been eliminated.

The sections relating to paint and painting have been rewritten and consolidated into two sections. One section covers specifications for materials and paint formulae for various purposes, and the other section covers the application.

The section on Slope Paving provides a ¼-inch mortar coat, where, due to steep slopes, the concrete is placed so dry that it will not flush under tamping.

A new section, to be No. 62, has been included on the design of steel highway bridges.

"Did you manage to give the cop the slip?"

"No, he gave me one."—*Exchange*.

The statistician who claims that the automobile industry has not yet reached the saturation point ought to ride in a rumble seat during a rain.—*Life*.

A colored man and his sweetheart, followed by three pickaninnies, applied to the clerk of a Southern courthouse for a license to wed.

The clerk eyed the assemblage doubtfully.

"Whose children are these?" he asked.

"Dey our'n," was the ready response from the man.

The clerk was scandalized, being new at his post.

"You ought to be ashamed of yourselves, waiting to get married till you have a family half grown—"

"Jedge, you'll have to excuse dat," interrupted the "bride," sweetly. "De roads out our way is so bad!"

Grade Crossing Warning

By JOSEPH G. HUNTER, Transportation Engineer,
California Railroad Commission.

THE recent accident on a grade crossing near Ceres in which four persons were instantly killed by a train striking an automobile, stresses the need of constant vigilance by all drivers of vehicles, especially those persons who are in the habit of passing over a familiar crossing frequently.

The driver of the vehicle that was struck by the train near Ceres was accustomed to pass over this crossing four times a day. He resided about two blocks from the crossing, and apparently was thoroughly familiar with the frequency of train operation over it.

The need of constant vigilance by the drivers of vehicles, and the danger of allowing familiarity with the crossing to dull one's sense of caution on approaching it, has also been strikingly emphasized recently by crossing fatalities involving members of the same family, and the same crossing, but in different accidents.

The fact that the grade crossing must continue as an unavoidable evil indefinitely is apparent from a study of the data on grade crossings in California. There are 14,638 grade crossings in the state, of which 12,311 are over main line tracks. It would cost upwards of \$1,000,000,000 to eliminate all of these potential hazards to traffic. To construct grade crossing separations on the major highway crossings alone, would cost approximately \$500,000,000. Of these crossings, more than 2600 are provided with some form of special protection, such as gates, human flagmen, police officers and automatic signals (wigwags).

The Railroad Commission, through its Transportation Division, is continually engaged in surveying the more hazardous crossings with the view to recommending the installation of additional crossing protection. Where the installation of wigwags or other warning devices is considered warranted, suggestion is made informally to the railroad companies that these signals be installed. If not agreed to voluntarily by the carriers, formal proceedings to compel their installation may be instituted. A considerable number of wigwag applications are now pending before the various carriers throughout the state, upon such recommendation.

It has cost the railroads more than \$3,000,000 to install the crossing warnings now in

(Continued on page 14.)

MOVABLE MAIL BOX STAND IS DESIGNED

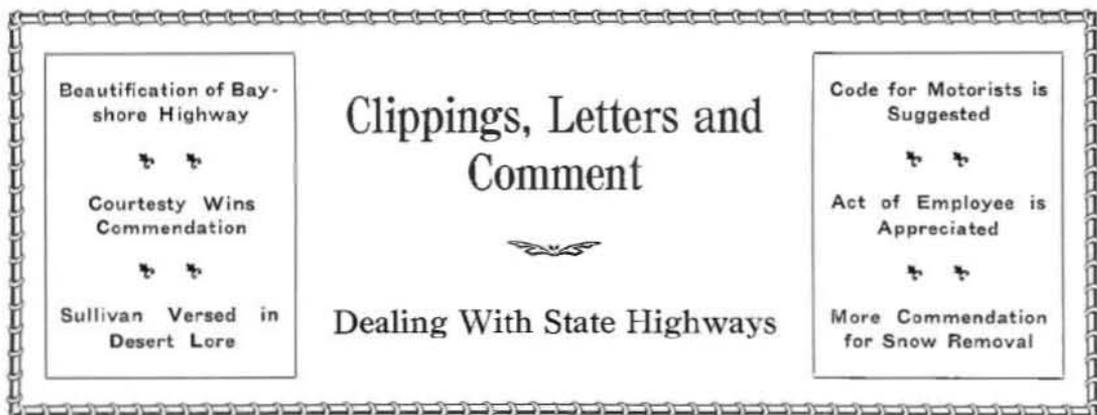


A movable mail box stand has been constructed by Superintendent Carl Nelson, and Foreman F. E. Smith of Merced, in District Six and is being used to replace the present stands in that vicinity.

The advantage of this type of stand is that it is easily removed from the shoulder to permit shoulder or roadside grading. The stand is of sufficient weight to stand in place and for removing is tipped and rolled on its base.

The material used in construction is salvaged or that which is of no further value for use for which it was originally intended.

The base consists of a Ford tire rim picked up along the road. A piece of old 2-inch water pipe is used for the riser, one end of which is punched with holes and wire strung through. This is set in the center of the rim and the space filled with concrete. The platform for the box is a piece of 6- by 6-inch guard rail post, the length of which is governed by the number of boxes it is to carry. For one or two boxes it is cut 18 inches long and a 6-inch bevel cut on each end. A hole is bored the size of the pipe and the block slipped on the box or boxes, being fastened either crosswise or lengthwise as the case may be. The stand is given a coat of white paint and presents a very neat appearance. Two accompanying pictures show single and double construction. The third shows their mobility.



Beautification of Bayshore Highway.

The following letter has been received from Mrs. H. B. Sprague, chairman of the Civic Committee of the Burlingame Woman's Club of Burlingame:

120 Primrose Road, Burlingame,
February 17, 1930.

Mr. T. H. Dennis,
Sacramento.

Dear Mr. Dennis:

I want to thank you for sending to our club the two very splendid and interesting young engineers from your staff.

They gave us excellent talks on the work planned and doing on the Bayshore and their pleasant personalities impressed us most favorably.

We were delighted to be given the landscape plan for the boulevard and appreciate the favor immensely. I hope we can use the plan to good purpose in these meetings.

Very truly yours,

HANNAH C. SPRAGUE.

(Mrs. H. B.)

Newspaper Article Tells of Plan.

This from the *San Mateo Times*:

That the general interest in the beautification of the Bayshore Highway is due in considerable extent to the work of the women's clubs and of their policy of encouraging tree planting was the point brought out yesterday when J. G. Standley, assistant maintenance engineer of the State Highway Commission, spoke before the Burlingame Women's clubs. The speaker outlined the general method of the Commission in granting permits to plant trees and taking care of them for one year before they revert to the care of the state. Recently the state employed a landscape engineer to coordinate the planting system.

Plans for beautifying the Bayshore Highway were outlined by H. Dana Powers, State Arboriculturist. He believes that beautifying the highway should be dignified and well planned and increased from year to year, always bearing in mind that the trees form one of the community's greatest assets. Bowers out-

lined the fundamentals of landscape design as including unity, variety, character, propriety, and finish. He began at the San Mateo County line and gave a resume of the planting plan from there to Third avenue, San Mateo. The plan calls for a definite reason for each tree or shrub and it brings in the native trees and shrubs as much as feasible forming informal naturalistic groupings. Vistas will be created toward the bay and a windbreak planted in the windy sections with the idea in view of not cutting off the view of the hills. Something of the cost and maintenance of the work was outlined by the speaker with the entire cost estimated at \$28,109.

Courtesy Wins Letter of Commendation.

This letter comes from Ben Brown, Inland Division Plant Manager of the Pacific Telephone and Telegraph Company.

Sacramento, February 21, 1930.

Mr. B. B. Meek,
Director of Public Works,
State of California,
Sacramento, California.

Dear Mr. Meek:

I wish to express my appreciation of the help and cooperation given us by one of your highway foremen, Mr. E. M. Shelton at Mt. Shasta City on the afternoon of February 12, 1930.

Our truck driver and one man had a load of poles on a trailer and towed by an F. W. D. truck. The poles were being hauled from Dunsmuir for delivery at Weed.

At Mt. Shasta City, in order to detach the load temporarily, the driver pulled off the pavement. Upon leaving the pavement two wheels of the truck dropped into the soft ground, burying themselves to the axle. After considerable effort on the part of our men, they were unable to move the truck. Mr. Shelton drove up and kindly offered the services of his tractor which was stored at Shasta City.

The offer was accepted and our truck was on its way within one-half hour.

This act is only one of many your employees have done during the reconstruction of our pole line in the Sacramento River Canyon and between Dunsmuir and Yreka.

An act of this kind only proves to us that our efforts to create a cooperative spirit among our employees

have borne fruit. For the continuance of this spirit,
I am,

Yours truly,

BEN BROWN,
Division Plant Manager.

Sullivan Versed In Desert Lore.

The San Bernardino *Telegram* publishes the following article:

E. Q. Sullivan, district engineer of the California Highway Commission, who has made an exhaustive study of the desert, claims that markings indicate that once upon a time, a series of immense lakes flooded the entire desert district.

"Outlines of the beach lines of these lakes may be seen easily in the district near Yuma. There was, at one time, a series of lakes between Victorville and Baker. Scientists who have made investigations of these conditions claim that they are preglacial lakes," Mr. Sullivan stated.

"The largest lake, according to the shore outline, extended from Yermo to Baker, a point 30 miles east of Yermo, and 150 miles from San Bernardino. The State Highway crosses this shore line near Baker."

Mr. Sullivan has photographs of carving and writings found on rocks and in caves in the eastern part of San Bernardino County. There are three types of carving found, two of which, no doubt, were made by Indians.

The third is of a deeper nature and indicates long existence. This third type also appears to be of a more intellectual nature, scientists claim.

Code For Motorists Is Suggested.

The following editorial appeared in the *Stockton Record*:

California's Highway Patrol, provided by the Young administration to protect motorists and reduce traffic deaths, has been provided snappy uniforms and spick and span white motorcycles and automobiles. Bert B. Meek, Director of Public Works, has also given the highway patrolmen a code of ethics. The ideal traffic officer must live up to the following formula, according to Meek:

He must be patient, even where impatience would seemingly be justified.

He must be courteous, even to those who may not be courteous to him.

He must be kindly without sacrifice of firmness.

He must be both a teacher and an officer, his attitude instructive toward those who desire to be instructed.

His control must be courteous but immediate and certain toward those who refuse instruction.

The Meek rules put a heavy tax on the frailties of human nature. To be patient where the circumstances do not justify it and to be courteous when others are "nasty" calls for an officer little short of a combined diplomat and a saint. To keep him in such a frame of mind, the motorist must meet him half way. The car operator will have to have a little code of his own based on the safety campaign instructions of the past few weeks. It might read as follows:

The motorist must observe boulevard stops and not try to slide through.

He must not attempt to pass a standing street car except at a safety zone and then at a speed not over

ten miles an hour. He must slow down in passing schoolhouses.

He must not attempt to pass other cars on a curve.

In case of doubt at a street intersection, he had better yield the right of way, lose a couple of seconds and escape trouble.

If an officer corrects him, he must take the instruction in the spirit that it is given and not try to show himself a "chesty" American citizen.

Employee Wins Commendation.

The following letter of commendation comes from the California State Automobile Association:

Mr. T. H. Dennis, Maintenance Engineer,
State of California Highway Commission,
Sacramento, California.

Dear Mr. Dennis:

During the month of December, one of your highway foremen by the name of Jack Haney apprehended and reported a man by the name of Virgil Brown, who destroyed at least two of our standard reflector signals and the consequence was that said Virgil Brown was fined \$50, in addition to being compelled to pay for the two reflector signals he admitted having destroyed. He was also given a 90-day jail sentence, which was suspended.

I have discussed this matter with our General Manager and several of our directors, who wish me to express to you their appreciation of this splendid service. It is really too bad that those destroying so many of our signs apparently do it in such a way that they are not apprehended. Although we are paying Mr. Haney our usual reward, I am sure that he did not consider this phase when he was attempting to defend our highway signals.

I thought you would be interested in knowing of this case.

Yours very truly,

J. W. JOHNSON,
Chief Engineer.

More Commendations For Snow Removal.

Below is the text of a letter received by District Engineer Comly, from the Intermountain Sportsmen's Association at Burney.

Burney Branch of the
INTERMOUNTAIN SPORTSMEN'S
ASSOCIATION

Burney, California,
February 15, 1930.

Mr. H. S. Comly,
c/o California State Highway Commission,
Redding, California.

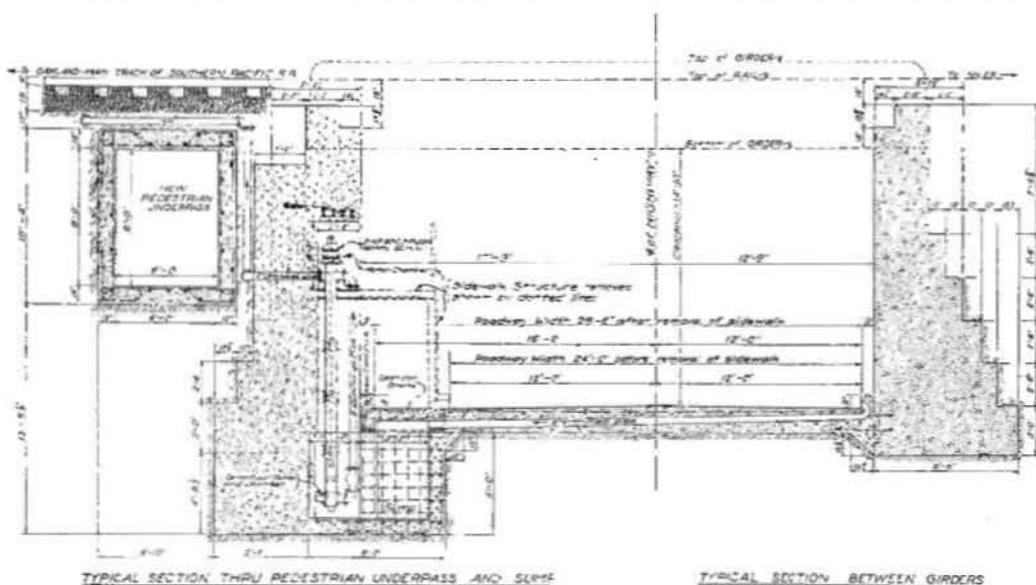
Dear Sir:

At a meeting of our association on February 14, a resolution was made that we express our appreciation for the good work done by the maintenance men of your district, and the Highway Commission, in keeping the roads open during the recent snow storms.

Sincerely,

(Signed) D. M. DESMOND, Secretary.

Rebuilding An Underpass Under Traffic



A unique improvement was obtained at the undergrade structure of the Southern Pacific Railroad in Niles. For some time past this structure has served traffic, the roadway width being but 24 feet. In view of the reconstruction work in which we are providing a 30-foot width of pavement on high standards, permitting of the highest speed permissible, has brought about an acute situation in which fast moving traffic, moving toward the underpass in three-way lanes, could not negotiate the underpass; therefore, the department deemed it advisable to remove the 5-foot side-walk area in order to take advantage of the additional area which allows the roadway width to be increased from 24 feet to 28 feet 6 inches, without disturbing the abutments supporting the Southern Pacific overhead girder.

Pedestrian traffic is being taken care of through the construction of an 8-foot by 6-foot pedestrian underpass installed under the railroad tracks immediately behind the massive concrete abutment and within the highway right of way. The material benefit derived from this reconstructed underpass is of inestimable value, yet the approximate cost of the alteration was only \$8,500. While the full width of 28½ feet is not sufficient to provide ample room for three-way traffic, yet it is wide enough to avert serious accidents which may have occurred in a structure of narrower width. All traffic on this important highway is being carried along the work without any detours, although there is a highly adequate one available for through traffic. The work is attracting widespread attention.

GRADE CROSSING WARNING

(Continued from page 11.)

operation, while the yearly maintenance cost of this equipment is \$1,000,000.

In regard to the responsibility of drivers of vehicles in grade crossing accidents, attention is called to the fact that both the California and the United States Supreme Courts have held in opinions that it is the duty of the driver of vehicles on the highway to make

sure that no train is approaching before crossing over railroad tracks. If necessary, the court held, the driver of the vehicle on the highway should get out and look up and down the track to assure himself that the way is clear for safe passage.

It should be remembered also that the California Motor Vehicle Act prohibits drivers of vehicles from attempting to drive over a grade crossing when the warning signals are in motion.

Progress Made in
Water Resources
Investigation
Irrigation District
Matters

Review of February Activities

In the

Division of Water Resources

EDWARD HYATT, Chief of Division

Federal Power
License Fees
Dam Inspections
Reclamation and
Flood Control

SAN JOAQUIN VALLEY WATER INVESTIGATION

Surveys for the location of main supply canals have been continued throughout the month. The survey of the canal from the Kings River to Kern County (130 miles) has been completed. Mapping of this line is about 50 per cent completed.

A topographic survey at the mouth of the Kern River Canal has been initiated. It is planned to locate a canal at the mouth of Kern Canyon so as to serve agricultural areas now without a water supply south and east of Bakersfield with Kern River water. An exchange would be made with Kings River water at the crossing of the Kern River supplied through the Kings River-Kern County Canal.

A reconnaissance has been made of the possibility of diverting water from San Joaquin River at Temperance Flat Reservoir into the Kings River at elevation 445, the present intake elevation of Kings River-Kern County Canal location. If this is practical it would eliminate an exchange of water at Kings River; San Joaquin water being delivered directly to the areas of deficiency in Tulare and other counties. Only extended and exhaustive studies can determine the efficiency of this method compared with the plan which would effect an exchange at the Kings River.

A transverse and cross section survey has been made of Snodgrass Slough, which has been completed, and surveys are now being extended down the South Fork of the Mokelumne River. The purpose of this survey is to collect and compile data so as to permit an estimate to be made of the cost and feasibility of transporting water across the delta from the Sacramento to the San Joaquin River, placing it in a more advantageous position for pumping up the San Joaquin River.

A paper location has been made of a purely gravity canal from the American River to Kern County. Cost estimates are only partially complete. No field surveys are contemplated in connection with this location; however, the terrain will be examined in the field for guidance in the preparation of cost estimates for this line.

LAND CLASSIFICATION AND CROP SURVEY

Land classification has been completed for the entire valley and results have been mapped and were submitted to the San Joaquin Valley Water Committee on February 14th for review.

Field work has been completed for the crop survey for the entire valley and the data are now being compiled in the office.

GROUND WATER INVESTIGATION AND WELL RECORDS

The collection of all data on wells in the San Joaquin Valley has been completed, including the

season of 1929. Mapping and analyses of these data are going forward in the office with a view of determining the consumptive use of water in the San Joaquin Valley. It is also planned to prepare maps delineating the depth to ground water and the ground water elevations for the year 1929.

WATER SUPPLY AND YIELD STUDIES

Reservoir studies for the maximum possible yield for irrigation purposes have been completed for the Kern, Tule, Kaweah and Kings rivers. Those for the San Joaquin River are also nearing completion.

ENGINEERING ADVISORY COMMITTEE

A meeting of the Engineering Advisory Committee was held in Sacramento on January 31, 1930. All members were present except Mr. Herrmann. Water supply estimates were reviewed and a program of ground water investigation was approved. Unit prices to be used in the preparation and cost of physical works were discussed and those pertaining to the main supply canals were adopted.

SACRAMENTO VALLEY INVESTIGATION

Estimates of the monthly run-off, after deducting ultimate upstream diversions, are being made on the five main stream systems of the valley for the 40-year period 1889 to 1929. Estimates of the full natural flow of all the streams tributary to the Sacramento Valley for the same 40-year period have been completed and submitted to the Engineering Advisory Committee for review.

RESERVOIR SITES

Data have been gathered and a field inspection made on all possible foothill reservoir sites on all the minor as well as the major streams entering the Sacramento Valley. These data are now being compiled in the office with a view of making surveys, if necessary, and estimates on the more feasible ones.

LAND CLASSIFICATION AND CROP SURVEY

Classification of lands in Sacramento Valley has been completed on about 5,000,000 acres and a crop survey on about 4,000,000 acres. The areas of lands and crops are being tabulated by counties, irrigation districts, reclamation districts, water districts and companies. A map showing the land classification of the valley floor is completed and will be extended to also include the foothill areas. A map showing the general location of crops is also being prepared.

WATER REQUIREMENTS OF IRRIGABLE LANDS

Additional data have been gathered on the present use of water for different crops and a preliminary

office report on this subject has been prepared. Data are being gathered on the locations and extent of riparian lands along the Sacramento River.

ENGINEERING ADVISORY COMMITTEE

The Engineering Advisory Committee on Sacramento Valley investigations has been appointed and held one meeting in San Francisco on February 5, 1930. The members of the committee are: J. D. Galloway, F. C. Herrmann, Walter L. Huber, J. B. Lippincott and Fred H. Tibbetts. A program outlining the investigation was presented to the committee for their review and comment. Matters concerning water supply, land classification and location of reservoirs were discussed.

SALINITY INVESTIGATION

The work on salinity investigations during the past month has been chiefly confined to office studies and investigations. An intensive study is being made of the vast amount of data taken during the past season to determine the relation between stream flow and salinity and the variation of salinity with tidal action. The basic data have been compiled, including stream flow, salinity and tidal data, and intensive work is now under way on the analytical studies of these data.

Field work during the past month has included the maintenance of 26 regular salinity observation stations and 8 drainage salinity stations and the operation and maintenance of automatic tide gages. Four additional automatic tide gages were installed early in the month, including three in South San Francisco Bay at Hunters Point, San Mateo Bridge and Dumbarton Bridge, and one at Point Richmond.

SALT WATER BARRIER INVESTIGATION

During the past month negotiations were continued with the U. S. Army Engineers on a program of cooperative work covering certain phases of the salt water barrier investigation. These negotiations have culminated in an agreement by the U. S. Army Engineers to undertake the following studies as outlined in the December progress report:

Relation of the Barrier to Navigation.

Relation of Barrier to Tidal Action.

Relation of Barrier to Movement of Silt and Water Borne Debris.

General Review of the Design and Construction of the Barrier with Particular Regard to the Minimum Requirements of Lockage and Flood Gate Features.

This work will be conducted by the First District Army Engineers in San Francisco. It is expected that the Second District Army Engineers at Sacramento will undertake studies on the relation of the barrier to the Sacramento and San Joaquin River Flood Control Project.

On February 1st the initial conference of the Consulting Committee appointed for the salt water barrier investigation was held in San Francisco. The members of the Consulting Committee present were: Charles D. Marx, Charles T. Leeds, A. Kempkey, Thomas H. Means and George A. Elliott.

The program as outlined for the investigation and the detailed questionnaires prepared for obtaining data were reviewed by the committee and recommendations made as to changes or additions.

Questionnaires covering the industrial, reclamation and agricultural industries are now being finally

revised, and it is expected that work will be started in the near future on an intensive survey of the industries and the reclamation and irrigation developments.

The Fish and Game Commission has started cooperative studies on the fishing industry and its relation to the proposed barrier.

SOUTHERN CALIFORNIA INVESTIGATIONS

On all investigations in the west coastal plain and in southern California work has continued during the month in a routine manner. Surveys for installation of diversion works and spreading works in the Santa Ana Canyon have been completed in the field.

PIT RIVER INVESTIGATIONS

Investigation work on the Pit River has continued throughout the month and progress report for the year 1928-1929 on the Pit River investigation is practically complete.

GENERAL

The investigations being conducted in the Napa Valley, Napa County, Ventura County and Santa Clara County comprising a study of the water resources of these areas have been actively carried on during the present month under the plans and procedure outlined in our Progress Report No. 22 dated January 23, 1930.

IRRIGATION DISTRICTS

During the month visits of inspection were made to the Bard Irrigation District in Imperial County, the Vista Irrigation District in San Diego County, the Oroville-Wyandotte and Table Mountain Irrigation districts in Butte County, the Cordus Irrigation District in Yuba County and the Glenn-Colusa Irrigation District in Glenn County.

The sufficiency of the petitions for the formation of the proposed Rio Seco Irrigation District comprising 8000 acres and the proposed Richvale Irrigation District comprising 10,000 acres in Butte County, were acted upon favorably by the Board of Supervisors of Butte County, and reports of sufficiency filed with the State Engineer. An investigation of the proposed Rio Seco Irrigation District has been made by this office and a report on the district is now in course of preparation.

Conferences have been held with proponents of the proposed Dixon Irrigation District comprising 5000 acres, situated in Solano County, and with officials of the Clear Lake Water Company, from which the district proposes to purchase water.

The State Engineer, on the 19th of February, attended a meeting at Yuba City and explained the procedure necessary for the organization of an irrigation district under the California Irrigation District Act, to landowners of the "Pench Bowl" area in Sutter County. This is a highly developed area which has been dependent upon ground water for its irrigation and, because of the inadequacy of this supply, the

organization of an irrigation district is contemplated for the purpose of securing an outside water supply.

Conferences have been held with officials of the West Stanislaus Irrigation District in Stanislaus County, and the Oroville-Wyandotte Irrigation District in Butte County, for the purpose of discussing proposed construction plans and developments contemplated by these districts.

Questionnaires have been mailed to all irrigation districts in the state requesting information regarding their principal activities in 1929 for the purpose of keeping up to date the statistical data presented in Bulletin No. 21 of this division.

The State Engineer held a hearing at Hanford on February 4 on a petition for the exclusion of certain lands from the Tulare Lake Basin Water Storage District located in Kings County.

CALIFORNIA BOND CERTIFICATION COMMISSION

The California Bond Certification Commission approved the sale of \$108,000 par value of bonds of the second division of the second issue of bonds of the Nevada Irrigation District for construction work necessary in the development of the project.

FEDERAL POWER COMMISSION LICENSE FEE MATTERS

Some eighteen months ago the State Engineer called into question the allocation which was being made of Federal Power Commission license fees. It appeared that the individual states were not receiving the full allocation to which they were entitled out of fees collected annually from licensees of the Federal Power Commission. The matter was first taken up with the local office of the Federal Power Commission and later with the Washington office. The subject was brought up for discussion at the first annual conference of Western State Engineers held at Salt Lake City in October, 1928, and again at the second annual conference held at Reno in December, 1929, thereby enlisting the support of that organization. On February 3, 1930, the Comptroller General of the United States upheld the original contention of this office. This will make available to the several states, and particularly to California, an increased allocation by the federal government out of license fees collected annually from licensees of the Federal Power Commission. If the interpretation is made retroactive some \$81,000 in back fees will become payable to California. The present annual payments will be increased from some \$6,700 to more than \$25,000, and the payments due when the hydro-electric possibilities of California are fully developed will be increased several hundred thousand dollars per year, according to present estimates. This money goes into the General Fund of the State of California.

In addition to this phase of the matter it was discovered during the course of the study upon the subject that the allocation payable to the Reclamation Fund of the United States was also short. This allocation amounts to 33½ per cent more than the allocation to all of the states combined. The allocation for the fiscal year ending June 30, 1929, is increased from \$17,176.49 to approximately \$65,000.

DAMS

Applications received for approval of dams built prior to August 14, 1929: 172 applications were received for existing dams making a total of 500.

As noted in last month's report, owners are still slow in filing applications for their dams. February 14th was the limiting date set by law for filing and this office is now preparing to notify the delinquent owners that they have not filed in accordance with the law. If they still do not file within thirty days from receipt of this notice they are guilty of a misdemeanor under the provisions of Section 17, Chapter 766. There are still about 260 dams for which applications have not been filed.

Application for construction has been received as follows:

Dam	County	Owner	Estimated cost
Rock Creek	El Dorado	Arthur E. Razor	\$2,000

Applications for repairs or alterations have been received as follows:

Dam	County	Owner
Burbank No. 4	Los Angeles	City of Burbank
Dennison	Ventura	Dennison Ranch Company
Belvedere	Marin	Marin Municipal Utility District

Plans approved for construction or enlargement:

Dam	County	Owner	Estimated cost
Pickering Pond*	Modoc	Pickering Lumber Co.	\$22,194.29
Ridgewood*	Mendocino	Chas. S. Howard Co.	25,188.25
Merced Falls*	San Diego Merced	Chas. S. Crouch San Joaquin Light & Power Co.	9,631.00
Burbank No. 5*	Los Angeles	City of Burbank	50,000.00
Everly**	Modoc	Irving C. Everly	34,750.00
Sunset Canyon*	Los Angeles	L. A. County	1,500.00
Meccasin Creek*	Tuolumne	Flood Control District	22,360.00
Silver Lake**	Amador	City of San Francisco Pac. Gas & Elec. Co.	600,000.00 16,000.00

*Construction

**Enlargement.

Plans approved for repairs or alterations:

Dam	County	Owner
Concow	Butte	Thermalite and Table Mountain Irrigation Districts
Spooner	Lassen	J. J. Fleming & Co.
Yorba	Orange	Anaheim Union Water Co.

Inspection of dams under construction, enlargement or repair:

Sixteen dams are under construction, enlargement or repair in the state at present, as follows:

Dam	County
613 Bear Gulch***	San Mateo
12 Calaveras*	Calaveras
6-4 Chatsworth***	Los Angeles
67 Concow***	Butte
5-2 Glendale*	Los Angeles
32-6 Hansen*	Los Angeles
34-2 Juncal*	Santa Barbara
6-15 Lower San Fernando**	Los Angeles
97-73 Lyons*	Tuolumne
841-2 Mary Joe*	San Diego
95-10 Merced Falls**	Merced
97-66 Salt Springs*	Calaveras
104-18 Shaver Lake***	Fresno
778 Wrigley*	Los Angeles
791 Yorba***	Yuba

*Construction

**Enlargement.

***Repairs.

Inspections on Various Existing Dams are now being made with a view to their early approval. With this in mind, three new inspectors have been employed, bringing the total of field men to seven, each covering an allotted territory.

Rainfall and Run-off Studies. Steps are being taken to make a study of rainfall intensities over limited areas together with the corresponding run-off. This will help determine the required spillway capacity of dams to carry peak flows. Areas are being selected in different parts of the state which are typical of the various conditions existing. Automatic recording rain and stream gages will be established in these areas for the purpose of obtaining the run-off of maximum rainfall during short periods. These studies are being conducted for this office by the Water Resources Investigation staff.

FLOOD CONTROL AND RECLAMA- TION

During the period from January 16 to February 15, inclusive, an average of 130 employees have been engaged upon this work, exclusive of contractor's employees.

MAINTENANCE OF SACRAMENTO AND SAN JOAQUIN DRAINAGE DISTRICT

Project maintenance work on the Sutter By-pass system has been mostly routine, including operation of the drainage pumps for short periods. There have been no heavy storms nor high water.

Several small jobs of protective work have been carried out in the Tisdale By-pass and on the upper Sutter By-pass. These consist of brush and tree mats secured with screw anchors. Some replanting of the willow protection along the east levee has been accomplished. A thorough check has indicated that only 5 per cent of the total willow planting must be replaced. The balance of the trees show fairly vigorous life, but at least along 50 per cent of the length of the planting the growth progress is disappointing.

Some work has been done in leveling and improving the appearance of the grounds around pumping plants No. 1 and No. 2.

The dragline excavator operated by the Dutton Dredge Company has been engaged during the entire month in cleaning out the Wadsworth Canal and the East Intercepting Canal. Upon completion of this work, it will reconstruct one-half mile of the West Intercepting Canal and then proceed with cleaning of the ditches in the pumping plant No. 3 system. This machine is operating very satisfactorily.

FLOOD CONTROL PROJECT MAINTENANCE, BANK PROTECTION

Most of the small jobs of bank protection work under way have been completed and have been previously reported as under way.

Seven tree retards in the Feather River at Nicolaus included in the contract with the Pacific Coast Construction Company have been completed, and by arrangement with Sutter County an additional three retards will be constructed at once. On the Sacramento River near Knights Landing in Reclamation District No. 730 the Pacific Coast Construction Company has completed three retards out of the eight covered by contract, and rapid progress is being made on the completion of the others.

The work of constructing the barrier across Hefner Slough, at Robinson Bend on the Feather River has

been completed. A number of snags were removed from the channel of the river opposite this work and some clearing of willows on bars has been done. Also the old channel across the bar has been cleared out. All of this work has been done with the attempt to rectify the flow of the current along this bend.

Under contract, Leonard T. Isham of Rio Vista is constructing a bulkhead of redwood timber 850 feet long in the Sacramento River one mile below Isleton.

Tentative arrangements have been made for construction of two retards on the right bank of the Sacramento River about three miles below Princeton, in cooperation with Reclamation District No. 2047. The estimated cost of this work is \$6,000.

SACRAMENTO FLOOD CONTROL PROJECT

An average of 51 men have been employed on clearing in the Sutter and Butte Slough By-passes during the past month. The camps in the lower Sutter By-pass were discontinued. All of the work now under way is being carried on in the upper Sutter By-pass and Butte Slough By-pass with the exception of that being done by A. Mitchell, who has a contract to clear an acreage in the lower Sutter By-pass. Fifty-seven thousand dollars has been spent in by-pass clearing since October 1, 1929.

A large part of the work of clearing in the last two months has been with crews employed directly by this division and under adverse conditions at times on account of the weather. However, the work has been carried on almost continuously because it furnished work for many of the local residents in Sutter County who were very much in need of it.

Five contracts are under way for clearing timber in the Feather River overflow channel above Marysville, and this work is approximately 60 per cent complete.

Reports have been prepared on several applications for the Reclamation Board and a number of orders respecting applications have been written. Some work has been done in connection with securing rights of way for various levee construction projects under way in charge of the California Debris Commission, which are paid for in part by state funds. This includes incidental construction in connection with the West Intercepting Canal rights of way.

RUSSIAN RIVER JETTY

No work is now under way except the placing of quarry rock along the jetty. This is being continued with a crew of seven men, which is sufficient to operate the shovel at the quarry and the delivery of the rock by the industrial railway.

It is expected that the continuation of the jetty out into the sea for a distance of 300 feet will be commenced about April 1, and arrangements are being made to place the necessary materials on the ground.

FLOOD MEASUREMENTS AND GAGES

Some clearing of brush has been done at several of the water metering stations, and during the period all of the automatic water stage recorder stations have been supervised and kept in operation.

A new automatic water stage recording station has been installed in the Yolo By-pass at Lisbon. This is a standard U. S. G. S. (McGlashan station), consisting of a well and recorder house of 36-inch diameter corrugated pipe. A Stevens Type "A" recorder is installed.

Staff gages have been installed on the Cosumnes River at the state highway, at each of the openings in the new highway embankment. During the period stream flow measurements have been made at the following stations: Bear River at Wheatland; Sacramento River at I street bridge.

Policy Relative To Brake Testing Is Announced

The following statement relative to brake-testing stations has been issued by Eugene W. Biscailuz, superintendent of the California Highway Patrol:

It has come to our attention that a misunderstanding has occurred regarding the authorization of brake-testing stations in the State of California.

Misleading statements have been given a certain amount of publicity which we deem it only fair to correct. Section 111½ of the California Vehicle Act, 1929, provides as follows:

(a) The chief of the division of motor vehicles is authorized to designate, furnish instructions to, and to supervise official stations for adjusting headlamps, and auxiliary driving lamps to conform with the provisions of this act.

(b) The chief of the division of motor vehicles is authorized to designate, furnish instructions to, and to supervise official stations for adjusting brakes to conform with the provisions of this act.

(c) The establishment of official headlight adjusting stations or brake-testing stations shall mean the designation of any place which shall comply with the requirements of a test station as determined by the chief of the division of motor vehicles. When headlamps or auxiliary driving lamps have been adjusted or brakes tested in conformity with the instructions issued by the chief of the division of motor vehicles, a certificate of adjustment shall be issued to the owner or operator of the motor vehicle, on a form prescribed by the chief of the division, and showing date of issue, registration number of the motor vehicle, owner's name, make of vehicle, and official designation of the adjusting station.

(d) If the chief of the division of motor vehicles finds that the business of any official adjusting or testing station is being poorly or badly conducted, he may revoke the designation of such station.

Shortly after February 1st, inspectors of the California Highway Patrol began inspections of all stations which had made applications for designations as official brake-testing stations.

The Division of Motor Vehicles is not recommending, suggesting or prohibiting any type of brake adjusting or testing machine or equipment in the official stations.

In appointing official brake-testing stations, the Division will consider the reputation of the applicant as a business house, the ability of the men employed to do the adjusting, the location of the garage, shop or service station, the demand for official stations in that community and other qualifications, rather than the fact that a station has or has not a particular type of brake-testing machine.

In other words, the use of any brake-testing device alone, is no guaranty that such station will be designated as an official station as many other factors will be considered, nor will there be any exclusive territory given to any particular station in any locality. Every effort will be made to designate stations that have a reputation for fairness, honesty and efficiency, and to refuse stations to those who do not have a clear record.

MOTOR VEHICLE DIVISION REPORTS

FRANK G. SNOOK, Chief

Inspector J. J. Borree returned from an eastern trip taken in the interest of highway patrol schools. His reports submitted are very interesting, and no doubt will prove of great benefit to us in conducting the activities of the California Highway Patrol. During Mr. Borree's trip he studied the various methods of registration in other states, and feels that we in California have as complete a system as any he saw.

While in Pennsylvania, New York and Massachusetts, Mr. Borree visited many patrol stations and made contact with a large number of the patrolmen through the courtesy of the highway patrol superintendents.

In New York and Massachusetts the highways are patrolled by state police who have police duties as well as safeguarding the highways. This dual responsibility is not working to the entire satisfaction of these states. While police matters are properly taken care of the patrolling of highways is not cared for in a consistent and efficient manner.

A similar situation existed in Pennsylvania, but in order to secure efficiency two distinctive enforcement agencies were formed, placing all police work on the Pennsylvania State Police and highway patrolling on the Pennsylvania Highway Patrol.

CHAUFFEURS' LICENSES

Despite the fact that the new motor vehicle act, automatically relieved a large number of persons in California from paying chauffeurs' license fees, a sharp increase in the number of chauffeurs for 1929 is reported.

Records for the year show a total of 146,732 registered as chauffeurs, a gain of 9734. The fee up to the time the new law became effective August 14th was \$2. The new law reduced the fee to \$1 a year and redefined the term chauffeur as being any "person who drives a motor vehicle for another on the public highways and receives compensation therefor."

This automatically took thousands of persons out of the classification of chauffeurs, relieving them of payment of the fee.

In its announcement the division called attention to the fact that all chauffeurs' licenses issued any time during 1929 expired on December 31st and that renewal of such licenses is required.

The chauffeur's last year's card must accompany his fee of \$1 and application. If he has lost his last year's card he must apply for a duplicate.

Under the California law, applicants must be over 18, in good physical condition and must submit to a special test if the application is an original one. A chauffeur's license is not required to operate implements of husbandry such as farm machinery, tractors, etc., over the highways temporarily.

It is unlawful to employ any person to act as chauffeur unless he has been licensed.

"Bill Jones was a good sport, and lucky, too. He might have been rich if he'd chosen some other form of gambling."

"What was his favorite sport?"

"Beating the fast express to the grade crossing. And he won nineteen times straight before the locomotive tied him."

Highway Awards Made in February

IMPROVEMENTS MADE POSSIBLE BY CONTRACTS

Alternate to the Ridge Route

Of widespread interest to the state as a whole was the awarding of a contract for construction on the first unit of the "Alternate to the Ridge Route" from Castaic School to Canton Creek, in Los Angeles County, distance of 7.1 miles to be graded 38 feet wide. This award was made to H. E. Doering & Van der Hellen & Pierson of Berkeley for a contract price of \$537,029.50. This newly adopted route will eliminate the long and tortuous adverse grades of the Old Ridge Route, on the road between southern California and the two great valleys of the central and northern portions of the state. It follows the canyon to the west of the present road, connecting with it at Tejon Pass. The new route is to be in keeping with the modern standards of alignment and gradient and will greatly facilitate traffic over this heavily traveled highway.

Mojave-Owens Valley Route

The last remaining unimproved section of the road between Mojave and the Owens Valley will be brought up to a high standard of grade and alignment through the award of a contract for grading and surfacing with oil-treated crushed gravel 15 miles in Kern County between Cinco and 7 miles north of Ricardo. This contract was awarded to George Herz & Company of San Bernardino for a contract price of \$242,768.80. The roadbed is to be graded 36 feet wide and surfacing to be 20 feet consisting of crusher run base on oil-treated crushed gravel. Traffic will be afforded some 200 miles of improved highway through Kern and Inyo counties to the recreational areas of Sierra Nevada, with the hazards of desert travel minimized and distance and time materially decreased. The present improvement runs through weird and scenic Red Rock Canyon which is a favorite winter recreation spot for many people from southern California cities. Much attention has been given to the desert drainage problems on this new project and the use of dips and dykes will protect the road from damage by cloudbursts.

Pacific Highway

A reinforced concrete bridge located 5.5 miles north of Yreka on the Pacific Highway in Siskiyou County will be erected by Jacobs & Pattiani of Oakland, who were awarded the contract for \$71,548. This bridge will consist of one 200-foot open spandrel arch span and three 40-foot girder approach spans, with a clear roadway width of 24 feet. This project is a unit of the realignment and reconstruction of the portion of the Pacific Highway from Yreka to the Klamath River. This structure spans a deep gulch, obviating the use of an extremely heavy fill at this point.

Angels Camp-Markleeville Route

Beerman & White of Stockton were awarded a contract for \$67,965 to produce and stockpile screenings for bituminous surface treatment and surface with untreated crushed gravel or stone 15.5 miles between Murphy's and the Big Trees. This project was constructed by the Bureau of Public Roads, and is a portion of the mountain road from Angel's Camp to

Markleeville. When completed the public will be afforded a safe and smooth road to the popular resorts of this district for both summer and winter sports.

COMPLETION OF CONTRACTS

Redwood Highway

A contract in Del Norte County for placing perforated metal pipe underdrains between Elk Valley and 1½ miles south of Smith River, for about 1½ miles, at an approximate cost of \$16,700 has been satisfactorily completed and accepted. Smith Brothers of Eureka were the contractors.

Pacific Highway

Contract for constructing a graded roadbed and placing a Portland cement concrete pavement between Shasta River and Gazelle in Siskiyou County, for a distance of 7.7 miles, at an approximate cost of \$324,500, has been satisfactorily completed and accepted. T. M. Morgan Paving Company of Los Angeles were the contractors.

Another contract on the Pacific Highway for constructing a Portland cement concrete pavement at Mullen Crossing, between Woodland and the Davis Wye, Yolo County, distance of but 0.2 of a mile, approximate cost \$6,500, has also been accepted. C. W. Wood of Stockton was the contractor.

Victory Highway

C. H. Gildersleeve of Felton was the contractor who recently completed a contract for constructing a bridge across Coon Creek near Ewing in Placer County, at an approximate cost of \$9,280.

Tahoe-Ukiah Route

Contract for constructing a graded roadbed and placing an untreated crushed stone surfacing between Lucerne and Clear Lake Oaks, distance of 10.6 miles, at an approximate cost of \$209,300, has been satisfactorily completed and accepted. Von der Hellen, Pierson & Logan of Medford, Oregon, were the contractors.

Stockton-Santa Cruz Route

In San Joaquin County a contract for constructing a graded roadbed and placing a Portland cement concrete pavement between Banta and the San Joaquin River bridge, distance of about 3.1 miles, at an approximate cost of \$148,300, has been satisfactorily completed and accepted. C. W. Wood of Stockton was the contractor.

Another contract in the same county for constructing two bridges near French Camp at an approximate cost of \$23,600, has been satisfactorily completed and accepted. M. B. McGowan of San Francisco was the contractor.

Valley Route

Griffith-Hunter, Inc., of Sacramento were contractors who recently completed the construction of

bridges across the Cosumnes River and overflow channels near McConnell's Station, on the Sacramento-Stockton portion of the Valley Route, at an approximate cost of \$130,200, which has been satisfactorily accepted.

In Los Angeles County on this same route a contract for constructing a graded roadbed from Tunnel Station to Santa Clara River, for a distance of 8.6 miles, at an approximate cost of \$469,100, has been satisfactorily completed and accepted. R. G. Le Tourneau and O. A. Lindberg of Stockton were the contractors.

Coast Route

A contract for constructing an overhead crossing and grading and surfacing the approaches with bituminous macadam near Sargeant, in Santa Clara County, at an approximate cost of \$85,600, has been satisfactorily completed and accepted. Barrett & Hilp of San Francisco were the contractors.

In Ventura County on this same route, a contract for constructing a graded roadbed and placing asphalt concrete pavement between Conejo Creek and Camarillo, for a distance of 2.3 miles, at an approximate cost of \$39,800, has been satisfactorily accepted. Griffith Company of Los Angeles was the contractor.

In Orange County on the above route, a contract for cleaning and painting the Santa Ana River bridge, approximate cost of \$2,467, has been satisfactorily completed and accepted. The Los Angeles Sand Blasting Company of Los Angeles was the contractor.

Mojave-Barstow Route

The Allied Contractors, Inc., of Omaha, were contractors who recently completed construction of graded roadbed and oil-treated crushed stone surfacing between 4 miles west of Hector and 8 miles west of Argos, 14 miles in San Bernardino County and at an approximate cost of \$191,300.

Mojave-Owens Valley Route

A contract for constructing a graded roadbed and placing oil-treated crushed gravel or stone surfacing between 7 miles north of Ricardo and Freeman, in Kern County, for a distance of 10.2 miles, at an approximate cost of \$105,400, has been satisfactorily completed and accepted. G. W. Ellis of Glendale was the contractor.

San Bernardino-Nevada State Line Near Jean

Gist & Bell of Alameda recently completed a contract for constructing a graded roadbed between Alray and Summit, San Bernardino County, for a distance of 3.8 miles, at an approximate cost of \$135,200.

Claremont-Riverside Lateral

Contract for constructing bridges across San Antonio Creek and Collins Dip in San Bernardino County, at an approximate cost of \$35,900, has been satisfactorily completed and accepted. W. J. Nethery & Son of Riverside were the contractors.

ALBERTA'S gravel road mileage will mount to about 1000 miles at the end of the year if last year's program is continued at the same rate.

DETROIT—Completion of the mile and a quarter vehicular tunnel to Windsor will be celebrated this fall. The great tube will cost about \$25,000,000.

CHICAGO—The new plan for the Austin-Kinzie superhighway leading into the city from the west side will allow for a traffic of 80,000 vehicles daily.

Traffic Views of Public Asked in Traffic Survey

ELEVEN western states, including California, in cooperation with the U. S. Bureau of Public Roads are now ascertaining facts with regard to highway use on routes within their borders. The public is well aware that modern highway programs are based upon knowledge of transport conditions and is doing its share in assisting state and federal officials to secure the basic facts.

The success of the traffic survey now under way is to a large extent dependent upon the replies of motorists to questions upon cards now being distributed at more than 850 points. These replies are numbered in hundreds of thousands and, despite the fact that no postage is needed to return the card a large number of those mailing them have shown their interest to the extent of attaching full postage. Some, apparently feeling that more information might be desired, have taken the trouble to write lengthy and careful letters to accompany the cards.

It is undoubtedly true that no inquiry covering such a mass of the public, could fail to elicit some replies in which the American characteristic of humor is displayed. In reply to the question—"How many passengers, including driver?" one reply stated "two, some bedding, two grips and a dog." Some are not in a humorous frame of mind, as shown by the remarks "Two punctures in good tires," while others request specific improvement in their own localities. The majority, again in characteristic American fashion, furnish the full information as requested.

The replies to the cards are being supplemented by full reports from the traffic survey personnel. The combined information will be of prime importance in the solution of many of the problems of highway administration. The determination of the actual use of the various highways—the number of persons as well as the number of each type of motor vehicle traveling over each route—is the first objective. Intelligent relocation of routes, where necessary, is made possible upon the basis of the reported information. Design of highways, particularly upon heavy trucking routes, is affected by the traffic reports. The distribution of expenditures for maintenance, particularly for snow removal, and the advisability of its extension, are vitally affected by

(Continued on page 24.)

THE BALLAD OF THE BACK SEAT DRIVER

From the Oakland Tribune.

I

'Twas at a crowded crossing—
Crowds hastened to the spot
Whence came a cry of anguish
And one loud pistol shot.
Inside an automobile
There lay a woman dead;
Beside it stood the driver
Who with emotion said:

Chorus

"I am the lady's husband;
Long years have we been wed.
I loved her very dearly
And shot her through the head.
I p'raps should not have killed her—
It is not right to slay—
But with these back-seat drivers
It is the only way!"

II

As crowds then swarmed about him
He knelt beside his wife
And said: "My sweet you forced me
To turn and take your life;
You gave too many orders
On each and ev'ry ride."
Then, summoning a copper,
He very softly cried:

Chorus

III
They took him to the hoosegow
And threw him in a cell,
"If you'd kept still," he muttered
"You'd be alive and well.
You'd always give directions
To stop or turn or go"—
Then calling to the sergeant
He cried: "I'd have you know":

Chorus

IV

All night he lay and muttered:
"I'm very sorry, dear,
But, sweet, you drove me nutty
By shouting in my ear.
When I would take a north road
You'd say: 'The right road's south'"
Then to a chief detective
These words came from his mouth:

Chorus

V

To the court he soon was taken,
Where, mopping up a tear,
He sobbed: "She drove me to it
By orders from the rear.
In most confusing traffic
She'd bellow what to do,
And as I told the others
I also say to you":

Chorus

VI

"She'd tell me when to light up
And when to blow your horn,
And shriek 'Your brakes are burning
I know the bands are worn!'
She'd call me down for coasting
And criticize the way
I'd turn around in traffic—
And so, dear judge, I say:

Chorus

VII

"On week-day or on Sunday
She'd tell me where to go,
And bawl me out for speeding
And squawk if I went slow.
She'd criticize the routes that
I'd pick to reach the shore;
She never kept her mouth shut—
And as I said before":

Chorus

VIII

The judge and jury listened,
Then rose and set him free.
"Your act was justified," they
Said, "we do agree.
We know how much you suffered,
How tortured was your mind
Each time you took her driving,
And this is what we find:

Chorus

"You were the lady's husband!
Long years ago you wed.
You loved her very dearly,
And shot her through the head.
You p'raps should not have killed her
It is not right to slay—
But with these back-seat drivers
It is the only way."

EARTHENWARE

Boasting of our wealth and virtues rare,
What are we but bits of earthenware?
Fashioned by the one Great Master Hand,
Each one marked by that Great Maker's brand.
Some of us are fashioned tall and fair,
Vases for the mansion, Dresden Ware;
Some of us are ornaments are prized;
Some of us are useful—yet despised;
Some of us are "big pots" lined with gold,
Some of us are "mugs" and bought and sold;
Some of us are "broke"—ah, that's a fact;
Some of us are not "broke," only "cracked."
Some of us are fashioned fine and true,
With every ray of sunshine gleaming through;
Some of use are coarse and chipped and stained—
Yet fragrant with the balm of love contained.
Earthenware, just earthenware, vessels of clay,
just earthenware;
All of us made by the one Great Potter;
Some of us as white as porcelain, some as brown
as terra cotta;
Earthenware, just earthenware, that the Master
will repair
When we go to the clay that we came from,
some day—
Broken earthenware.—George Wood.

Santa Ana River Report Now Ready For Distribution

Bulletin 19 of the Division of Water Resources, entitled "Santa Ana Investigation," and dealing with flood control and conservation problems in the Santa Ana River Basin, has been received from the State Printer and is available for distribution.

The report is the result of an intensive investigation that was first undertaken in 1925 at the request of Orange, Riverside and San Bernardino counties whose citizens realized the importance of their perplexing water problems and requested the State of California to assist them in finding a remedy. This resulted in the passing of a state appropriation of \$25,000 to be expended during the fiscal period 1925-1927, on the condition that the three counties concerned provide an equal sum toward the work. The required cooperation was obtained, and the State Engineer was instructed to carry out the study in conjunction with an advisory committee of engineers appointed by the counties.

The principal source of water for these counties is the Santa Ana River and its tributaries whose total annual water crop has been estimated in excess of four hundred thousand acre-feet. This water occurs largely in the form of torrential floods during the winter, followed by extremely low stages in summer when it is most required. The winter floods frequently occur in such volume that great damage is caused in their rush toward the sea.

The legislature of 1927 appropriated an additional sum of \$40,000 for continuing the survey and publishing a report, provided that interested parties contribute an equal amount for such purpose. Final work of assembling the data gathered during the investigation was actively taken up in October, 1927. This latter phase of the investigation and the report were under the supervisory charge of Harold Conkling.

This bulletin contains a complete study and suggested solutions for flood control on the watershed of Santa Ana River. It embraces a detailed compilation of statistical information, a description with cost estimates of fifty possible unit structures and illustrative combinations of works for consideration of public bodies in carrying out the program.

The report indicates that flood control may be successfully achieved and that its extent

March 1st Report On Snow Survey Data is Issued

THE following progress report of the snow survey and precipitation data covering the period to March 1, 1930, has been issued by the Division of Water Resources:

Using the data from precipitation stations, a comparison of conditions to March 1st with normal shows, in general, that the precipitation in the northern stream basins from Upper Sacramento to Yuba is from normal to 10 per cent below normal with the exception of Feather Basin which shows about 10 per cent above normal. In the central basins from the American to the Merced, the precipitation ranges from about 15 per cent to 35 per cent below normal, and in the southern basins from the Upper San Joaquin to the Kern, the precipitation to March 1st is entirely below normal and ranges from about 35 per cent to 45 per cent below.

As stated in the February bulletin, there are only a few snow courses where surveys have been made over a period of years so that comparison with the results of previous years and reference to normals can be made. In the Tahoe Basin recent surveys at Mariette Lake show a water content of 61 per cent of the entire seasonal normal (October to May) as compared to 38 per cent up to the time of the February report. In the Yuba Basin, courses at Summit and Lake Fordyce show a water content of 52 per cent of the entire seasonal normal and in the Mokelumne Basin the crest course at Blue Lakes shows a water content of 54 per cent of the entire seasonal normal.

This is the second bulletin covering snow survey and precipitation data. As stated at the issue of the first bulletin in February, this is the first season that comprehensive snow surveys have been undertaken by the state and pursuant to an act and appropriation of the last legislature, one hundred and fifty "snow course" locations have been made throughout the Sierra. All of these courses will be surveyed about the first of April to furnish the data upon which the estimates of the April-July stream flow may be made. In each major stream basin, however, certain "key" courses have been selected at which the surveys are made at approximately monthly intervals from June to May. Prior to the main surveys about April 1st therefore, these monthly bulletins are issued to present the results of the key course surveys and to give also the data on the seasonal precipitation to date as reported from the stations of the U. S. Weather Bureau, state and private agencies located in the mountainous portions of the stream basins.

is largely dependent on the amount which public bodies eventually decide to appropriate for this purpose. Work is still being continued by the state on certain phases of a conservation and flood control program, notably spreading works on the debris cones. These are in process of being mapped in detail both by aeroplanes and topographic surveys in order to prepare the way for detail plans.

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. MBEK.....Director
 GEORGE C. MANSFIELD.....Editor

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

Vol. 8 MARCH, 1930 No. 3

ASK ME ANOTHER

A contractor reports the receipt of the following letter from an indignant citizen who lived nearby:

"Why is it that your steam shovel has to ding and dong and fizz and spit and bang and hiss and pant and grate and grind and puff and chug and hoot and toot and whistle and wheeze and jar and jerk and howl and snarl and groan and thump and boom and smash and jolt and screech and snort and slam and throb and roar and rattle and yell and smoke and smell and shriek and fume and crash all day long?"

This would seem to be a rather difficult question to answer offhand.—*Iowa Engineer.*

TRAFFIC VIEWS OF PUBLIC ASKED IN TRAFFIC SURVEY

(Continued from page 21.)

traffic conditions. The development of a program of improvement, and the setting up of a highway expenditure budget in accordance with present and expected future traffic demands, are based upon knowledge of transport conditions.

The cooperative traffic survey will result in information secured under uniform conditions in eleven states, will make possible comparisons of conditions on interstate routes in adjoining states, and should facilitate agreements between states for the improvement of interstate connections. The important routes throughout a territory comprising over 40 per cent of the area of the United States, may be selected upon the basis of traffic facts. Not only interstate, but international, cooperative highway improvement will be made easier as a result of the securing of such primary information with regard to highway transport.

MICHIGAN—Surfacing improvements of all sorts on state highways totaled 656 miles for the 1929 season.

REDUCING THE HAZARD FROM FIRES STARTING ALONG STATE HIGHWAYS

(Continued from page 2.)

port and handle all fires adjacent our highways within national forests, pending their relief by the proper forest official with adequate forces. In the case of fires for which our employees were not responsible the agreement provided for reimbursement of the state at the going fire fighting rates for labor and equipment.

A similar agreement affecting areas adjacent to state highways within the state forests was also concluded this year between the Division of Highways and the Department of Natural Resources, Bureau of Forestry, on request of State Forester M. B. Pratt.

These two agreements we are assured are very beneficial, as assistance is provided at the most critical period.

In addition to this cooperation, we have during the past two years been carrying on an active clean-up program within our rights of way through forested areas. To date this work has been undertaken on the Alturas, Susanville and Trinity laterals, the Placer-ville-Lake Tahoe, Auburn, Big Oak Flat, Kit Carson, Ebbetts Pass, Sonora Pass, Pacific, Redwood and Downieville highways. You will appreciate, I am sure, that this work must of necessity spread out over a period of years, due to the extensive territory involved. The importance of this work has been recognized, and special provisions concerning clearing have been written in all construction contracts within forest areas.

When courage fails and faith burns low
 And men are timid grown,
 Hold fast thy loyalty and know
 That Truth still moveth on.
 Who follow her, though men deride
 In her strength shall be strong,
 Shall see their shame become their pride,
 And share her triumph-song!

—Hosmer.

A lawyer received the following letter from a client:

"Dear Sir: My boy got struck by an automobile, number 6P-4872. If the owner is rich, sue him at once. The boy wasn't bruised any, but on your notifying me that you have brought suit, I will hit him in two or three places with a hammer.—*Missouri Pacific Magazine.*

NEW ENGLAND—The traffic capacity of the famous old Boston Post Road from New York to Boston was doubled when this highway was widened from two to four traffic lanes.

WINTER TRAFFIC COUNT ON STATE HIGHWAYS

(Continued from page 5.)

Station location	January, 1929		January, 1930		January, 1929		January, 1930																						
	Sun.	Mon.	Sun.	Mon.	Sun.	Mon.	Sun.	Mon.																					
Belvedere Jr. R. 52 to Belvedere, S. on 1	5,554	2,941	4,562	2,850																									
E. on 52	1,186	883	704	442																									
N. on 1	4,743	2,319	4,293	2,602																									
San Rafael N. of Cy. at top hill	4,019	1,853	3,594	2,342																									
Petaluma S. Cy. Lts. at Maint. Yd.	2,827	1,638	2,200	1,965																									
Petaluma N. of Cy.	Road closed		3,828	4,463																									
Cotati at Jet. C.R. to Sebastopol, S. on 1	Road closed		2,359	2,035																									
W. on C.R.	Road closed		692	512																									
N. on 1	Road closed		1,807	1,575																									
Santa Rosa S. of Cy. at Triangle Service Sta.	Road closed		2,390	2,078																									
Santa Rosa N. of Cy. at S. P. R. R. Xing.	3,414	2,854	2,894	2,389																									
Healdsburg, S. of Cy. at N. W. P. R. R. Xing.	1,561	1,394	1,915	1,400																									
McCray's Jet. C.R. to Preston, S. on 1	776	566	815	615																									
E. on C.R.	217	147	160	154																									
N. on 1	570	423	656	495																									
McDonald at Jet. Rt. 48 to Buonerville, S. on 1	475	372	541	422																									
W. on 48	148	112	168	122																									
N. on 1	495	272	379	304																									
Hopland at Jet. Rt. 16 to Lakeport, S. on 1	656	597	449	631																									
E. on 16	494	476	405	362																									
N. on 1	1,142	1,044	834	981																									
Ukiah S. of Cy. Lts. Jet. with Rt. 70, S. on 1	985	747	804	712																									
E. on 70	822	651	529	651																									
N. on 1	1,627	1,280	1,176	1,283																									
Ukiah N. of Cy. Lts. at Jet. Rt. 15 to Colusa, S. on 1	1,277	945	1,042	752																									
E. on 15	518	378	377	311																									
N. on 1	887	646	752	490																									
District I																													
Willits N. of Cy. at Je. C.R. to Sherwood, S. on 1	538	497	453	367																									
W. on C.R.	59	59	84	23																									
N. on 1	479	351	394	342																									
Mendocino-Hum. Co. Line, Garberville at Je. with C.R. to Erceland, S. on 1	416	299	288	269																									
W. on C.R.	135	121	72	77																									
N. on 1	598	391	330	320																									
Dyerville at Je. C.R. to S. Fork, S. on 1	510	391	394	313																									
E. on C.R.	235	293	145	177																									
N. on 1	495	325	358	312																									
W. on C.R.	45	45	10	26																									
Fernbridge Jr. C.R. to Ferndale, S. on 1	1,838	1,080	788	524																									
W. on C.R.	1,055	690	402	328																									
N. on 1	1,784	1,069	747	496																									
Eureka S. of Cy. Lts., Eureka N. at Eureka Slough Bridge,	2,256	1,559	2,330	1,665																									
Arcata N. of Cy. at Je. Rt. 29 to Weaverville, S. on 1	737	516	1,243	734																									
E. on 29	811	560	533	380																									
N. on 1	174	76	726	385																									
Arcata at Mad River Store, S. on 1	230	152																											
S. on C.R.	986	723																											
N. on 1	1,043	736																											
Orick, Je. Rt. 1 and C.R. to Weitchpec, S. on 1	242	152	193	149																									
E. on C.R.	32	13	21	10																									
N. on 1	223	141	169	138																									
Klamath River Bridge, Crescent Cy. S. E. of Cy. at Je. Rd. to Crescent Cy., S. on 1	597	606	487	429																									
N. to C. C.	851	895	819	631																									
E. on 1	475	376	522	329																									
<table border="1"> <thead> <tr> <th>Station location</th> <th>January, 1929 Sun.</th> <th>January, 1929 Mon.</th> <th>January, 1930 Sun.</th> <th>January, 1930 Mon.</th> </tr> </thead> <tbody> <tr> <td>Hiouchi Bridge, North Bound</td> <td></td> <td></td> <td>161</td> <td>81</td> </tr> <tr> <td>South Bound</td> <td></td> <td></td> <td>145</td> <td>58</td> </tr> <tr> <td>Oregon Line</td> <td>126</td> <td>104</td> <td>76</td> <td>41</td> </tr> </tbody> </table>										Station location	January, 1929 Sun.	January, 1929 Mon.	January, 1930 Sun.	January, 1930 Mon.	Hiouchi Bridge, North Bound			161	81	South Bound			145	58	Oregon Line	126	104	76	41
Station location	January, 1929 Sun.	January, 1929 Mon.	January, 1930 Sun.	January, 1930 Mon.																									
Hiouchi Bridge, North Bound			161	81																									
South Bound			145	58																									
Oregon Line	126	104	76	41																									
Route 2. San Francisco to San Diego																													
District IV																													
Colma Jr. with Rd. to S. San Francisco, N. on 2	20,626	8,842	14,893	7,695																									
E. on C.R.	3,553	1,943	2,183	1,737																									
S. on 2	17,073	6,898	12,764	5,956																									
San Bruno Jr. with Bay Shore Rd. to S. San Francisco, N. W. on 2	16,560	6,962	11,743	5,533																									
N. E. on C.R.	1,720	1,424	1,712	2,027																									
S. on 2	18,288	8,386	13,455	7,562																									
San Mateo S. of Cy. at 16th Ave. Redwood Cy. N. of Cy. Lts.	18,956	8,996	14,846	9,880																									
Palo Alto at Highway to Federal Tel. Sta.	11,687	5,692	9,538	7,044																									
9 Mi. N. of San Jose, N. on 2, W. on C.R.	5,930	3,446	3,938	6,272																									
S. on 2	1,825	1,111	1,290	1,085																									
5 Mi. N. of San Jose	7,441	4,420	7,243	6,333																									
4 Mi. N. of San Jose	7,020	4,217	6,693	5,873																									
San Jose N. of Cy. Lts. at Lumber Yard	9,453	7,455	8,390	9,288																									
San Jose S. of Cy. Lts.	17,069	17,830	14,370	20,760																									
5 Mi. S. of San Jose	6,367	5,094	5,015	5,806																									
10 Mi. S. of San Jose	4,751	2,788	3,563	3,175																									
15 Mi. S. of San Jose	4,696	2,915	3,718	3,151																									
Gilroy N. of Cy. at Je. with Mt. Madonna Rd. to Watsonville, N. on 2	4,638	3,944	4,443	4,654																									
W. on C.R.	748	618	750	727																									
S. on 2	4,985	3,982	4,531	4,671																									
Route 2. District V																													
San Juan Bautista, N. of Cy. at Je. with R. 67 Chittenden Rd., N. on 2	2,714	1,727	2,589	2,199																									
W. on 67	1,763	949	1,404	1,051																									
S. on 2	2,238	1,529	2,225	2,069																									
San Juan Bautista, S. of Cy. at Je. Rt. 22 to Hollister, N. on 2	2,428	1,786	2,431	2,180																									
E. on 22	1,639	918	1,494	1,338																									
S. on 2	1,831	1,255	2,057	1,693																									
S. Bt.-Mon. Co. Line	1,776	1,010	1,897	1,627																									
Salinas N. of Cy. Lts.	3,850	2,548	2,936	3,151																									
Salinas S. of Cy. Lts.	2,388	2,301	2,147	2,610																									
Gonzales 3 Mi. W. of Town	1,690	1,405	1,628	1,722																									
Soledad S. of Milk Plant	1,582	1,371	1,585	1,734																									
San Lucas S. of Cy. at Je. R. 19 to Coalinga and C.R. to Jolon, N. on 2	930	821	1,151	1,155																									
E. on 19	196	115	75	92																									
W. on C.R.	84	114	54	127																									
S. on 2	890	813	1,070	1,066																									
Paso Robles N. of Cy. Lts.	1,154	954	1,164	1,202																									
Paso Robles S. of Cy. Lts.	1,759	1,282	1,581	1,850																									
San Luis Obispo N. of Cy. Lts.	2,091	1,418	1,916	1,726																									
San Luis Obispo S. of Cy. Lts. at R. R. Xing.	3,345	2,200	2,650	2,768																									
Santa Maria N. of Cy. at Je. R. 57 to Bakersfield, N. on 2	2,155	1,222	1,872	1,929																									
E. on 57	185	65	291	70																									
S. on 2	2,299	1,255	2,073	1,981																									
Buellton at Intersection with Co. Rds. W. to Lompoc and East-erly, N. on 2	1,240	855	1,291	1,329																									
E. on C.R.	359	318	210	245																									
W. on C.R.	397	274	298	256																									
S. on 2	1,453	993	1,325	1,435																									
Gaviota W. on Rd. to Gaviota Sta.	1,457	894	1,497	1,411																									
Orella, opposite Orella Station, Santa Barbara W. of Cy. at Je. San Marcos Rd., N. on 2	1,632	941	1,428	1,457																									
On San Marcos Rd.	4,480	2,800	3,218	3,731																									
S. on 2	833	346	1,049	571																									
Santa Barbara W. of Cy. Lts. on 2	4,738	2,852	3,694	3,880																									
Santa Barbara 300 Ft. E. of Cy. Lts.	5,993	3,980	4,871	5,685																									
Santa Barbara-Ventura Co. Line	8,786	7,828	5,783	7,074																									
	4,906	2,282	3,191	3,154																									

Route 2. District VII		January, 1929		January, 1930		January, 1929		January, 1930	
Station location		Sun.	Mon.	Sun.	Mon.	Sun.	Mon.	Sun.	Mon.
		13	14	12	13	14	14	12	13
Ventura W. of Cy. at Bridge.....		6,221	2,990	3,378	2,523				
Ventura E. of Cy. Lts.....		6,653	4,316	4,263	5,102				
El Rio Intersection.									
N. on 2.....		6,050	3,690	3,763	4,134				
N. to Saffroy.....		1,125	874	912	1,132				
S. on 69.....		3,424	2,471	2,860	3,616				
E. on 3.....		2,203	1,394	1,070	1,949				
Ventura-Los Angeles Co. Line.....		5,303	2,182	2,111	1,797				
W. of Hollywood-Ventura Blvd.									
at Sepulveda St.....		11,270	5,270	4,628	5,368				
L. A. E. at Indiana St.....		25,438	21,322	10,458	14,270				
Whittier at Jc. with Hadley St.									
W. on 2.....		20,644	14,656	11,619	14,012				
N. on Hadley.....		4,413	4,130	2,800	3,894				
E. on 2.....		20,538	10,781	9,135	8,947				
La Habra E. Cy. Lts. at Jc. Rds. to La Habra and Brea.									
N. on 2.....		8,333	4,337	3,824	3,141				
W. to La Habra.....		3,430	2,132	2,334	2,257				
E. to Brea.....		3,420	2,132	2,334	2,257				
S. on 2.....		5,345	5,098	5,344	3,962				
Anaheim N. of Cy. Lts.....		12,744	8,054	7,131	8,831				
Santa Ana N. of Cy. at Jc. C.R. to Orange.									
N. on 2.....		10,465	5,946	5,884	6,697				
E. on C.R.....		7,554	5,468	4,560	4,786				
S. on 2.....		11,026	7,309	6,756	8,142				
Tustin W. of Cy.....		7,201	5,060	3,562	4,300				
Serra Jct. Rt. 60.									
N. on 2.....		4,377	2,032	1,971	1,697				
W. on 50.....		4,422	1,636	1,895	1,873				
S. on 2.....		7,958	2,902	3,440	2,432				
Oceanside Nr. S. Cy Lts.....		8,768	3,729	3,977	3,568				
Delmar at S. P. R. R. Xing.....		5,923	2,672	3,394	2,590				
Route 3. Sacramento to Oregon Line									
District III									
Sacramento N. at Jc. Garden Highway.									
W. on 2.....		9,540	9,825	9,238	9,723				
N. on Garden Highway.....		740	865	607	724				
E. on 3.....		8,443	8,823	8,931	9,302				
Ben All Xing Jc. C.R.									
W. on 3.....		4,329	2,914	4,972	3,383				
N. on C.R.....		340	231	374	324				
S. on C.R.....		544	499	373	683				
E. on 3.....		4,138	2,776	5,218	2,844				
Jc. C.R. to Folsom, N. of 12 Mi House.									
S. on 3.....		3,265	2,135	4,440	2,031				
E. on C.R.....		328	196	407	218				
N. on 3.....		3,041	1,995	4,733	2,131				
Roseville S. of Cy. Lts.....		3,842	2,726	5,140	2,725				
Roseville N. of Cy. Lts.....		1,514	1,338	1,246	1,207				
Marysville S. of Cy. at Jc. Hammon Rd.									
S. on 3.....		1,528	1,208	1,064	1,019				
Hm. Br.....		551	607	423	602				
N. on 3.....		2,205	2,052	1,570	1,798				
W. on C.R.....		322	322	253	329				
Yuba City N. of Cy. at Jc. Rt. 15.									
S. on 3.....		2,028	2,801	2,102	2,533				
W. on 15.....		1,423	1,436	1,187	1,405				
N. on 3.....		1,906	1,608	1,396	1,647				
Richvale Wye Jc. Rt. 21 to Oroville.									
S. on 3.....		596	650	709	574				
W. on 3.....		568	504	586	521				
E. on 21.....		313	264	340	291				
Chico at Jc. C.R. E. to De Sable.									
S. on 3.....		2,078	1,657	1,580	1,380				
E. on C.R.....		287	279	185	135				
N. on 3.....		2,257	1,876	1,719	1,493				
Chico N. of Cy. at Jc. C.R. East.									
S. on 3.....		1,312	1,180	981	1,064				
E. on C.R.....		200	124	141	112				
N. on 3.....		1,085	1,081	883	933				
Route 3. District II									
Butte-Tehama Co. Line.....		583	504	316	352				
Red Bluff E. at Jc. with Rt. 29 to Susanville.									
S. on 2.....		873	745	767	851				
E. on 29.....		561	200	217	287				
N. on 3.....		885	836	629	826				
Coltonwood S. of Town at Tehama-Shasta Co. Line.....									
Redding S. of Cy. at Jc. with Rt. 28 to Alturas.....		1,016	706	742	743				
S. on 3.....		852	878	882	830				
E. on 28.....		468	488	269	285				
N. on 3.....		1,172	1,081	1,100	1,081				
Route 4. District VI									
Station location									
Redding 3 Mi. N. at Jc. with C.R. to Kennett.....									
S. on 3.....		824	463	215	116				
W. on C.R.....		48	19	11	17				
N. on 3.....		594	467	186	129				
Gibson-Boulder Creek Maint. Yard									
Dunsmuir 1.5 Mi. S.....		523	459	354	300				
Dunsmuir N. Cy. Lts. at Br.....		737	647	455	317				
Dunsmuir 4 Mi. N. at Mott.....		1,659	1,192	810	748				
Weed Jc. with Klamath Falls Road.....		1,266	687	553	472				
Gazelle 1 Mi. N.....		59	40	44	11				
Yreka S. Cy. Lts.....		721	532	485	437				
Jc. with Rt. 46. S. of Hornbrook.....		1,153	1,015	932	739				
S. on 3.....		490	375	382	305				
W. on 46.....		103	80	87	63				
N. on 3.....		492	372	396	393				
Oregon Line.....		524	366	387	343				
Route 4. Sacramento to Los Angeles									
District X									
Sacramento S. of Cy. Lts.									
7 M. House at Intersection Florin Rd.....		5,187	4,638	4,370	4,852				
N. on 4.....		2,741	2,090	2,610	2,567				
E. on C.R.....		533	492	490	545				
W. on C.R.....		70	51	70	82				
S. on 4.....		2,517	1,864	2,460	2,321				
Old Elk Grove at Intersection Franklin-Elk Grove Rd.									
N. on 4.....		2,268	1,703	1,945	1,886				
E. on C.R.....		673	622	492	610				
E. on C.R.....		379	318	288	317				
S. on 4.....		1,890	1,365	1,669	1,575				
Twin Cities Jc. Rt. 34 to Jackson.									
N. on 4.....		1,723	1,267	1,706	1,632				
E. on 34.....		1,776	1,341	1,721	1,671				
Jc. S. H. and C.R. to Stockton.									
N. on 4.....				1,502	1,374				
S. on 4.....				1,260	1,122				
S. W. on C.R.....				268	256				
Lodi Jc. Rt. 24 to San Andreas.									
N. on 4.....		2,129	1,827	1,938	1,962				
E. on 24.....		1,262	1,085	1,007	1,042				
S. on 4.....		3,161	2,455	2,512	2,381				
Cherlock Station.									
N. on 4.....		1,513	1,486	1,841	1,918				
E. on C.R.....		655	524	214	187				
S. on 4.....		1,677	1,233	1,825	1,808				
Stockton S. of Cy. Jc. of Mariposa Road.									
W. on 4.....		1,914	1,593	1,652	1,680				
E. on C.R.....		864	569	716	486				
S. on 4.....		1,073	1,026	954	1,186				
Turner's Sta. Intersection of Rt. 4 and C.R.									
N. on 4.....				1,929	1,188				
S. on 4.....				1,498	1,511				
W. on C.R.....				690	826				
E. on C.R.....				270	384				
Manteca N. of City.....		2,052	2,025	1,834	2,134				
Ripon N. of City.....		3,232	2,437	2,522	2,547				
Salida Jc. Rt. 13 to Sonora.									
N. on 4.....		3,317	2,399	2,741	2,667				
E. on 13.....		203	211	194	171				
S. on 4.....		3,439	3,521	2,774	2,723				
Modesto N. of Cy.									
Modesto S. of Cy. Jc. Crows Landing Rd.....		1,869	4,297	3,855	4,490				
N. on 4.....		5,900	5,920	5,948	7,351				
S. on 4.....		4,532	4,168	3,957	5,047				
W. on C.R.....		1,945	2,211	1,829	2,759				
Turlock N. of City.....		3,238	2,798	2,709	3,068				
Turlock S. of City.....		3,042	2,460	2,503	2,676				

Station location	January, 1929		January, 1930	
	Sun. 13	Mon. 14	Sun. 12	Mon. 13
Fresno N. of Cy. W. of S. F.				
R. R. Xing at Je. Olive Ave.				
N. on 4.....	3,999	3,769	3,242	4,143
E. on Olive.....	1,105	695	1,342	817
S. on 4.....	3,962	3,851	3,362	4,250
W. on Olive.....	401	334	810	624
Fresno, S. of Cy. at Je. Church Ave. on 4.....	7,084	7,149	5,946	8,005
Malaga, S. of R. R. Sta.....	4,847	4,498	4,173	5,383
Fowler S. of City.....	3,181	2,674	2,699	3,113
Selma S. of City.....	2,834	2,346	2,470	2,962
Kingsburg S. of Cy. Nr. Kings River Bridge.....	2,171	1,711	1,765	2,151
Goshen Jc., Cr. Rt. 10 to Hanford and C.R. to Tulare,				
N. on 4.....	1,936	1,832	1,705	1,941
W. on 10.....	1,617	1,091	1,014	933
S. on 4.....	1,853	1,678	1,597	1,594
E. on 4.....	1,270	1,286	1,310	1,365
Visalia Wye, Je. Rt. 10 to Visalia,				
W. on 4.....	1,827	1,822	1,845	2,074
E. on 10.....	2,868	2,863	2,926	3,283
S. on 4.....	1,289	1,277	1,272	1,410
Tulare S. City Lts.,				
E. on Co. Rd.....			1,983	2,458
W. on C.R.....			239	348
S. on 4.....	2,334	2,123	1,979	2,370
Tipton at Intersection C.R. to Porterville,				
N. on 4.....	1,956	1,787	1,562	1,814
E. on C.R.....	285	335	276	349
S. on 4.....	1,950	1,790	1,522	1,801
Between Earlimart and Delano,				
Delano Intersection C.R. to Porterville,				
S. on 4.....	2,222	2,069	1,713	1,870
N. on 4.....	2,132	2,087	1,762	1,849
E. on C.R.....	343	292	251	300
Famosa Je. Rt. 23 to Paso Robles,				
N. on 4.....	1,915	1,756	1,333	1,423
W. on 23.....	257	196	580	575
S. on 4.....	1,953	1,769	1,423	1,523
Saco at Saco Garage.....	2,129	2,103	1,737	1,824
Bakersfield N. of Cy. at Je. C.R. to Oil Center,				
N. on 4.....	2,668	1,991	2,879	3,286
N. on C.R.....	3,512	2,512	3,316	6,100
S. on 4.....	5,613	4,184	4,319	6,331
Intersection Brundage Lane and Rt. 4,				
N. on 4.....	1,684	1,526	2,523	1,586
S. on 4.....	1,675	1,403	1,916	1,615
W. on B.L.....	719	530	735	568
Bakersfield 6 Mi. S. at Je. C.R. to Taft,				
N. on 4.....	1,441	1,203	2,054	1,200
W. on C.R.....	284	261	945	677
S. on 4.....	1,635	1,102	2,133	1,266
20 Mi. S. of Bakersfield at Je. Rt. 57, Maricopa Rd.,				
N. on 4.....	1,944	1,302	1,212	597
W. on 57.....	168	79	72	69
S. on 4.....	2,039	1,368	1,215	594
Lebec N. of Station.....	2,101	1,469	1,149	597

District VII

Liebre Mt. Maint. Sta. at Nemaeh Road.....	2,409	1,514	169	460
Castaie at Je. C.R. to Santa Paula,				
N. on 4.....	2,740	1,838	1,898	1,187
W. on C.R.....	2,252	1,057	1,519	760
S. E. on 4.....	4,610	2,664	2,892	1,928
Saugus at Je. Rt. 23 to Mojave,				
N. on 4.....	7,363	4,818	3,100	1,696
E. on 23.....	7,645	2,490	7,677	2,051
S. on 4.....	11,225	5,714	9,943	3,626
Near Newhall at S. end of Soc. LA-4-E.....	11,650	4,336	10,476	3,748

Route 5. Stockton to Santa Cruz via Oakland

District X

Intersection McKinley Avenue with S.J.-4-B.....	1,559	1,458		
E. on McK.....	719	767		
W. on C.R.....	1,355	1,286		
S. on S.J.-4-B.....				
French Camp,				
N. on 4.....	2,050	1,765	1,787	1,984
S. W. on 5.....	1,775	1,361	1,560	1,630
S. E. on C.R.....	585	657	276	411

Station location	January, 1929		January, 1930	
	Sun. 13	Mon. 14	Sun. 12	Mon. 13
Mossdale Je. Rt. 66 to Manteca				
N. on 5.....	1,878	1,422	1,986	1,837
E. on 66.....	1,949	1,121	1,855	1,387
S. on 5.....	3,812	2,494	3,839	3,222
Je. of S.H. & C.R. to Bethany,				
E. on 5.....			3,610	2,744
N. W. on C.R.....			356	491
W. on 5.....			3,313	2,303
Tracy W. of Cy. at Je. C. R. to Byron Sta.,				
E. on 5.....	3,735	1,904		
N. on C.R.....	131	97		
W. on 5.....	3,765	1,888		

Route 5. District IV

Altamont at R. R. Sta.....	3,857	2,092	3,501	2,292
Livermore E. of Cy. at Jc. C.R. to Livermore,				
E. on 5.....	4,207	2,422	3,499	2,687
S. on C.R.....	1,175	948	1,027	985
W. on 5.....	3,059	1,474	2,533	1,728
Santa Rita Inn Je. C.R. to Pleasanton,				
E. on 5.....	4,052	2,074	3,924	2,240
S. on C.R.....	1,233	533	665	486
W. on 5.....	4,367	2,260	4,367	2,459
Dublin Jc. C.R. to Martinez,				
E. on 5.....	4,588	2,173	4,491	2,383
N. on C.R.....	1,445	478	1,691	578
W. on 5.....	6,064	2,208	5,233	2,561
Dublin Je. C.R. to Niles,				
E. on 5.....	5,519	2,207	5,177	2,612
S. on C.R.....	444	164	631	258
W. on 5.....	5,303	2,200	5,225	2,608
Hayward Jc. with Castro Valley Road,				
E. on 5.....	6,811	2,760	5,947	3,205
N. W. to Castro Valley.....	1,109	751	1,331	1,108
S. W. on 5.....	5,503	2,909	4,515	2,101
At Alameda Co. Hospital.....	6,901	2,737	6,189	2,731
Hayward S. of Cy Lts.....	4,810	2,525	3,262	2,526
Niles N. at Hotel Belevoir.....	4,313	2,112	2,535	2,188
Niles at Jc. Niles Canyon Road,				
N. on 5.....	3,366	2,208	3,363	3,014
E. on C.R.....	1,167	561	1,009	1,030
S. on 5.....	3,407	2,124	3,673	2,749
Niles S. of Cy. at Jc. C. R. to Centerville,				
N. on 5.....	3,927	2,507	2,762	2,228
W. on C.R.....	1,464	1,483	1,144	1,399
S. on 5.....	2,686	1,438	1,861	1,161
Mission San Jose Je. C.R. to Livermore,				
N. on 5.....	2,357	704	1,654	913
E. on C.R.....	987	719	1,086	785
S. on 5.....	3,308	1,403	2,469	1,599
9 Mi. N. of San Jose Je. C.R. to Centerville,				
N. on 5.....	3,202	1,241	2,061	1,137
N. W. on C.R.....	3,870	1,502	3,446	1,960
S. on 5.....	7,032	2,722	5,502	3,099
5 Mi. N. of San Jose.....	1,889	3,319	6,434	4,226
San Jose N. of Cy. at Jc. with Gish Road.....	5,734	2,847	4,257	3,631
San Jose W. of City at Sanitarium.....	7,054	6,421	6,121	8,171
Los Gatos N. of City.....	2,863	1,698	1,860	1,832
Los Gatos S. of Cy. Lts.....	3,348	1,465	2,134	1,533
Santa Clara-Santa Cruz Co. Line.....	2,281	757	1,910	718
Santa Cruz N. of City.....	2,217	1,049	1,371	1,074

Route 6. Sacramento to Woodland Junction

District X

West of Sacramento, W. of Underpass.....	3,581	2,773	3,011	3,078
Davis E. of Cy. Underpass.....	2,821	2,218	2,810	2,744
Woodland Wye Je. Rt. 7 W. to Benicia and N. to Woodland,				
E. on 8.....	2,699	2,139	2,633	2,767
W. on 7.....	2,274	1,662	2,320	2,163
N. on 7.....	1,688	1,186	1,881	1,769

Route 7. Tehama Junction to Benicia

District X

Benicia N. of City.....	477	254	822	326
Cordelia Jc. Rt. 8 to Napa,				
S. on 7.....	514	240	235	268
W. on 8.....	2,332	1,510	2,260	1,459
E. on 7.....	2,497	1,763	2,471	1,683
Cordelia Je. C.R. to Suisun,				
W. on 7.....	2,668	1,885	438	330
E. on C.R.....	887	634	447	348
N. on 7.....	1,931	1,293	276	219

Station location	January, 1929		January, 1930		Station location	January, 1929		January, 1930	
	Sun.	Mon.	Sun.	Mon.		Sun.	Mon.	Sun.	Mon.
Fairfield E. of City.....	2,548	1,844	2,880	2,995	Hanford E. of Cy. at Inters.				
Dixon S. of City.....	2,228	1,576	2,305	1,830	C.R. N. to Kingsburg & S. to				
Woodland Wye, Jr. Rt. 9.					Corcoran,				
W. on 7.....	2,374	1,662	2,320	2,103	W. on 19.....	2,060	2,035	2,421	2,448
E. on 7.....	2,609	2,139	2,633	2,797	N. on C.R.....	1,175	1,139	1,295	1,385
N. on 7.....	1,688	1,186	1,881	1,709	S. on C.R.....	1,052	1,332	1,371	1,437
					E. on 19.....	1,025	1,780	1,737	1,970
Route 7. District III					Goshen Jr. Rt. 10 N. to				
Woodland S. of City.....	1,875	1,502	1,802	1,802	Fre. & E. to Visalia & C.R.				
Woodland N. of Cy. at Downs					to Tulare,				
Corner Jc. with C.R. W. & S.					W. on 19.....	1,017	1,091	1,014	923
E. on 7.....	2,145	1,839	2,079	1,947	N. on 4.....	1,885	1,592	1,705	1,941
S. on C.R.....	205	206	221	179	S. on 4.....	1,852	1,678	1,597	1,594
W. on C.R.....	821	720	708	813	E. on 4.....	1,273	1,583	1,310	1,365
N. on 7.....	1,549	1,102	1,495	1,189	Visalia Wye, Jr. Rt. 4 W.				
Williams S. of City.....	1,124	802	1,180	807	to Goshen & S. to Bakersfield				
Williams N. of City.....	918	677	847	678	and Rt. 10 E. to Visalia.				
Willows S. of City.....	1,387	1,444	1,057	878	W. on 4.....	1,827	1,822	1,845	2,074
Willows N. of City at Main-					S. on C.R.....	1,289	1,277	1,272	1,410
tenance Yard.....	1,104	1,123	1,560	1,424	E. on 10.....	2,865	2,862	2,525	3,293
Orland N. of Cy.....	1,121	934	826	822	Visalia E. of Cy. at Exeter				
					Junction,				
Route 7. District II					W. on 19.....	1,639	1,461	1,791	1,854
Red Bluff S. of Town at Reed					S. to Exeter.....	990	955	870	1,073
Creek Bridge.....	984	989	925	879	E. on 19.....	928	817	1,091	975
					Lemon Cove Jr. C.R. to Wood-				
Route 8. Ignacio to Cordelia via Napa					lake,				
District IV					W. on 19.....	534	463	1,022	426
Petaluma Creek Bridge.....	1,092	377	941	432	N. on C.R.....	261	243	728	374
Schellville Jr. Rt. 51 to Santa					E. on 10.....	579	434	1,508	427
Rosa,					Three Rivers E. of Town at Jr.				
S. W. on 8.....	1,645	481	1,117	581	C.H. northerly,				
N. on 51.....	766	300	724	411	W. on 19.....	312	148	1,308	331
N. E. on 8.....	641	265	792	494	N. on C.R.....	67	51	61	82
Napa Junction, Jr. C.R. to					E. on 10.....	320	154	1,321	251
Yallico,									
N. on 8.....	3,273	1,982	3,407	3,291	Route 11. Sacramento to Nevada Line via Placerville				
S. on C.R.....	4,726	2,331	4,692	2,894	District III				
E. on 8.....	2,892	1,679	2,992	2,178	Sacramento E. of Cy. Lts	2,811	1,967	2,855	1,922
					Perkins Jr. with C.R. to Ply-				
Route 8. District X					mouth,				
Cordelia Jr. Rt. 7.....	2,332	1,510	2,390	1,459	W. on 11.....	2,433	1,442	2,225	1,694
					S. E. on C.R.....	882	587	1,045	894
					E. on 11.....	1,695	920	2,442	1,963
Route 9. District VII					Folsom W. of City, Jr. Pratt				
Tujunga West of Sunset Blvd.	7,950	2,724	6,152	3,981	Read,				
La Crescenta W. of Penn. Ave.	7,926	3,275	9,347	5,226	W. on 11.....	1,198	723	1,501	759
La Canada at School St.....	10,305	4,711	5,200	3,472	E. on C.R.....	251	109	360	290
Pasadena E. of Cy. Lts.....	15,108	6,961	10,553	7,140	E. on 11.....	973	645	1,187	812
Arroyo W. City Limits.....	13,372	5,728	11,173	5,532	Folsom E. of Cy. at High				
					School,				
District VIII					N. on 11.....	400	130	1,115	325
S. B.J. A. Co. Line.....	9,936	2,319	12,973	3,029	W. on C.R.....	135	50	305	132
Uplands E. of Cy. at Jr. C.R.					E. on 11.....	489	211	1,383	421
to Uplands,					El Dorado, Jr. Rt. 65,				
W. on 9.....	4,412	1,461	4,738	1,712	W. on 11.....	781	258	921	378
S. W. on C.R.....	2,950	1,400	1,434	1,294	S. on 65.....	220	128	50	54
E. on 9.....	6,340	2,782	5,042	2,883	E. on 11.....	730	361	875	358
Uplands at Euclid Ave. inter-					Placerville W. of Cy.....	1,042	483	1,169	1,064
section,					Placerville E. of City.....	1,110	553	729	519
W. on 9.....	4,843	2,265	7,116	2,619	Headquarters Camp.....	429	62	101	40
N. on Euclid Ave.....	3,913	2,442	6,613	2,078	Between Riverston and Kyburz.....			24	14
S. on Euclid Ave.....	3,940	2,265	4,200	2,432	Alpine Jr.,				
E. on 9.....	6,482	1,859	6,019	2,230	W. on 11.....				
S. Bd. W. of City.....	6,866	4,047	5,790	3,830	S. on 23.....				
					E. on 11.....				
Route 10. San Lucas to Sequoia National Park					Jc. Rt. 38 to Lake Tahoe,				
District V					W. on 11.....				
San Lucas S. of City at Jr.					N. on 38.....				
Rt. 2.....	166	115	1,151	1,155	E. on 11.....				
					Lakeside at Connelleys Ser. Sta.				
Route 10. District VI					Jc. C.R. to Bijou,				
Monterey-Fresno Co. Line.....	52	26	139	43	W. on 11.....				
Parkfield Jr.					N. on C.R.....				
W. on 10.....	91	58	237	76	E. on 11.....				
S. on C.R.....	149	75	48	42					
E. on 10.....	80	27	264	163	Route 12. San Diego to El Centro				
Coalings R. of City.....	209	237	572	365	District VII				
Coalings 3 Mi. E. at Jr. C.R.					San Diego E. of City, Euclid				
to Oilfields,					Ave. at Cajon Ave.....	8,372	4,054	6,078	3,731
W. on 10.....	783	742	784	1,056	El Cajon W. of Cy. Lts.....	6,541	2,558	5,020	2,814
N. on C.R.....	210	282	267	254	At Sweetwater Bridge.....	1,650	945	3,481	427
E. on 10.....	680	697	576	802	Jacumba at Jr. C.R. to El				
Oilfields at Oh King School,					Campe,				
W. on 10.....	390	299	464	424	W. on 12.....	772	508	Road closed	
N. on C.R.....	143	154	199	269	S. on C.R.....	154	123	726	417
E. on 10.....	176	145	229	281	E. on 12.....	858	616	1,691	440
Kings River Bridge.....	452	443	348	248					
Lemoore Jr. C.R. to Lemoore,					Route 12. District VIII				
N. on 10.....	511	493	447	532	On Imp-12-B.....	850	532	No report—Snow	
E. on C.R.....	439	414	431	450	El Centro W. of Cy. at Jr.				
S. on 10.....	478	374	426	400	Rt. 26 to S. Bd.,				
Hanford W. of Cy. Lts.....	1,638	1,688	1,290	1,944	W. on 12.....	2,491	2,229	2,931	2,158
					N. on 26.....	4,441	3,812	4,598	4,533

Route 13. Salida to Route 23 at Junction

Station location	January, 1929		January, 1930	
	Sun.	Mon.	Sun.	Mon.
District X				
W. on side road.....	62	48	35	14
W. on 15.....	191	92	201	57
Grass Valley W. of City.....	961	406	233	121
Nevada City E. of City, E. on 15	242	199	100	60
District IX				
Jc. Rt. 23.....	Road closed		Road closed	

Route 14. Albany to Martinez

Station location	January, 1929		January, 1930	
	Sun.	Mon.	Sun.	Mon.
District IV				
Albany at Co. Line.....	16,783	11,917	14,668	12,259
Jct. C.R. to Richmond,				
S. on 14.....	15,138	10,793	13,210	10,831
W. on C.R.....	5,616	4,638	3,901	4,115
N. on 14.....	19,309	6,301	9,815	7,050
Jc. Franklin Canyon Road,				
S. on 14.....	3,923	3,082	5,474	2,953
E. on C.R.....	1,742	846	1,605	1,170
N. on 14.....	4,347	2,620	4,254	2,986
Crockett 1 Mi. S. of City at Jc. C.R. to Crockett,				
S. on 14.....	1,973	1,083	791	907
W. on C.R.....	765	1,032	637	838
N. on 14.....	906	970	788	851
Martinez W. Cy. Lts.....	510	461	550	358
Carquinez Bridge.....	2,638	1,811	3,116	2,054

Route 15. Route 1 Near Calpella to Route 37 Near Cisco

Station location	January, 1929		January, 1930	
	Sun.	Mon.	Sun.	Mon.
District III				
Upper Lake S. of Cy. Jc. C.R. to Lakeport,				
W. on 15.....	475	354	310	336
S. to C.R.....	291	231	163	170
N. on 15.....	571	472	386	390
Upper Lake Jc. C.R. to Bartlett Springs,				
N. on 15.....	192	103	128	152
E. on C.R.....	1	1	6	6
S. on 15.....	190	102	122	153
Hog Hollow Jc. Rts. 49 & 15,				
E. on 15.....	28	20	11	21
S. on 49.....	122	74	85	122
W. on 15.....	119	67	78	113
Near Venada Jc. C.R. to Bartlett Springs,				
W. on 15.....	23	28	37	36
S. on C.R.....	14	6	13	6
E. on 15.....	37	46	62	45
Williams W. of City.....	561	487	329	314
Williams E. of City.....	545	469	468	423
Celusa E. of City.....	566	507	559	689
Lower Lake Jc. 1/2 MI. W. of Sweet Hollow Summit,				
W. on 15.....			95	103
E. on 15.....			36	40
S. on 49.....			79	103
Sutter City,				
W. on 15.....	791	620	616	687
N. on C.R.....	302	189	314	166
E. on C.R.....	350	425	309	499
S. on 15.....	681	650	671	609
Marysville E. of City.....	416	403	571	456
Smartsville N. of Jc. N. & S. Side Rd.,				
E. on 15.....	191	92	169	46

Station location	January, 1929		January, 1930	
	Sun.	Mon.	Sun.	Mon.
District III				
Roseville E. of City.....	2,493	1,335	4,071	1,258
Auburn S. of Cy. Jc. Ophir Rd.,				
E. on 17.....	1,272	700	1,977	602
N. on C.R.....	157	194	45	91
W. on 17.....	1,387	720	2,164	623
Auburn N. of Cy. Jc. Country Club Road,				
N. on 17.....	552	259	762	189
E. on C.R.....	208	78	29	31
S. on 17.....	583	259	709	198
Grass Valley S. of City.....	1,911	453	1,283	295
Nevada City S. of City.....	1,221	995	512	422

Route 16. Hopland to Lakeport

Station location	January, 1929		January, 1930	
	Sun.	Mon.	Sun.	Mon.
District IV				
Hopland at Jc. Rt. 1.....	494	476	495	362
Lakeport S. of Town at Jc. C.R. to Kelseyville,				
N. E. on 15.....	897	906	439	459
S. on C.R.....	668	770	415	438
W. on 16.....	255	181	99	49

Route 17. Roseville to Nevada City

Station location	January, 1929		January, 1930	
	Sun.	Mon.	Sun.	Mon.
District VI				
Merced 1.6 Mi. at Interx. C.R. at 21st St.,				
W. on 18.....	1,801	1,193	1,193	1,019
E. on 18.....	1,906	1,209	1,488	1,422
W. on C. R.....	703	748	354	414
Merced 12 Mi. at Interx. C.R. to LeGrand,				
W. on 18.....	1,667	233	739	177
S. on C.R.....	79	43	59	26
E. on 18.....	1,107	239	761	174
Morman Bar at Interx. with C.R. to Morman Bar,				
S. on 18.....	1,287	327	714	265
E. on C.R.....	192	149	14	19
N. on 18.....	1,276	240	657	188
Briceburg to Bear Creek Bridge on 18.....	899	126	471	100
El Portal Jc. County Road,				
W. on 18.....	841	152	546	184
W. on C.R.....	123	106	87	75
E. on 18.....	895	122	539	156

Route 18. Merced to Route 40 Near Sequoia

Station location	January, 1929		January, 1930	
	Sun.	Mon.	Sun.	Mon.
District VIII				
Los Angeles' Co. Line E. Cy. Lts. Pomona—Old Road.....	13,209	6,783	9,560	6,057
Bet. Pomona & Ontario at Chino Cross Rds.,				
W. on 19, Old Road.....	13,034	5,311	9,649	5,956
N. on C.R., Old Road.....	891	291	113	81
S. on C.R. to Chino, Old Road.....	5,410	2,691	459	563
E. on 19, Old Road.....	Road Closed		0,729	6,138
East of Ontario, E. City Lts. at Jc. of New S. Rd-19-B with Old Road,				
N. W. on 19, Old Road....	5,824	2,295	1,991	1,645
At S. Bd. Riv. Co. Line on 19, Old Road.....	4,898	2,010	2,663	1,957
Wineville E. of City, Old Road	6,195	2,450	2,857	2,211
Riverside W. of City at Santa Ana River Bridge, Old Road.....	7,866	4,754	4,490	4,450
Los Angeles Co. Line E. City Limits Pomona, New Road			2,427	2,488
Bet. Pomona & Ontario at Chino Cross Roads,				
N. on C.R., New Road....			824	788
S. on C.R., New Road....			809	927
E. on 19, New Road.....			1,849	1,743
W. on 19, New Road.....			2,174	1,951
East of Ontario, E. Cy. Lts. at Jc. of New S. Rd-19-B, with Old Road,				
W. on 19, New Road.....			650	470
E. on 19, New Road.....			420	389

Route 19. From Route 9 West to Claremont to Riverside

Station location	January, 1929		January, 1930	
	Sun.	Mon.	Sun.	Mon.
District VIII				
Los Angeles' Co. Line E. Cy. Lts. Pomona—Old Road.....	13,209	6,783	9,560	6,057
Bet. Pomona & Ontario at Chino Cross Rds.,				
W. on 19, Old Road.....	13,034	5,311	9,649	5,956
N. on C.R., Old Road.....	891	291	113	81
S. on C.R. to Chino, Old Road.....	5,410	2,691	459	563
E. on 19, Old Road.....	Road Closed		0,729	6,138
East of Ontario, E. City Lts. at Jc. of New S. Rd-19-B with Old Road,				
N. W. on 19, Old Road....	5,824	2,295	1,991	1,645
At S. Bd. Riv. Co. Line on 19, Old Road.....	4,898	2,010	2,663	1,957
Wineville E. of City, Old Road	6,195	2,450	2,857	2,211
Riverside W. of City at Santa Ana River Bridge, Old Road.....	7,866	4,754	4,490	4,450
Los Angeles Co. Line E. City Limits Pomona, New Road			2,427	2,488
Bet. Pomona & Ontario at Chino Cross Roads,				
N. on C.R., New Road....			824	788
S. on C.R., New Road....			809	927
E. on 19, New Road.....			1,849	1,743
W. on 19, New Road.....			2,174	1,951
East of Ontario, E. Cy. Lts. at Jc. of New S. Rd-19-B, with Old Road,				
W. on 19, New Road.....			650	470
E. on 19, New Road.....			420	389

Route 20. Route 1 Near Arcata to Redding via Weaverville		January, 1929		January, 1930		January, 1929		January, 1930	
District I		Sun.	Mon.	Sun.	Mon.	Sun.	Mon.	Sun.	Mon.
Station location		13	14	12	13	13	14	12	13
Arcata N. of Cy. at Jc. Rt. 1.		811	568	726	385				
Willow Creek Jc. Cr. to Hoopa.									
W. on 20		54	31	25	18				
N. on C.R.		85	65	37	37				
E. on 20		57	52	27	27				
Humboldt-Trinity Co. Line		47	49	41	38				
Route 20. District II.									
Big Bar Vicinity		28	35	14	12				
Weaverville 3 MI. South		96	77	45	46				
Bet. Redding & Tower House		175	166	62	66				
Route 21. Route 3 Near Richvale to Quincy		District III							
Richvale Wye		313	264	349	241				
Oroville West of Jc. Marysville Road.									
E. on 4				1,054	1,120				
N. on 4				644	723				
W. on Marysville Road				429	437				
Oroville East of Cy.		832	752	954	827				
Bidwell Bar Bridge on 21.				45	35				
Miners Ranch.									
K. on 21		100	76	155	90				
S. on C.R.		200	142	216	90				
W. on 21		278	196	395	171				
Berry Creek		25	31	9	4				
Meadow Valley.									
W. on 21		25	17	25	11				
N. on C.R.		42	31	25	11				
E. on 21		10	13	6	0				
Quincy		116	49	40	20				
Route 22. San Juan Bautista to Route 32 via Hollister		District V							
San Juan Bautista S. of Cy. at Jc. Rt. 2		1,629	918	2,421	2,160				
Route 22. District IV									
Hollister Jc. Rt. 32		518	249	767	374				
Route 23. Saugus to Route 11 at Alpine Junction		District VII							
Saugus Jc. with Rt. 4		7,645	2,490	7,677	2,051				
Palmdale S. of Cy. Lts.		4,403	1,237	2,818	956				
Lancaster Jc. with Rt. 59 to Neenach.									
S. on 23		2,077	1,223	1,322	1,186				
W. on 59		820	623	450	523				
N. on 23		1,664	807	982	658				
Los Angeles-Kern Co. Line		951	370	651	362				
Route 23. District IX									
Mojave Jc. Rts. 58 and 23.									
S. on 23		820	330	505	306				
E. on 23		144	93	47	92				
N. on 23		871	385	545	381				
Mojave Jc. C.R. to Bakersfield.									
S. on 23		959	546	542	270				
N.W. on C.R.		575	338	420	189				
N. on 23		482	235	126	95				
Freeman 1 MI. N. Jc. to Rt. 57.									
S. on 23		102	92	43	20				
N. on 57		46	41	8 Rd. Closed					
N. on 23		108	118	51	20				
Kern Inyo Co. Line		141	99	21	31				
Olancho Jc. C.R. to Keeler.									
S. on 23		220	85	46	47				
E. on C.R.		50	11	14	10				
N. on 23		327	74	48	44				
Lone Pine S. Cy. Lts. C.R. to Keeler.									
S. on 23		298	318	144	171				
E. on C.R.		97	101	27	32				
N. on 23		378	410	121	143				
Big Pine Jc. Rt. 62 to Oasis.									
S. on 23		177	232	132	176				
E. on 62		102	131	15	38				
N. on 23		152	147	139	156				
Bishop 1/2 MI. N. at Jc. C.R. N. to Laws & Dirt Road Easterly.									
S. on 23		636	559	331	410				
N. on C.R.		303	318	162	265				
E. on C.R.		72	57						
W. on 23		340	252	189	171				
Levinson Jc. Rts. 40 and 23. On 40		Road Closed		Road Closed—Snow					
On 23		79	110	21	35				
Station location		13	14	12	13				
Mono-Inyo Co. Line		52	21	24	24				
Mono 23-1		No Count							Road Closed—Snow
Bridgeport at E. Cy. Lts.		10	12						
On Mono-23-K		20	28						
Sonora Jc. Jc. Rts. 13 and 23.									
S. on 23		Road closed							
W. on 13		Road closed							
N. on 23		Road closed							
District X									
S. of Markleville Jc. Rt. 24.									
On 23		Road closed							Road closed—snow
On 24		Road closed							Road closed—snow
Jc. S. H. and C.R. on Woodfords.									
S. E. on 23									5 3
N. E. on C.R. to Mindon.									4 8
N. W. on 23									2 0
Picketts Jc. Jc. Rt. 34.									
E. on 23		Road closed							Road closed—snow
W. on 24		Road closed							Road closed—snow
N. E. on 23		Road closed							Road closed—snow
Route 24. Route 4 Near Lodi to Route 23. Near Silver Creek		District X							
Lodi Jc. Rt. 4		1,262	1,085	1,097	1,042				
Jc. Rt. 24 and C.R. to Lome.									
W. on 24		1,631	723	1,318	728				
N. on C.R.		478	338	278	222				
E. on 24		1,204	467	1,657	511				
Bet. San Andreas and Valley Springs		1,233	241	1,645	216				
Jc. Rt. 24 and C.R. to Val-Hetta.									
N. on 24		1,136	244	421	150				
S. on C.R.		181	75	25	50				
W. on 24		1,233	255	452	174				
Jc. Rt. 24 and C.R. to Murphy.									
S. on 24		1,278	335	495	118				
N. on C.R.		612	176	299	137				
E. on 24		1,547	222	534	154				
Route 25. Nevada City to Downville		District III							
Nevada City N. of Cy.		276	184	20	57				
Cazaptonville N. of Cy.		167	161	9	19				
Downville Jc. Rts. 25 and 36.									
W. on 25		166	77	17	12				
N. on 26		4	2	0	0				
E. on 25		110	79	17	13				
Route 26. San Bernardino to El Centro		District VIII							
S. Bd. S. of Cy. at N. end Santa Ana River Bridge, Jc. C.R. to Colton.									
N. on 26		3,020	2,268	2,020	2,230				
W. on C.R.		3,812	2,141	1,792	1,918				
S. on 26		6,768	4,062	4,398	3,600				
Bet. S. Bd. and Redlands on 26 at Jc. of Hunt's Lane.									
S. on Hunt's Lane				289	307				
E. on 26				4,510	3,677				
W. on 26				4,607	2,795				
At Inter. with Mt. View Ave. W. of Redlands.									
E. on 26		5,730	3,505	4,218	3,190				
S. on C.R.		1,068	1,018	675	745				
N. on C.R.		1,356	1,268	740	834				
W. on 26		5,411	3,203	4,416	3,345				
Colton Ave. at W. Cy. Lts. of Redlands				4,388	3,751				
S. E. of Redlands Jc. C.R. to Yucaipa Rd.									
N. W. on 26		3,713	2,949	3,471	2,068				
E. on C.R.		491	405	426	468				
S. E. on 26		3,226	1,939	3,148	2,119				
At S. Bd. Riv. Co. Line		3,239	1,545	No count—snow					
Beaumont Jc. Jack Rabbit Trail.									
N. W. on 26		3,028	1,426	No count—snow					
W. on Jack Rabbit Trail.		1,574	686	No count—snow					
E. on 26		4,288	1,989	No count—snow					
Banning W. of Cy. Lts.		1,160	2,027	No count—snow					
At Jc. with C.R. to Palm Springs.									
E. on 26		2,001	1,190	No count—snow					
S. E. to Pal. Springs		1,739	484	No count—snow					
W. on 26		2,398	1,501	No count—snow					
Coechella S. of Cy. at Jc. C.R. to Thermal and Mecca.									
N. on 26		1,627	1,077	No count—snow					

Station location	January, 1929		January, 1930	
	Sun. 13	Mon. 14	Sun. 12	Mon. 13
E. on C.R.	846	646	No count—snow	
W. on C.R.	254	221	No count—snow	
S. on 26.	1,271	1,035	No count—snow	
1 Mi. S. of Indio at Jc. of C.R. S. to Coachella and Thermal and Mecca.			No count—snow	
N. on 26.			No count—snow	
S. E. on 26.			No count—snow	
S. on C.R.			No count—snow	
At Riv. Imp. Co. Line.	1,535	1,122	1,209	868
Westmoreland, E. Cy. Lts.	2,626	2,571	2,660	2,730
Vendel's Service Sta. 5 MI. W. of Westmoreland			1,299	979
Brawley at W. Cy Lts. Jc. with Western Ave.				
W. on 26.	2,323	2,708	3,405	4,022
N. on Cy. St.	163	234	221	230
B. on Cy. St.	2,724	2,684	3,362	3,920
S. on Cy. St.	290	234	396	365
Brawley, Jc. S. W. of Cy.				
S. on 26.	3,340	2,903	2,665	2,857
N. on Ct. St.	3,382	2,642	2,805	3,730
N. W. on C.R.	397	224	188	191
El Centro W. of Cy. Jc. Rt. 12	4,411	3,812	2,991	2,158

Route 27. El Centro to Yuma

District VIII

Station location	Jan. 1929 Sun. 13	Jan. 1929 Mon. 14	Jan. 1930 Sun. 12	Jan. 1930 Mon. 13
El Centro N. of Cy. at Jc. C.R. N. to Brawley and S. to Calexico.				
W. on 27.	3,015	3,087	2,396	3,956
N. on C.R.	274	236	162	265
S. on C.R.	299	204	187	266
E. on 27.	2,854	2,919	2,311	2,903
E. of Holtville.	1,728	1,621	2,266	1,692
Sand Hills Maint. Sta. on Rt. 27	928	580	851	657
Yuma at S. D. A. Plant Quarantine Sta.	2,863	1,954	2,768	2,530

Route 28. Redding to Nevada Line via Alturas

District II

Station location	Jan. 1929 Sun. 13	Jan. 1929 Mon. 14	Jan. 1930 Sun. 12	Jan. 1930 Mon. 13
Redding S. of Cy. at Jc. with Rt. 3	468	488	260	285
Montgomery Creek	136	128	48	47
4 Mi. E. of Pittville at Maint. Sta.	120	54	42	23
Canby	173	159	69	49
5 Mi. N. of Alturas at Jc. Lakeview Rd.				
S. on 28.	190	100	41	41
N. on C.R.	68	62	6	4
E. on 28.	88	68	36	40
East of Cedarville 2 MI.	28	25	2	10

Route 29. Red Bluff to Nevada Line Near Purdy's

District II

Station location	Jan. 1929 Sun. 13	Jan. 1929 Mon. 14	Jan. 1930 Sun. 12	Jan. 1930 Mon. 13
Red Bluff E. at Jc. Rt. 3.	361	290	317	287
Teh.-Plu. Co. Line		Road closed	47	31
2 Mi. W. of Westwood	274	123	67	68
Susanville 1 MI. W. of Town.	670	286	188	145
Susanville, 1 M. E. of Town.	1,108	747	505	403
12 Mi. E. of Milford at Maint. Sta.	95	80	59	60
5 Mi. S. of Constantia at Maint. Sta.	128	88	98	78

Route 31. San Bernardino to Nevada Line Near Jean

District VIII

Station location	Jan. 1929 Sun. 13	Jan. 1929 Mon. 14	Jan. 1930 Sun. 12	Jan. 1930 Mon. 13
S. Rd. of Cy. at Jc. with Mt. Vernon and Highland Ave.				
S. on Mt. V.	2,692	1,601	No count—snow	
E. on Highland	6,525	1,632	No count—snow	
W. on Highland	2,453	995	No count—snow	
N. W. on Highland	3,050	1,659	No count—snow	
Jc. Rt. 31 with State St.				
N. W. on 31.	4,550	973	No count—snow	
S. on State	1,491	202	No count—snow	
S. E. on 31.	3,508	870	No count—snow	
N. on Cajon Jc. C.R. to Swartout Valley.				
S. on 31.	4,508	694	No count—snow	
W. on C.R.	2,736	107	No count—snow	
N. on 31.	1,818	603	No count—snow	
Victorville S. Cy. Lts.	1,472	856	No count—snow	
Helendale	659	436	No count—snow	
S. W. Town Lts. of Barstow.	704	482	No count—snow	
Yermo, E. of Cy. Lts.	288	269	No count—snow	
Baker	216	201	No count—snow	
Nevada State Line.	200	169	No count—snow	

Route 32. Route 2 Near Gilroy to Route 4 Near Califa

District IV.

Station location	January, 1929		January, 1930	
	Sun. 13	Mon. 14	Sun. 12	Mon. 13
Hollister Jc. with Rt. 22.				
W. on 32.	674	322	702	329
S. on 22.	513	249	707	334
E. on 32.	1,681	509	1,267	573
Pacheco Pass at Santa Clara-Merced Co. Line.	1,025	428	1,155	456

Route 32. District VI

Station location	Jan. 1929 Sun. 13	Jan. 1929 Mon. 14	Jan. 1930 Sun. 12	Jan. 1930 Mon. 13
Junetion-Jc. C.R. to Gustine.				
W. on 32.	1,092	451	1,007	466
N. on C.R.	299	130	241	133
E. on 32.	839	356	922	391
E. of Los Banos at Jc. S. P. Crossing (Near Maint. Yard).			1,761	2,022
E. of Los Banos at Jc. C.R. to Dos Palos.				
W. on 32.	1,189	877	1,034	1,229
S. on C.R.	602	568	619	597
E. on 32.	1,068	762	884	1,010
Merced-Madera Co. Line at Jc. C.R. to Merced.				
W. on 32.	931	530	730	747
N. on C.R.	364	212	393	390
E. on 32.	617	351	488	475
Califa Jc. Rt. 4.	514	344	481	470

Route 33. Paso Robles to Route 4 Near Bakersfield

District V

Station location	Jan. 1929 Sun. 13	Jan. 1929 Mon. 14	Jan. 1930 Sun. 12	Jan. 1930 Mon. 13
Paso Robles E. of Cy Lts.	1,147	928	849	1,117
Paso Robles, 1/4 MI. E. of Cy. Lts.	617	501	596	724

Route 33. District VI

Station location	Jan. 1929 Sun. 13	Jan. 1929 Mon. 14	Jan. 1930 Sun. 12	Jan. 1930 Mon. 13
S. L. O.-Kern Co. Line	139	95	367	340
Blackwell's Cor. Jc. C.R. N. to Collins and S. to Taft.				
W. on 33.	158	132	266	365
N. on C.R.	199	137	163	173
S. on C.R.	168	68	154	146
E. on 33.	187	183	367	377
Lost Hills Intersex. of Main St.				
W. on 33.	361	373	536	582
N. on Main.	58	50	26	24
S. on Main.	103	69	154	176
E. on 33.	349	371	535	671
Wasco, Jc. Co. Rd. S. to Wasco near S. P. R. R. King.				
W. on 33.	122	169	650	734
S. on C.R.	471	456	644	832
E. on 33.	429	403	735	821
Famosa Jc. Rt. 4.	257	190	530	575

Route 34. Route 4 Near Arno to Route 23 at Picketts Junction

District X

Station location	Jan. 1929 Sun. 13	Jan. 1929 Mon. 14	Jan. 1930 Sun. 12	Jan. 1930 Mon. 13
Twin Cities Jc. Rt. 4.	254	186	355	307
W. of Jone Jc. C.R. to Michigan Bar.				
W. on 34.	108	55	117	71
N. on C.R.	119	85	46	60
E. on 34.	215	131	142	128
W. of Jackson Jc. Rt. 65 to Placerville.				
E. on 34.	834	755	784	845
N. on 65.	605	683	602	774
S. on 34.	400	189	333	227
Jc. S. H. and C.R.				
S. W. on 34.			71	33
N. W. on C.R.			33	29
E. on 34.			91	82
Pine Grove E. of Town.	289	149	No count	No count
Picketts Jc. Rt. 23 on 34.	No count	No count	No count	No count

Route 35. Peanut to Kuntz

District II

Station location	Jan. 1929 Sun. 13	Jan. 1929 Mon. 14	Jan. 1930 Sun. 12	Jan. 1930 Mon. 13
At Peanut	5	7	2	2

Route 37. Auburn to Nevada Line Near Verdi

District III

Station location	Jan. 1929 Sun. 13	Jan. 1929 Mon. 14	Jan. 1930 Sun. 12	Jan. 1930 Mon. 13
Auburn E. of City.	1,368	647	2,275	725
Colfax E. of Cy. Jc. Grass Valley Rd.				
W. on 37.	724	140	448	171
N. on C.R.	186	66	194	181
E. on 37.	681	124	380	153

Station location	January, 1929		January, 1930	
	Sun.	Mon.	Sun.	Mon.
Emigrant Gap Jc. Rts. 15 and 37.				
W. on 37.....	Road closed		Road closed—snow	
W. on 15.....	Road closed		Road closed—snow	
E. on 37.....	Road closed		Road closed—snow	
Donner Lake Camp W. of Cy. Jc. with R. 38,				
S. to Lake Tahoe.....	Road closed		Road closed—snow	
W. on 37.....	Road closed		Road closed—snow	
S. on 28.....	Road closed		Road closed—snow	
E. on 37.....	Road closed		Road closed—snow	
Truckee E. of Cy. at Jc. with Rt. 19 to Nevada Line.				
W. on 37.....	295	91	134	19
E. on 28.....	245	40	125	21
N. on 37.....	44	13	2	4
Nevada State Line.....	Road closed		Road closed—snow	

Route 38. Myers to Nevada Line via Truckee River

District III				
Truckee W. of Cy. Jc. R. 37.....	Road closed		Road closed—snow	
Truckee E. of Cy. Jc. with R. 27	245	40		
California-Nevada State Line.....	586	168	276	38
Tahoe City at Jc. Rt. 39.				
S. on 38.....	Road closed		Road closed—snow	
E. on 38.....	Road closed		Road closed—snow	
N. on 39.....	Road closed		Road closed—snow	

Route 39. Tahoe City to Nevada State Line

District III				
Tahoe City Jc. Rt. 38.....	Road closed		Road closed—snow	
Near Brockway Jc. C.R. to Truckee on 39.....	Road closed		Road closed—snow	

Route 40. Route 13 Near Monteruma to Route 23 Near Mono Lake

District X				
Mt. Pass Jc. Rt. 13.....	177	47	137	69
1 Mi E. of Groveland on 49.....	119	70	37	17
Aspen Valley Checking Station on 40.....	No count			
Gentry Checking Station on 49	No count			
Mono 40 A. Jc. with Mono-73-H	No count			

Route 41. District VI

W. of Hume.....	No count			
E. of Hume.....	No count			

Route 42. District IV

Waterman Switch,				
E. to Saratoga Gap on 42A		31	13	
W. to Redwood Park on 42A		40	16	
S. on C.R. to Boulder Creek		169	33	
Saratoga Gap at Redwood Park Gate	Road closed—Constr.	0	1	

Route 43. San Bernardino to Big Bear Lake

District VIII				
Foot of Waterman Grade.....	1,491	222	No count—snow	
Pinecrest Jc. C.R. to Lake Arrowhead,				
S. W. on 43.....	887	79	No count—snow	
N. E. on C.R.....	799	79	No count—snow	
N. W. on C.R.....	43	6	No count—snow	
E. on 43.....	197	39	No count—snow	
Hunning Springs Park Jc. Cy. Creek Rd.,				
N. on 43.....	111	5	No count—snow	
W. on Cy. C.R.....	424	75	No count—snow	
E. on 43.....	486	69	No count—snow	
W. end of Bridge over Big Bear Dam,				
W. on 43.....	421	73	No count—snow	
E. over Dam.....	405	37	No count—snow	
N. E. on 43.....	114	49	No count—snow	
1 Mi. from end of Rt. 43 Jc. C.R. to Pineknut,				
W. on 43.....	79	37	No count—snow	
S. on C.R.....	105	24	No count—snow	
E. on 43.....	129	44	No count—snow	
Mill Creek Lower Control—S. Bd. C. Jc. Big Meadows,				
S. to Redlands.....	Road closed		No count—snow	
E. to Big Meadows.....	Road closed		No count—snow	
N. to Big Bear Lake.....	Road closed		No count—snow	
Big Bear Lake Desert Rt. Jc. E. of Baldwin Lake,				
N. to Desert.....	94	34	No count—snow	
W. to Big Bear Lake.....	94	28	No count—snow	
S. on E. side of Baldwin Lake	28	6	No count—snow	

Route 44. Boulder Creek to Redwood Park				
Station location	January, 1929		January, 1930	
	Sun.	Mon.	Sun.	Mon.
Boulder Creek at Park Line.....	453	315	470	363

Route 45. Willows to Route 3 North of Biggs				
District III				
Station location	January, 1929		January, 1930	
	Sun.	Mon.	Sun.	Mon.
Willows E. of City.....	704	841	618	530
Four Corners W. of Butte City,				
N. on 45.....	259	249	165	210
E. on 45.....	293	229	226	260
S. on C.R.....	328	309	255	293
W. on C.R.....	152	144	197	79
Butte Cy. W. of Cy.,				
W. on 45.....	104	79	99	84
N. on C.R.....	79	39	30	48
S. on C.R.....	29	10	23	13
E. on 45.....	56	46	68	42
Cherokee Canal Jc. with C.R. to Richvale,				
W. on 45.....	92	62	128	101
N. on C.R.....	76	94	53	37
E. on 45.....	67	84	131	97

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

District II				
Wetchee Jc. Co. Rds.....	46	45	14	8
Thompson Creek.....	48	39	17	28
Cray N. of Cy. Jc. Rt. 3.....	102	86	87	63

Route 47. Orland to Chico

District III				
Orland Jc. with Rt. 7.....	728	319	586	543
Gianelli Bridge.....	375	391	528	399
Chico W. of City,				
W. on 47.....	815	536	650	748
S. on C.R.....	340	330	220	247
N. on C.R.....	129	98	55	54
E. on 47.....	997	1,927	965	917

Route 48. Near McDonalds to Mouth of Navarro River

District IV				
McDonald Jc. Rt. 1.....	148	112	168	122
Booneville on 48.....	394	260	271	180
Navarro, 2.3 Miles W. of Town	288	117	216	152

Route 49. Calistoga to Lower Lake

District IV				
N. of Calistoga at Post of Grade	321	239	2,192	476
Middletown Jc. Cobb Mt. Rd.				
N. on 49.....	514	428	359	309
S. on 49.....	766	600	582	517
W. on C.R.....	280	234	209	295
Lower Lake Jc. Kelseyville and Lower Lake Rd.,				
S. on 49.....	200	234	169	158
W. on L. L. R.....	406	284	234	272
W. on K. Rd.....	227	186	144	152

Route 51. Santa Rosa to Schellville

District IV				
Santa Rosa E. of City.....	2,644	1,768	2,672	1,749
8 Mi. E. of Santa Rosa at Sonoma Cr. Bridge.....	1,082	642	1,151	717
Schellville Jc. Rt. 8.....	760	360	1,117	581

Route 52. Alto to Tiburon

District IV				
B-vedere Jc. Rt. 1.....	1,186	883	794	442
Richmond to San Rafael Ferry.....	980	574		

Route 53. Fairfield to Lodi via Rio Vista

District X				
Deverton at Overhead Xing.....	599	199	341	348
Rio Vista Bridge E. End,				
W. on 53.....	899	822	827	971
N. on 53.....	889	794	604	916
S. on C.R.....	609	539	593	623
Walnut Grove Bridge N. End,				
E. on 53.....	855	848	489	556
S. on 53.....	274	267	214	227
W. on C.R.....	1,637	689	591	582

Station location	January, 1929		January, 1930	
	Sun.	Mon.	Sun.	Mon.
Isleton Bridge East End,				
N. on 53.....	297	186	155	226
S. on 53.....	1,213	1,062	948	1,126
W. over Br.....	1,032	918	836	1,098
Thornton, Interx. C.R.,				
E. on 53.....	619	588	490	499
N. on C.R.....	279	253	296	240
W. on 53.....	507	446	362	412
Lodi N. of City.....	727	927	687	824

Route 54. Near Michigan Bar to Central House

District X

Station location	Jan. 1929	Jan. 1930	Jan. 1929	Jan. 1930
Central House Je. Rt. 65 to Placerville and Jackson,				
W. on 54.....	356	215	280	201
N. on 65.....	269	332	232	196
S. on 65.....	402	394	275	244
Saratoga Gap on 65,				
55 to S. F.....			221	28
55 toward Woodward.....			3	4
E. on C.R. toward Saratoga			390	62
W. on 42 toward Redwood Park.....			0	4

Route 53. San Francisco to Route 5 Near Glenwood

District IV

Station location	Jan. 1929	Jan. 1930	Jan. 1929	Jan. 1930
Swimming Pool.....	7,925	1,274	5,016	1,191
Je. with C.R. to Colma,				
N. on 55.....	4,670	375	3,172	487
E. on C.R.....	1,541	391	1,691	494
S. on 55.....	5,201	577	3,326	738
Je. C.R. to Belmont at Dirt Dam,				
N. on 55.....	2,551	370	2,643	696
S. E. to Belmont.....	1,758	196	1,039	237
W. to Half Moon Bay.....	2,350	376	2,751	723
Je. with C.R. W. to Half Moon Bay,				
N. on 55.....	2,668	373	2,791	694
W. on C.R.....	1,214	341	719	412
S. on 55.....	930	53	2,659	197
S. Cl-S. Cr. Co. Line Je. Rts. 5 and 55.....	48	46	21	19

Route 56. District V

Station location	Jan. 1929	Jan. 1930	Jan. 1929	Jan. 1930
S. of Carmel Interx. Carmel Valley and Big Sur Roads	2,915	1,369	615	613
San Simeon 1 Mi. S.....	184	113	98	121

Route 57. Santa Maria to Freeman via Bakersfield

District V

Station location	Jan. 1929	Jan. 1930	Jan. 1929	Jan. 1930
Santa Maria N. of Cy. at Je. Rt. 2.....	195	55	231	70
At Intx. Rt. 57 and Suez Rd.,				
W. on 57.....	117	23	132	40
S. on Suez Rd.....	141	53	35	18
E. on 57.....	242	77	171	52
Bet. 2d Cayama, King and Kern Co. Line on 57 B. C.....	72	45	13	14

Route 57. District VI

Station location	Jan. 1929	Jan. 1930	Jan. 1929	Jan. 1930
S. L. O.-Kern Co. Line.....	122	67	36	43
Maricopa W. of Cy.....	323	296	662	525
Pentland at R. B. King.....	452	595	1,002	1,294
Bakersfield Je. C.R. to Connor,				
W. on 57.....	291	118	86	87
N. on C.R.....	61	40	49	41
E. on 57.....	156	77	66	52
Je. Rt. 4.....	168	79	72	69
Bakersfield E. Nils and School Houses Easterly Cy. Lts.....	1,733	2,235	2,168	2,294
Bakersfield 10 Mi. E. at Je. Co. Club Rd. and Ker-57-E, on 57.....	497	171	693	239
Bodfish at Interx. Rt. 57 with C.R. to Caliente,				
E. on 57.....	99	67	25	37
S. on 57.....	132	84	23	28
S. on C.R.....	19	26	7	5

Route 58. District IX

Station location	Jan. 1929	Jan. 1930	Jan. 1929	Jan. 1930
Medave.....	144	93	47	52

Route 58. Mojave to Arizona Line Near Topoe via Barstow

District VIII

Station location	Jan. 1929	Jan. 1930	Jan. 1929	Jan. 1930
Kramer-Kern Co. Line.....	19	16	No count—snow	
Barstow N. of Cy. at Je. C.R. to Yermo,				
S. on 58.....	318	326	No count—snow	
W. on 58.....	199	175	No count—snow	
N. on C.R.....	158	154	No count—snow	

Station location	January, 1929		January, 1930	
	Sun.	Mon.	Sun.	Mon.
Barstow Je. Rd. E. to Standard Oil Sta. Back of Harvey House,				
N.....	251	252	No count—snow	
W.....	664	552	No count—snow	
E.....	191	160	No count—snow	

Station location	January, 1929		January, 1930	
	Sun.	Mon.	Sun.	Mon.
Train Movements at Grade Cross- at Barstow.....	232	172	208	175
Daggett Je. Arrowhead Trail Old Trails Hwy.,				
N.....	262	198	No count—snow	
W.....	554	457	No count—snow	
E.....	216	273	No count—snow	
Vicinity Newberry Springs.....	249	306	No count—snow	
Vicinity Amby.....	141	182	No count—snow	
Near Bannock Je. C.R. to Search- light,				
W. on 58.....	144	96	No count—snow	
N. on C.R.....	38	38	No count—snow	
E. on 58.....	186	125	No count—snow	
Needles W. of Cy. Lts.....	681	411	No count—snow	
Needles 5.7 Mi. S. Je. to Parker and Blythe,				
S. on 58.....	156	120	No count—snow	
S. W. on C.R.....	37	40	No count—snow	
N. on 58.....	118	122	No count—snow	

Route 59. Lancaster to Baileys

District VII

Station location	Jan. 1929	Jan. 1930	Jan. 1929	Jan. 1930
Lancaster Je. Rt. 23.....	920	622	450	529
Bailey Ranch.....	160	72	1	No count

Route 60. El Rio to San Juan Capistrano

District VII

Station location	Jan. 1929	Jan. 1930	Jan. 1929	Jan. 1930
El Rio Je. Rt. 2, on 60.....	3,494	2,471	2,860	2,616
Ornard South of City Lts. on Ven. 69-A.....			1,784	2,017
Santa Monica Interx. Beverly and I. A. 60-B Santa Ynez Can- yon,				
W. on 60.....	12,737	2,781	1,986	1,988
On Bev. Blvd.....	7,152	2,731	No count	
E. on 60.....	20,898	6,926	2,030	1,760
Ox Santa Monica Canyon Road.....	11,545	2,588	6,778	6,234
Topanga Canyon on 60.....	10,167	3,164	4,998	3,757
On C.R.....	4,246	1,195	572	725
Lomita on Redondo-Wilmington Rd. on 60.....	9,869	6,218	5,123	6,876
Seal Beach at L. A.-Orange Co. Line.....	13,880	6,920	5,697	5,214
Newport W. of Cy.....	7,976	3,656	2,344	2,821
Newport at Interx. Newport- Tustin Road,				
W. on 60.....	8,491	1,864	2,653	2,298
N. on C.R.....	5,558	2,256	2,958	2,913
S. on C.R.....	4,363	2,215	1,781	2,240
E. on 60.....	7,871	2,554	3,376	2,882
Serra Je. Rt. 2 on 60.....	4,493	1,636	1,895	1,873

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

District VII

Station location	Jan. 1929	Jan. 1930	Jan. 1929	Jan. 1930
Pacadena at N. Cy. Lts.....	2,350	514	2,091	605

Route 63. Big Pine to Oasis

District IX

Station location	Jan. 1929	Jan. 1930	Jan. 1929	Jan. 1930
Big Pine, Je. Rt. 23.....	192	131	15	18

Route 64. Mecca to Blythe

District VIII

Station location	Jan. 1929	Jan. 1930	Jan. 1929	Jan. 1930
Desert Center.....	88	97	94	91
Blythe, S. D. Quarantine Sta.....	255	134	191	60

Route 65. Auburn to Sonora

District III

Station location	Jan. 1929	Jan. 1930	Jan. 1929	Jan. 1930
Auburn at Wire Bridge, Ameri- can River,				
N. on 65.....	218	77	10	53
E. on C.R.....	95	30	7	9
S. on 65.....	118	59	34	39
Placerville N. of Cy. Je. George- town Rd.,				
N. on 65.....	291	216	129	167
N. on C.R.....	86	59	13	58
S. on 65.....	355	276	143	190
El Dorado S. of City.....	220	128	50	43

Route 65. District X		January, 1929		January, 1928	
Station location	Sun.	Mon.	Sun.	Mon.	13
Central House Jr. Rt. 54 to Michigan Bar,					
N. on 65.....	309	332	333	196	
W. on 54.....	356	212	389	201	
S. on 65.....	492	326	275	244	
N. of Jackson Jr. Rt. 54,					
N. on 65.....	605	653	602	774	
E. on 34.....	824	755	784	845	
S. on 34.....	460	186	338	227	
S. of San Andreas at Sheep Camp.....	1,479	446	1,991	381	
W. of Sonoma Jr. Co. Rd. to Jamestown,					
N. W. on 65.....	382	199	162	70	
S. W. on C.R.....	264	108	52	36	
S. W. on 65.....	420	221	168	25	
Route 66. Manteca to Route 5 Near Mossdale School					
District X					
Mossdale Jr. Rt. 5.....	1,919	1,121	1,855	1,587	
Route 67. Pajaro River to Route 2 Near San Benito River Bridge					
District V					
San Juan Bautista N. of City at Jr. Rt. 2.....	1,763	949	1,464	1,651	
Route 68. District IV					
N. City Limit S. San Francisco	6,762	4,952	8,932	7,948	
S. San Francisco at Underpass	7,736	3,329	7,557	5,617	
Burlingame Jr. Rt. 68 and Broadway,					
N. on 68.....	7,348	2,966	7,966	6,658	
W. on Broadway.....	5,318	1,421	2,401	2,734	
S. on 68.....	5,725	1,844	5,383	3,669	
Route 69. San Quentin Road. District IV					
San Quentin Hill.....	1,825	943	2,949	1,135	
Route 70. District IV					
Utah Jr. Rt. 1.....	822	651	529	651	
Route 71. Crescent City to Oregon Line					
District I					
Crescent City N. of Town at Maint. Yard.....	654	579	616	593	
At Oregon Line.....	293	136	198	122	

READ THEM AND WEEP

On the air last Monday night Wade H. Ellis of the American Bar Association's crime commission declared that crime costs the United States \$13,000,000,000 a year.

Speaking in Paris on July 11, 1928, Homer Folks said that illness costs the United States \$15,000,000,000 a year.

Insect pests, we were informed by the Agriculture Department on May 7, cost the United States \$2,000,000,000 a year.

Preventable accidents, said the National Safety Council on October 3, 1928, cost the United States \$5,000,000,000 a year.

Bad weather, a crop insurance expert recently estimated, costs the United States \$2,620,000,000 a year.

The smoke nuisance, according to figures issued by the Merchants Association on May 20, 1928, costs the United States \$2,040,000,000 a year.

Rats, declared the Federal Public Health Service on February 2, cost the United States \$364,000,000 a year.

It is terrible enough to know that every year this country loses the price of a couple of wars. If the estimators are given free hand we shall be broke in a few years.—New York Sun.

HOW CALIFORNIA CARES FOR THE BLIND

(Continued from page 8.)

for employees, a women's industrial shop, and a building containing a central power plant, an assembly hall, and a lounge room for inmates were constructed.

Expansion of industrial training opportunities was aided in 1928 by the addition of a second story to the women's industrial shop, providing adequate facilities for basketry, weaving, rug making and other activities of a similar nature.

Since the founding of the Industrial Home, broom making has been the chief industry and has been carried on in wooden buildings, where the dust nuisance and lack of proper heating and ventilation has been a serious drawback. Also, of recent years the broom factory has been badly overcrowded. The need of remedying this situation was recognized by the present administration and an appropriation was made by the 1929 legislature for a new building, bids for which have already been received by the Division of Architecture, and it is expected that construction will proceed rapidly.

The new broom factory will be of concrete construction with tile roof, and is planned as a modern factory building with large areas of glass, adequate heating and ventilation and special exhaust ventilation at points where dust is created so that it may be removed and not permitted to create a nuisance. A mezzanine floor with hydro-electric elevator service furnishes ample space for storage of a large stock of finished brooms.

Another important addition to the permanent buildings is the sales and office building now under construction. This will provide an adequate salesroom with show windows for display of articles manufactured by the blind, which has not been possible heretofore. The building will also contain the administration office and public reception room. A unique and appropriate detail on this building is a frieze of sandblasted redwood depicting in conventionalized form the different manufactures carried on by the blind, with other panels showing "Homer the Blind Poet" and "Louis Braille, Teacher of the Blind."

NEW YORK—The new markers introduced on state highways have black raised letters on a white, octagonal background and small button reflectors within the letters make the signs highly visible at night.

State Highway Progress Reports

ALAMEDA COUNTY

An important section in the state highway system between Hayward and Niles and the Oakland-San Jose road is fast nearing completion. Construction work during the winter period has been somewhat retarded, due to inclement weather, the contractor's forces being busily engaged as conditions would permit.

The Portland cement concrete shoulder and pavement sections have been completed and opened to traffic. All structures have been completed including the widening of the undergrade crossing of the Southern Pacific Railroad at Niles.

All asphaltic concrete work between Niles Underpass and Hayward has been practically completed, there still remaining a small section of asphaltic concrete surfacing from the Niles Underpass south to Alameda Creek bridge through the town of Niles. This latter work will materially improve the situation in Niles, in that the surface will be smooth and of adequate width to handle through traffic through the town. The contractors are now busily engaged in widening the roadbed shoulders and finishing.

ALPINE COUNTY

The surfacing on the State Highway between Markleeville and Woodfords was completed in December, in time to give the residents of Markleeville a much improved highway during the stormy weather. This stretch of road has been very hard to negotiate in past years due to lack of surfacing.

AMADOR COUNTY

The highway between Jackson and Pine Grove has been graveled in the worst sections, so that for the first time this stretch of road is passable throughout the stormy winter season.

BUTTE COUNTY

Excellent progress is being made by Convict Camp 17, under Superintendent Rawson, in the construction of the 7-mile section of graded highway from the Feather River crossing to a point opposite Bloomer. It is expected that the grading of this section will be completed about the middle of the summer.

Grading and surfacing of the highway from Oroville to the Feather River crossing, Ariss-Knapp Company, contractors, is rapidly nearing completion. It is expected that all work on this job will be done by the middle of March, and this portion of the Feather River Highway will be available for local traffic at that time. Meanwhile, it is expected that the bridge across the Feather River, adjoining this contract, with the convict construction on the opposite side, will be

completed during the summer, and this will make the lower 12 miles of the Feather River Highway available for traffic, as far as Bloomer.

CALAVERAS COUNTY

Bids were opened February 19 for surfacing with crushed rock the road from Murphy to Big Trees, and on February 26 for grading and rock surfacing between 1½ miles north and 1½ miles south of Calaveritas Creek. This is on the Mother Lode Highway between San Andreas and Angels.

In spite of the heavy snow storms during January the road from Angels Camp to Big Trees was kept open to traffic at all times by the maintenance forces, equipped with snow plows.

FRESNO COUNTY

Convict Camp located near Hume in Fresno County, on the Kings River Road, has been able to continue operations even though handicapped by bad weather conditions. Snow fell to a maximum depth of about 4 inches at the highest elevation and temperature dropped to 6 degrees below zero. By continued efforts, the road leading through General Grant Park to Pinehurst was kept clear to sufficient extent that a truck made triweekly trips for mail and supplies. About 8 miles of road has been under construction since July of last year and of this mileage, 5 miles has been practically completed.

KERN COUNTY

On Route 57, between Maricopa and Route 4, two contracts have been awarded. For the portion twelve miles east of Maricopa, George W. Ellis, assignee, is preparing to place an oil-treated surface on the newly graded and rock-based highway. From San Emigdio road to Route 4, the V. R. Dennis Construction Company was successful bidder and is preparing to begin operations of grading, placing of rock base and oil-treated surface. The completion of these contracts will afford practically paved route from main Route 4 to Maricopa and adjacent oil fields.

On Route 33, Valley Paving and Construction Company have started operations on their contract which calls for grading and surfacing with a crushed rock base and 2 inches of bituminous macadam top 15.5 miles, from the west line of Kern County east of Shandon to Junction pumping station.

On Route 33, east of Lost Hills, the Hartman Construction Company is laying crusher run base and bituminous macadam top on a 2-mile line change which will eliminate two right angle turns.

Under day labor authorization, widening of roadway is under way between Democrat Springs and Weldon. This will include the construction of a 60-foot timber bridge over Clear Creek near Hobo Hot Springs.

During the middle of January the heaviest snowfall for a number of years occurred, which resulted in some inconvenience to travel over the Ridge Route. A number of successive snowfalls occurred, reaching a maximum depth of about 2 inches on pavement and maintenance forces concentrated all efforts in an endeavor to keep the road open for travel.

KINGS COUNTY

An improvement contributing greatly to the safety of motor traffic has been recently completed between Lemoore and a point 10 miles westerly on Route 10 between Hanford and Coalinga. This work involves sanding of earth shoulders, thereby eliminating the danger of vehicles which leave the pavement, especially during wet weather. The natural soil conditions in this vicinity are such that they become dangerous when wet and the sand surfacing is equivalent to widening the safe width of roadway which can be used.

LASSEN COUNTY

Work has been completed by Hein Brothers and Chittenden on their contract for resurfacing the highway from Brockman Crossing to Buntingvale, a distance of about 10 miles. This reinforcing of the old gravel surface will make it possible to place an armor coat asphaltic surfacing during the coming summer months, which will effect a considerable improvement for the heavy traffic which uses this highway on the road to Reno.

The work of reinforcing the 7-mile section of the highway from Buntingvale to Milford by state forces was completed in January, which, like the above mentioned section, will make it possible to place a high type of asphaltic surface during the coming summer season.

LOS ANGELES COUNTY

The contract for a line change immediately north of the Newhall tunnel has been awarded to McCray Company. Good progress is being made on this work. It is expected that this contract will be completed next June.

The first contract on the La Canada-Mt. Wilson Highway for grading 2.6 miles of 40-foot roadbed was awarded to H. W. Rohl Company on August 14th. Rough grading is in progress on one and one-half miles. It is expected that this contract will be completed by next July.

A contract for paving the Newhall Alternate with Portland cement concrete, 30 feet wide, has been awarded to Jahn & Bressi. Grading of this section has just been completed by Le Tournau & Lindberg. The new location is on greatly improved alignment and eliminates Saugus, Newhall and the Newhall tunnel from the Ridge Route. This section is 8.6 miles long. Paving will probably be completed by next August.

A contract for grading and paving a line change near Liberty School, 4 miles west of Calabases, was awarded to the Will F. Peck Company, January 15, 1930. This line change eliminates several bad curves and improves the grade. It is expected that this contract will be completed next August.

LOS ANGELES AND VENTURA COUNTIES

A contract for oil mix shoulders between Calabases and Conejo Summit has been awarded to the Southwest Paving Company. It is expected that this contract will be finished in April.

MADERA COUNTY

Paving work on both contracts between Berenda and North County Line on Route 4 in Madera County have been completed by the Valley Paving and Construction Company for the south 4½ miles and A. Teichert and Son, Inc., for the mileage from Califa to North Boundary. The last mentioned contract is 20-foot asphaltic concrete and the southerly work consisted of 20-foot Portland cement concrete. Separating the two projects is the Califa Subway under contract to Otto Parlier. This work is also practically complete with the exception of placing supporting steel and track changes being done by the Southern Pacific. As soon as this is completed and the shoo-fly track removed, the subway will be opened to traffic.

MARIN COUNTY

Contractors Granfield, Farrar & Carlin have practically completed the grading of the 4.4 miles section of new highway from San Rafael to Alto. This route is an important link in the proposed reconstruction work between San Rafael and Sausalito, which ultimately will reduce the distance between these cities approximately 4 miles. The work is not as yet in a completed stage, due to the fact that before traffic can make use of it three major structures which are now under construction must be complete before through traffic can be put over the road. These structures are:

- (1) Overhead structure of the Northwestern Pacific Railroad Company at California Park near San Rafael.
- (2) A moveable span structure across Corte Madera Creek at Greenbrae.
- (3) An overhead crossing of the Northwestern Pacific Railroad at Detour about one-half mile south of Greenbrae.

All three structures are well under way and there yet remains the work of advertising a contract for surfacing the graded roadway which will be undertaken at an early date. The surfacing of this road and the completion of the bridges should be brought about by July 1, 1930, in ample time to open this important link in the Redwood Highway to the heavy summer traffic.

Marin and Sonoma counties, in fact all the population north of the bay are vitally interested in the activities of the Highway Commission in this area, in view of which they anticipate many pleasant trips to the San Francisco Bay over the reconstructed highways, which will reduce by many miles the distance between Santa Rosa and San Francisco and likewise reduce the running time considerably. These, together with the fact that the new road will obviate the many hazards on the existing Corte Madera grade has left a very favorable impression with the populace of the northern counties.

These same contractors have under construction, also, 1.8 miles of reconstruction from San Rafael to Gallinas Creek, immediately north of the city. The major work under their contract consists of very

heavy grading, nearly all of which has been completed in ample time to permit of settlement during the heavy winter rains. We anticipate that by spring the entire roadway will be sufficiently settled to permit of the placing of Portland cement concrete and bituminous macadam pavements, all of which will be completed by early summer. This road, however, will not be available for use of traffic until an overhead structure is completed across the Northwestern Pacific Railroad at Forbes Station. This structure is now advertised for bids and upon receipt of same, a contract will be awarded at an early date.

Traffic during the interim is being handled along the present state highway between the terminals which is somewhat circuitous although serves as an adequate detour. The completion of this contract will offer to the traveling public a widened and reconstructed highway on high standards from San Rafael to Ignacio, the junction of the two state highways leading from Santa Rosa and the Napa Valley.

MARIN AND SONOMA COUNTIES

The Hawaiian Company of San Francisco have a large contract under way from a point one mile south of Petaluma to Ignacio. Work has been under way during a greater part of the winter period although this contract lies over a considerable marshy area adjacent to San Pablo Bay. It has not been practical to pursue construction to the full extent permissible; however, there are a number of minor line changes where the reconstructed work is on new right of way and at these locations the contractor has made continuous progress during the winter months, the work here, involving heavy grading, having kept the contractor's forces busy.

Concrete and pipe structures have been installed, leaving the entire contractor's organization available for the placing of hard pavement surface. The placing of Portland cement concrete second story pavement has commenced and a small portion has been placed from about one mile north of the Sonoma County line to the northerly terminus of the contract near Petaluma. Weather conditions permitting, we are expecting the contractor to expedite the completion of Portland cement concrete pavement and the construction of a small amount of bituminous macadam pavement on line changes in order to have this important link available for traffic as soon as possible.

A new concrete bridge is now being completed across San Antonio Creek on the county line between Marin and Sonoma counties. A new concrete bridge was recently completed and accepted across the channel of Novato Creek, south of the town of Novato. These two structures complete all major drainage work in the contract. The total length of work involved is 11.8 miles.

MARIPOSA COUNTY

During the period from January 6 to 14, a total of 63 inches of snow fell at intervals on State Highway Route 18. The maintenance crew, by persistent work, were able to keep the route open to travel and very little delay and inconvenience was caused to traffic. Heavy week-end traffic to Yosemite of motorists who desired to see snow conditions and participate in winter sports, suffered but slight inconvenience due to the snowfall and the fact that the maintenance

crews worked continuously following each snowfall to keep the road open.

Favorable comment on the work done by maintenance crews in keeping this road open to traffic was received from Col. Thompson, Superintendent of Yosemite National Park, and from various other interested parties.

MENDOCINO COUNTY

Contractor W. C. Colley has completed all work on the McDonald-to-the-Sea highway. The contract required the construction of three timber bridges across Flynn Creek, North Fork of the Navarro River and at Indian Creek, together with approaches and the grading of a line change to obviate two existing structures, the total length of work being 1.8 miles.

The completion of this improvement has removed some of the more hazardous sections on this important road and this section of Mendocino County is realizing the benefit of a new highway constructed to high standards. The Highway Department also contemplates awarding a contract to do considerable further work in eliminating dangerous stream crossings and straightening out heavy grades at a number of important places. It is hoped that this work will be under way by early summer and be completed before the fall rains.

MERCED COUNTY

Under day labor, three bridges, spanning irrigation canals in Merced County on Route 4, have been widened, thereby removing potential hazards to traffic. Various accidents have occurred in the past due to the rather restricted road width. The widening should be a very material factor in avoiding future accidents. West of Los Banos, where soil conditions are particularly bad in wet weather, gravel shoulders have been placed, thereby increasing the safe width of traveled way.

MODOC COUNTY

The connection with the highway from the main street of Alturas eastward to the Cedarville highway was under construction during the past month, and will be completed in the spring, thereby eliminating two bad right-angle turns for eastern traffic.

NAPA COUNTY

The contract of Fredrickson & Watson Construction Company and Fredrickson Bros. has been accepted. This contract covered the reconstruction of a portion of the existing state highway from Greenwood Corners to the Napa County line, the old 15-foot concrete pavement being widened with macadam shoulders and the entire reconstructed width of 20 feet being surfaced with bituminous macadam. The completion of this road is of material assistance in handling the heavy traffic between the Sacramento Valley and the bay district, in that it is the last link in this section to be widened to a standard width of 20 feet.

ORANGE COUNTY

A contract for paving one-half width between Santa Ana and Anaheim was awarded on June 11th to the Griffith Company. This section is 4.9 miles long. The paving work was 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. All work is now completed on this project.

A contract for widening the roadbed between Sunset Beach and Newport the entire width of the 90- to 100-foot right of way, and the placing of an additional 10-foot strip of Portland cement concrete has been awarded to the Macco Construction Company. When this work is completed the pavement will be 30 feet wide for the entire distance. It is expected that this work will be completed by next December.

A small contract for replacing temporary surfacing with Portland cement concrete, 30 feet wide, between Dana Point and Serra has just been completed. Match Bros. were the contractors on this work.

PLUMAS COUNTY

Work is just starting on the grading and surfacing of the 3-mile gap in the highway southwest of Chester, and it is expected that this section, including the main street through the town of Chester, will be completed before the peak of the summer traffic sets in. The completion of this gap, together with the 4-mile section which is now under construction in Lassen County, just east of Westwood, will complete an improved highway from a point 12 miles east of Red Bluff to Susanville.

Excellent progress is being made by the convict camp under Superintendent Stout, at Paxton. Almost 7 miles of the 10 mile section which is being constructed by this camp have been practically completed, extending from the county road 2 miles west of Keddle to a point about opposite Twain. The completion of this section will furnish the people of Virgilia, Twain and Paxton with direct communication with the outside world.

SACRAMENTO COUNTY

The grading and surfacing contract between Arno and McConnell on the main highway between Sacramento and Stockton was completed some time ago. Traffic, however, was kept on the detour until February 10, due to the bridge contract not being completed.

SAN DIEGO COUNTY

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. It is expected that this contract will be completed next summer.

The contract for grading a roadbed 36 feet wide and placing of Portland cement concrete pavement 20 feet by 7 inches has just been completed between Pine Valley and Kitchen Creek on the San Diego-El Centro Highway. Basich Brothers were the contractors.

A contract for 4.5 miles of 38-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. It is expected that this contract will be completed next June.

A contract for grading 3.9 miles of 36-foot roadbed from Kitchen Creek to La Posta and paving with 20-foot by 7 inches Portland cement concrete was awarded on June 25th to Basich Bros. About 3 miles of rough grading is completed, and grading is now in progress on about one mile. It is expected that paving will start shortly. This section is on the San Diego-El Centro Highway.

SAN JOAQUIN COUNTY

Contractor C. W. Wood completed his job of grading and cement concrete paving between Banta and the San Joaquin River on February 14. This eliminates the most hazardous section of this important road.

On March 12 bids will be opened for paving with cement concrete the road from Cherokee Station to Harney Lane. This stretch of nearly eight miles is known as Cherokee Lane and is the main Valley road between Stockton and Sacramento. Nearly 100 separate owners were dealt with in securing the rights of way, and considering the type of property and improvements. I feel that our Right of Way Department, headed by A. M. Nash, has made a fine showing on speed and economy.

SAN MATEO COUNTY

A new unit in the important Bayshore Highway is now under way, a contract having recently been awarded to Fredrickson & Watson Construction Company and Fredrickson Bros. covering that portion from Fifth street, San Mateo, to Redwood City, a length of approximately 7.3 miles. A major length of this section lies across the salt marshes along the westerly side of San Francisco Bay. In addition to the installation of drainage structures, this contract is somewhat unique in that a major portion of the northerly part is to be constructed of hard material obtained from the borrow pit in Belmont Terrace. This borrow pit, being centrally located, will furnish some 450,000 yards of excavation for the roadbed section. A high elevation is being maintained to provide a roadway above the high tides of the intervening sloughs.

From Belmont Terrace, south toward Redwood City, a greater portion of the work consists of dredger fill embankment. This portion offers adequate facilities for this type of construction and in view of the desire of the adjacent owners in reclaiming portions of their lands through suction dredge methods, work will be combined in filling the highway area and a portion of the adjacent property.

Great interest in the Peninsula is being centered in this contract of the Bayshore Highway, in that the completion will provide an additional highway, as at the present time but one through highway exists between San Mateo and Redwood City. The congestion on this one link has been serious on Sundays and holidays, evidenced by the bunching up of traffic during peak hours immediately south of the city of San Mateo. A recent traffic count at this point revealed an excess of 20,000 cars during a 16-hour period. Once this condition is relieved by the opening of the new unit of the Bayshore Highway, traffic will have

two completed state highways between San Francisco and Santa Clara points along the bay, not including the Skyline boulevard which lies along the crest of the hills some distance to the west.

SANTA CLARA COUNTY

Contractor N. M. Ball has completed all paving in the reconstruction of a portion of the Peninsula Highway from Santa Clara to Sunnyvale. The contract was recently completed and accepted by the Director of Public Works. The work consisted chiefly of widening and resurfacing the existing pavement by constructing a 10-foot Portland cement concrete shoulder on the westerly side of the old pavement and placing a 4-inch minimum thickness of asphaltic concrete on the old pavement, providing a 30-foot width of pavement throughout the length of the contract.

A line change of considerable importance was constructed from Sunnyvale to Butchers Corner in a direct line. This change eliminates two dangerous curves in the old road which are now entirely eliminated from the reconstruction work.

A contract has recently been awarded to the Hanrahan Company of San Francisco for reconstructing that portion of the Peninsula Highway from San Francisco Creek Bridge in Palo Alto to San Antonio avenue (Los Altos Junction). This reconstruction work lies in a very heavily populated portion of Santa Clara County. There are some line changes of considerable importance which have required the moving of buildings.

The construction work consists chiefly of widening the concrete bridge across San Francisco Creek on the county line between San Mateo and Santa Clara counties, and the placing of a Portland cement concrete shoulder and resurfacing the old pavement with asphaltic concrete. The reconstructed roadway from San Francisco Creek to the south limits of Mayfield is to be 40 feet wide. From the south line of Mayfield to Los Altos Junction the pavement will be 30 feet wide. On line changes involving new construction the pavement will consist of 30-foot width Portland cement concrete. A small exception in the contract will eliminate the business district in Mayfield.

SHASTA COUNTY

Work started on the construction of six timber bridges on Route 28, between Montgomery Creek and Burney, in January, and construction of the approaches to these bridges will be under way during the coming month. The completion of these bridges will eliminate several old structures which have been an inconvenience, if not an actual menace to traffic for some years.

During the recent heavy snow storms in the northern section of the state, particularly heavy snow removal was necessary between Redding and Burney, on the Alturas lateral, and on the Pacific Highway through the Sacramento Canyon. Snow to a depth of 5 feet on the former route and 4 feet on the latter was handled effectively by the maintenance forces under superintendents Macaulay and Tremper, and the roads were kept open at all times.

SISKIYOU COUNTY

The concrete paved highway from the Shasta River

to Gazelle, at the southerly end of the Shasta Valley, for a distance of 8 miles, was completed early in February, and the improvement effects a great convenience to traffic, particularly through the winter months. An excellent job of paving was secured by the T. M. Morgan Company, under the supervision of resident engineer Baker, in spite of the very trying conditions of freezing and wet weather which existed during the latter portion of the work.

Work started early in February on the heavy piece of construction between Yreka and the Klamath River. Wren and Greenough, contractors. It is expected that the exceptionally heavy grading on this contract will be well under way in the next month or so, since the contractor plans to install seven or eight power shovels on the work. Work to date has consisted of the construction of a detour on the opposite side of the river, for a distance of over a mile on the lower portion of the canyon, on which to carry traffic during the construction of the highway on the heavy slopes on the opposite side of the river. Three of five bridges which are physically part of this project, although under different contracts, have either been completed, are under construction, or are advertised for contract.

Many minor improvements which have been made to the road on the lower Klamath River during the past season or two have effected a great convenience for the traffic using that road, and winter traffic particularly has been greatly benefited. Numerous stretches which have been graveled have kept the traffic out of the mud, and the many places which have been widened and drained have made it possible to carry traffic this winter with greater ease than in any preceding winter, in spite of the fact that unusual snow conditions made the season particularly difficult.

SOLANO COUNTY

On February 1, the contract for grading and paving with cement concrete the line change through Dixon was awarded to C. W. Wood. This will eliminate two grade crossings with the main line of the S. P. R. R. where some fatal accidents have occurred in the past.

In order to make the asphaltic concrete pavement safer for traffic during wet weather maintenance forces have kept the pavement sanded during wet weather which has materially lessened the accidents on this slippery pavement. Two honing machines are busily engaged planing the slippery pavement to remove excess asphalt and provide a nonskid surface, which will be much safer for traffic.

TEHAMA COUNTY

With the construction of the bridge across Cottonwood Creek, at the Tehama-Shasta County line, which is nearing completion, and with the construction of the subway and connections north and south from this bridge, which it is expected will be let to contract during the next couple of months, one of the worst situations on the Pacific Highway will have been eliminated.

Through the efforts of superintendents Gribble and Stump, the Red Bluff-Susanville Highway was kept open during the heavy and protracted snow storm in the month of January. This opening was made possible by the completion of the improved highway from Mergan Springs to Chester last fall. An exceptionally severe test of equipment and men engaged upon this

work was made by the heavy snowfall, and neither were found wanting.

Work is well under way on the resurfacing of portions of the 30-mile section of the highway from Paynes Creek to Morgan Springs, A. F. Giddings, contractor, these portions constituting about two-thirds of the entire length. This resurfacing will strengthen the existing base sufficiently to permit of a higher type of oiled treatment later.

TRINITY COUNTY

Excellent progress is being made by Convict Camp 12, on the grading of the highway over the Buckhorn Summit, between Redding and Weaverville. All of the grading has been completed along Grass Valley Creek, to a point within 1.5 miles of the county line, and work is now being concentrated on the easterly side of the divide, with the object of completing the connection on that side, which will open the 5-mile section of highway to the foot of the mountain for traffic, possibly by August.

Considerable improvement has been effected in the narrow road between Burnt Ranch and Salyer during the past two months, by the widening of several narrow places on the precipitous bluffs along that section.

TULARE COUNTY

Valley Paving and Construction Company has resumed paving operations between Earlimart and Delano, after ceasing work during the greater part of January due to bad weather conditions.

A contract has been awarded to California Construction Company for widening and resurfacing 15-foot pavement between Pixley and Tipton Railroad Crossing, a distance of 8.6 miles. Contractor is now moving in equipment and preparing to start operations.

TUOLUMNE COUNTY

The surfacing job under contract to the Adams Co. between near Shaw's Flat and the Sonora-Columbia road has been delayed by winter storms. It is progressing fairly well now that the weather has improved.

VENTURA COUNTY

A contract for second story paving with asphaltic concrete from Conejo Creek to Camarillo has just been completed by Griffith Company.

Sandy (to his daughter): Young McPherson has asked me for your hand, and I have consented.

Daughter: You dear old dad!

Sandy: So never mind going to the dentist's now to have that tooth pulled—wait until you are married.—*Passing Show.*

MISSOURI—A new \$1,000,000 highway, 20 feet wide, extending west from St. Louis through St. Louis County is being constructed on a right of way of 100 feet.

Record of Bids and Awards

HIGHWAY BIDS AND AWARDS

For Month of February

CALAVERAS COUNTY—Between Murphy's and Big Trees, 15.5 miles to be surfaced with untreated crushed gravel or stone. Dist. X. Rt. 24, Sec. E. M. J. Bevanda, Stockton, \$76,616; Hemstreet & Bell, Marysville, \$69,040; Chas. Harlowe, Jr., Oakland, \$97,964; W. H. Hauser, Oakland, \$72,080. Contract awarded to Keenan & White, Stockton, \$67,956.

KERN COUNTY—Between Cinco and 7 miles north of Ricardo, 15 miles to be graded and surfaced with oil-treated crushed gravel or stone. Dist. IX, Rt. 23, Secs. C and D. Kennedy-Bayles Const. Co., Oakland, \$287,366; J. P. Holland, Inc., San Francisco, \$272,074; Hemstreet & Bell, Marysville, \$277,005; G. W. Ellis, Los Angeles, \$263,515; Hall-Johnson Company, Alhambra, \$333,385; Hartman Const. Co., Bakersfield, \$322,612; Isbell Construction Co., Fresno, \$297,488; Mutual Income Properties, Inc., Los Angeles, \$249,805; Arris-Knapp Co., Oakland, \$291,970. Contract awarded to George Herz & Co., San Bernardino, \$242,768.80.

LOS ANGELES COUNTY—Alternate to Ridge Route, between Castaic School and Canton Creek, 7.1 miles to be graded. Dist. VII, Rt. 4, Sec. G. Sander Pearson, Santa Monica, \$674,660; Kern & Kibbe, San Francisco, \$830,310; J. G. Donovan & Son, Los Angeles, \$653,792; T. M. Morgan Paving Co., Los Angeles, \$622,503; Isbell Construction, Fresno, \$794,156; McCray Co. & Martter & Bock, Los Angeles, \$717,044; J. P. Shea Co., San Francisco, \$710,063; Guy F. Atkinson Co., San Francisco, \$648,374; Gist & Bell, Arcadia, \$684,457; Hanraban Co., San Francisco, \$722,677; The Utah Construction Co., San Francisco, \$638,771; H. W. Rohl Co., Los Angeles, \$540,264; Fisher, Ross, MacDonald and Kahn, Inc., Azusa, \$811,212; Geo. Pollock, Sacramento, \$599,529; R. G. Le Tourneau, Stockton, \$577,725. Contract awarded to H. E. Doering & Von Der Hellen & Pierson, Berkeley, \$537,629.50.

LOS ANGELES AND VENTURA COUNTIES—Between one mile east of Los Angeles-Ventura County line and the top of Conejo Grade, superelevating curves. Dist. VII, Rt. 2, Secs. C, A and B. Contract awarded to Griffith Company of Los Angeles, \$2,800.25.

SISKIYOU COUNTY—Reinforced concrete bridge about 5.5 miles north of Yreka, consisting of one 200-foot open spandrel arch span and three 40 foot girder approach spans. Dist. II, Rt. 3, Sec. C. M. B. McGowan, San Francisco, \$74,988; Lord & Bishop, Oroville, \$81,688; Guy F. Atkinson Co., San Francisco, \$81,894; Skeels & Graham, Roseville, \$76,857; Ward Engineering Co., San Francisco, \$81,386; Fred J. Maurer & Son, Inc., Eureka, \$74,985; H. E. Doering, Portland, Oregon, \$71,990. Contract awarded to Jacobs & Pattiani, Oakland, \$71,548.

"Say," said the prospect, who was being given a demonstration in a used car, "what makes it jerk so when you first put it in gear?"

"Ah," the suave salesman explained, "that proves it to be a real car—it's anxious to start."—*American Legion Monthly.*

AWARD OF CONTRACTS DIVISION OF ARCHITECTURE

For the Month of February

SONOMA STATE HOME, for constructing assistant physician's residence. Contract awarded to G. Magnuson & Company of San Bruno; price, \$7,300.

NAPA STATE HOSPITAL, for constructing assistant physician's residence. Contract awarded to G. Magnuson & Company of San Bruno; price, \$7,345.

SAN FRANCISCO STATE BUILDING, for general work on additional wings. Contract awarded to Vogt & Davidson, Inc., San Francisco; price, \$206,643. Contract for electrical work on above; contract awarded to Porter Electric Company of San Francisco; price \$10,600. Contract for heating and plumbing work on above; contract awarded to Scott Company of San Francisco; price, \$16,184.

WATER APPLICATIONS AND PERMITS

Applications for Permit to Appropriate Water Filed with the State Department of Public Works, Division of Water Resources, during February, 1930.

MONO COUNTY—Application 6547. Gladys Koebig, 2404 8th avenue, Los Angeles, for 200 gallons per day from small unnamed stream tributary to Mammoth Creek and Owens River to be diverted in Sec. 17, T. 4 S., R. 27 E., M. D. M., for domestic purposes. Estimated cost \$90.

LOS ANGELES COUNTY—Application 6548. Isaac Wiskerson, Palmdale, for 0.025 c.f.s. from Granite Springs tributary to Wiskerson Canyon of Amorgosa Creek drainage to be diverted in Sec. 24, T. 6 N., R. 14 W., S. B. M., for domestic and irrigation purposes. Estimated cost \$400.

EL DORADO COUNTY—Application 6549. L. T. Butts, Placerville, for 0.25 c.f.s. from Emigrant Ravine Creek tributary to Hangtown Creek to be diverted in Sec. 5, T. 10 N., R. 11 E., M. D. M., for irrigation and domestic purposes. Estimated cost \$500.

PLUMAS COUNTY—Application 6550. Quincy Lumber Company, Inc., Quincy, for 50,000 gallons per day from February 15th to December 15th of each season from Buckhawk Creek tributary to Spanish Creek, Indian Creek, North Fork Feather River to be diverted in Sec. 33, T. 25 N., R. 9 E., M. D. M., for industrial purposes. Estimated cost \$500.

PLUMAS COUNTY—Application 6551. Quincy Lumber Company, Inc., Quincy, for 1.56 c.f.s. from Middle Fork of the Feather River tributary to Feather River to be diverted in Sec. 15, T. 23 N., R. 11 E., M. D. M., for industrial purposes. Estimated cost \$1,500.

PLUMAS COUNTY—Application 6552. Quincy Lumber Company, Inc., Quincy, for 50,000 gallons per day from West Branch Peoria Creek tributary to Middle Fork of Feather River to be diverted in Sec. 19, T. 23 N., R. 11 E., M. D. M., for industrial purposes. Estimated cost \$250.

PLUMAS COUNTY—Application 6553. Quincy Lumber Company, Inc., Quincy, for 50,000 gallons per day from East Branch of Peoria Creek tributary to Middle Fork of Feather River to be diverted in Sec. 19, T. 23 N., R. 11 E., M. D. M., for industrial purposes. Estimated cost \$200.

PLUMAS COUNTY—Application 6554. Quincy Lumber Company, Inc., Quincy, for 50,000 gallons per day from unnamed spring tributary to Bear Canyon, Indian Creek, North Fork Feather River to be diverted in Sec. 20, T. 25 N., R. 9 E., M. D. M., for industrial and domestic purposes. Estimated cost \$250.

MONTEREY COUNTY—Application 6555. Sidney W. Fish, c/o Agnew & Boekel, Federal Reserve Bank Bldg., San Francisco, for 0.5 c.f.s. from Palo Corona and tributaries tributary to San Jose Creek to be diverted in Sec. 5, T. 17 S., R. 1 E., M. D. M., for irrigation and domestic purposes.

EL DORADO COUNTY—Application 6556. Arthur E. Rasor, c/o A. J. Harder, 518 Ochsner Bldg., Sacramento, for 60 acre feet per annum from Rock Creek tributary to South Fork American River to be diverted in Sec. 34, T. 13 N., R. 11 E., M. D. M., for mining purposes.

EL DORADO COUNTY—Application 6557. Arthur E. Rasor, c/o A. J. Harder, 518 Ochsner Bldg., Sacramento, for 60 acre feet per annum from Rock Creek tributary to South Fork American River to be diverted in Sec. 34, T. 13 N., R. 11 E., M. D. M., for irrigation purposes on 10 acres.

EL DORADO COUNTY—Application 6558. Arthur E. Rasor, c/o A. J. Harder, 518 Ochsner Bldg., Sacramento, for 60 acre feet per annum from Rock Creek tributary to South Fork American River to be diverted in Sec. 34, T. 13 N., R. 11 E., M. D. M., for recreational and domestic purposes.

NEVADA COUNTY—Application 6559. F. C. Foote, Grass Valley, for 3 c.f.s. from China Flat Ravine tributary to South Yuba to be diverted in Sec. 18, T. 17 N., R. 9 E., M. D. M., for mining purposes. Estimated cost \$1,850.

HUMBOLDT AND TRINITY COUNTIES—Application 6560. Trinity Loop Mining Company, c/o Charles D. Wehr, Atty., Court House, Oakland, for 150 c.f.s. from (1) Horse Range Creek, 30 c.f.s.; (2) Unnamed Creek tributary to Horse Range Creek, 10 c.f.s.; (3) Grove Prairie Creek, 20 c.f.s.; (4) Cedar Creek, 40 c.f.s.; (5) Unnamed Creek No. 3 tributary to Cedar Creek, 2 c.f.s.; (7) Unnamed Creek No. 5 tributary to Cedar Creek, 5 c.f.s.; (8) Unnamed Creek No. 6 tributary to Cedar Creek, 6 c.f.s.; (9) Hawkins Creek, 35 c.f.s. tributary to Trinity River to be diverted in Secs. 8, 17, 18, 19, T. 7 N., R. 7 E., M. D. M., Secs. 25, 26, 35, T. 7 N., R. 6 E., M. D. M., and Sec. 9, T. 6 N., R. 6 E., M. D. M., for mining purposes.

NEVADA COUNTY—Application 6561. Metal products Holding Corporation, 1329 Russ Bldg., San Francisco, for 3 c.f.s. from Phoenix Lake at Old Man Mountain tributary to South Yuba to be diverted in Sec. 4, T. 17 N., R. 13 E., M. D. M., for mining purposes.

GLENN COUNTY—Application 6562. Wm. F. Linton, Orland, for 0.081 c.f.s. from unnamed stream tributary to Walker Creek to be diverted in Sec. 8, T. 21 N., R. 3 W., M. D. M., for irrigation and domestic purposes on 5 acres. Estimated cost \$400.

NEVADA COUNTY—Application 6563. U. S. Dept. of Agriculture, Tahoe National Forest, Nevada City, for 3.14 miner's inches from unnamed springs tributary to North Fork Yuba River to be diverted in Sec. 1, T. 20 N., R. 12 E., M. D. M., for domestic and recreational purposes. Estimated cost \$100.

TRINITY COUNTY—Application 6564. A. J. Norcott and W. H. Badley, Burnt Ranch, Trinity County, for 150 acre feet from November 1st to May 1st of each season from unnamed spring tributary to Trinity River to be diverted in Sec. 34, T. 5 N., R. 6 E., H. B. & M., for mining purposes. Estimated cost \$500.

LOS ANGELES COUNTY—Application 6565. I. A. Sharp, Palmdale, for 0.025 c.f.s. from January 1st to December 31st of each season, from Deer Spring tributary to Armagosa Creek to be diverted in Sec. 14, T. 6 N., R. 14 W., S. B. B. & M., for domestic and irrigation purposes. Estimated cost \$425.

SAN BERNARDINO COUNTY—Application 6566. Christian Baumann, Phelan, for 0.635 c.f.s. from April 1st to November 1st from 4 unnamed springs tributary to no stream to be diverted in Sec. 31, T. 4 N., R. 7 W., S. B. B. & M., for domestic and recreational purposes. Estimated cost \$2500.

DEL NORTE COUNTY—Application 6567. Frank Symms, Crescent City, for 0.01 c.f.s. from unnamed spring tributary to Smith River to be diverted in Sec. 30, T. 17 N., R. 2 E., H. B. & M., for domestic purposes. Estimated cost \$200.

LAKE COUNTY—Application 6568. Martin Judge and Company, Creeker First Nat'l Bank Bldg., San Francisco, for 250 c.f.s. and 175,000 acre feet per annum from North Fork Cache Creek tributary to Cache Creek to be diverted in Sec. 4, T. 14 N., R. 6 W., M. D. M., for industrial and domestic purposes. Estimated cost \$3,000,000.

LAKE COUNTY—Application 6569. Martin Judge, Jr., Creeker First Nat'l Bank Bldg., San Francisco, for 175,000 acre feet per annum from North Fork of Cache Creek tributary to Cache Creek to be diverted in Sec. 4, T. 14 N., R. 6 W., M. D. M., for irrigation purposes. Estimated cost \$1,000,000.

MONTEREY COUNTY—Application 6570. Warren Gorrell, c/o Agnew & Boekel, Atty., 604 Federal Reserve Bank Bldg., San Francisco, for 7 c.f.s. and 80 acre-feet per annum from (1) West Fork of Lime

Kilin Creek, (2) South Fork Big Creek and (3) North Fork of Big Creek to be diverted in (1) Sec. 3, T. 22 S., R. 4 E., M. D. M., (2) Sec. 29, T. 21 S., R. 4 E., M. D. M., (3) Sec. 19, T. 21 S., R. 4 E., M. D. M., for irrigation purposes. Estimated cost \$500,000.

SAN BERNARDINO COUNTY—Application 6571. Fred James Machoves, Victorville, for 1.00 c.f.s. from unnamed spring tributary to Grape Vine Canyon to be diverted in Sec. 35, T. 4 N., R. 2 W., S. B. B. & M., for domestic and irrigation purposes on 80 acres. Estimated cost \$2,500.

SAN BERNARDINO COUNTY—Application 6572. H. O. Webber, et al., Box A, Lamanda Park Station, Pasadena, for 0.375 c.f.s. from waste and seepage water from irrigated lands tributary to Santa Ana River to be diverted in Sec. 5, T. 2 S., R. 4 W., S. B. B. & M., for irrigation purposes.

SAN BERNARDINO COUNTY—Application 6573. Mayville Ranch, Highgrove, for 0.27 c.f.s. from waste and seepage water from irrigated land tributary to Santa Ana River to be diverted in Sec. 6, T. 2 S., R. 4 W., S. B. B. & M., for irrigation purposes on 30 acres.

STANISLAUS COUNTY—Application 6574. J. M. deSouza, Rt. 3, Box 944, Modesto, for 10 c.f.s. from Tuolumne River tributary to San Joaquin River to be diverted in Sec. 12, T. 4 S., R. 7 E., M. D. M., for irrigation purposes. Estimated cost \$1,500.

SAN DIEGO COUNTY—Application 6575. George W. Clemson, c/o Scarborough & Bowen, Suite 1225 Washington Bldg., Los Angeles, for 1239 acre-feet per annum from San Marcos Creek tributary to Pacific Ocean to be diverted in Sec. 20, T. 12 S., R. 3 W., S. B. B. & M., for irrigation and domestic purposes on 890 acres. Estimated cost \$10,000 (not including cost of dam).

AMADOR COUNTY—Application 6576. E. T. Bamert, c/o Ohm & Raab, 517 E. Market St., Stockton, for 1.25 c.f.s. from Mokelumne River tributary to San Joaquin to be diverted in Sec. 4, T. 4 N., R. 9 E., M. D. M., for irrigation purposes, 100 acres. Estimated cost \$4,000.

SUTTER COUNTY—Application 6577. M. J. Newkom and H. E. Newkom, Yuba City, for 3 c.f.s. from Feather River tributary to Sacramento River to be diverted in Sec. 35, T. 15 N., R. 3 E., M. D. M., for irrigation purposes. Estimated cost \$16,570.

Permits to Appropriate Water Issued by the Department of Public Works, Division of Water Resources, during the month of February, 1930.

SUTTER COUNTY—Permit 3437, Application 6450. Issued to Mrs. Annie Kirkup, Knights Landing, February 15, 1930, for 9.18 c.f.s. from Sacramento River in Sec. 23, T. 13 N., R. 1 E., M. D. M., for irrigation on 434.27 acres. Estimated cost \$5,000.

SUTTER COUNTY—Permit 3438, Application 6451. Issued to James R. Young, Cranemore, February 15, 1930, for 1.94 c.f.s. from Sacramento River, in Sec. 14, T. 13 N., R. 1 E., M. D. M., for irrigation on 154.96 acres. Estimated cost \$5,000.

VENTURA COUNTY—Permit 3439, Application 6459. Issued to Senior Canyon Mutual Water Company, Inc., Ojai, February 24, 1930, for 1 c.f.s. from Senior Canyon, San Antonio Creek, Ventura River, in Sec. 21, T. 5 N., R. 22 W., S. B. B. & M., for use for irrigation and domestic purposes on 190 acres. Estimated cost \$65,000.

SUTTER COUNTY—Permit 3440, Application 6418. Issued to Rowena B. Coulter, Grimes, February 24, 1930, for 12.5 c.f.s. from Sacramento River, in Sec. 13, T. 11 N., R. 2 E., M. D. M., for irrigation purposes on 555.63 acres. Estimated cost \$8,000.

DEL NORTE COUNTY—Permit 3441, Application 6441. Issued to Department of Public Works, Division of Highways, Sacramento, February 24, 1930, for 0.017 c.f.s. from an unnamed spring in Sec. 29, T. 17 N., R. 2 E., H. M., for domestic purposes. Estimated cost \$550.

DAM APPLICATIONS

APPROVALS

AND PLANS

Applications for approval of dams built prior to August 14, 1929, filed with the State Department of Public Works, Division of Water Resources, during the month of February, 1930.

SONOMA COUNTY—Lake Ralphine Reservoir Dam No. 422. Santa Rosa Water Works, Santa Rosa,

owner; earthen, 30 feet above streambed with a storage capacity of 830 acre-feet. Situated on no stream tributary to Santa Rosa and Los Alamos Creek in T. 7 N., R. 7 W., M. D. B. and M., for storage purposes for domestic and industrial use. Estimated cost \$25,000.

LOS ANGELES COUNTY—San Pedro Dam No. 6-20. City of Los Angeles, Los Angeles, owner; earthen, 21.2 feet above streambed with a storage capacity of 26 acre-feet. Situated in T. 5 S., R. 14 W., S. B. B. & M., for storage purposes for municipal use. Estimated cost not given.

LOS ANGELES COUNTY—Silver Lake Dam No. 6-23. City of Los Angeles, Los Angeles, owner; earthen, 42 feet above streambed with a storage capacity of 2162 acre-feet. Situated in Sec. 8, T. 1 S., R. 13 W., S. B. B. & M., for storage purposes for municipal use. Estimated cost \$142,364.

CONTRA COSTA COUNTY—Port Costa Dam No. 581-2. California Water Service Company, San Francisco, owner; earthen, 38 feet above streambed with a storage capacity of 25 acre-feet. Situated on an unnamed creek in Sec. 3, T. 2 N., R. 3 W., M. D. M., for storage purposes for domestic and industrial use. Estimated cost \$13,700.

SONOMA COUNTY—Lawler Reservoir Dam No. 581-3. California Water Service Company, San Francisco, owner; earthen, 22 feet above streambed with a storage capacity of 190 acre-feet. Situated on North Creek tributary to Adobe Creek in Sec. 12, T. 5 N., R. 7 W., M. D. M., for storage purposes for domestic and municipal use. Estimated cost \$46,000.

SONOMA COUNTY—Oak Hill Reservoir Dam No. 581-4. California Water Service Company, San Francisco, owner, earthen, 12 feet above streambed with a storage capacity of 6.62 acre-feet. Situated in Sec. 32, T. 5 N., R. 7 W., M. D. M., for storage purposes for domestic use. Estimated cost \$22,400.

SHASTA COUNTY—Redding Reservoir Dam No. 581-5. California Water Service Company, San Francisco, owner; earthen, 24 feet above streambed with a storage capacity of 10.13 acre-feet. Situated on an unnamed ravine in Sec. 34, T. 32 N., R. 5 W., M. D. M., for storage purposes for domestic use. Estimated cost \$8,500.

EL DORADO COUNTY—Pino Grande Dam No. 467. Michigan-California Lumber Company, Camino, owner; timber, 18 feet above streambed with a storage capacity of 14½ acre-feet. Situated on Siab Creek a tributary to South Fork of American River in Sec. 22, T. 12 N., R. 12 E., M. D. M., for storage purposes for logging use. Estimated cost \$14,000.

VENTURA COUNTY—Dennison Dam No. 761. Dennison Ranch Company, Ojai, owner; buttress, 29 feet above streambed with a storage capacity of 60 acre-feet. Situated on Lions Canyon Creek tributary to San Antonio Creek in Sec. 8, T. 4 N., R. 22 W., S. B. B. & M., for storage purposes for irrigation. Estimated cost \$8,000.

SAN BERNARDINO COUNTY—Bear Valley Dam No. 803. Bear Valley Mutual Water Company, Redlands, owner; multiple arch, 65.83 feet above streambed with a storage capacity of 72,400 acre-feet. Situated on Bear Creek tributary to Santa Ana River in Sec. 22, T. 2 N., R. 1 W., S. B. B. & M., for storage purposes for irrigation and recreation use. Estimated cost \$136,388.

LOS ANGELES COUNTY—Porter Estate Dam No. 775. B. F. Porter Estate, a corporation, San Francisco, owner; earthen, 50 feet above streambed. Situated in Sec. 9, T. 2 N., R. 16 W., S. B. B. & M., for storage purposes for irrigation use.

MODOC COUNTY—J. L. Porter Dam No. 162. Pearl F. Porter, Alturas, owner; earth and rock fill, 20 feet above streambed with a storage capacity of 200 acre-feet. Situated on a small ditch tributary to Parker Creek in Sec. 12, T. 42 N., R. 13 E., M. D. M., for storage purposes for irrigation use. Estimated cost \$2,000.

INYO COUNTY—North Lake Dam No. 101-7. Nevada-California Power Company, Riverside, owner; earthen, 11 feet above streambed with a storage capacity of 85 acre-feet. Situated on North Fork of Bishop Creek tributary to Bishop Creek in Sec. 39, T. 8 S., R. 31 E., M. D. M., for storage purposes for power and irrigation use.

SAN DIEGO COUNTY—Upper Four Ess Dam No. 842. Albert E. Smith, Escondido, owner; concrete, 34 feet above streambed with a storage capacity of 260 acre-feet. Situated on an unnamed creek tributary to San Dieguito River for storage purposes for irrigation use. Estimated cost \$25,000.

SAN DIEGO COUNTY—Lower Four Ess Dam No. 841-2. Albert E. Smith, Escondido, owner; concrete, 21 feet above streambed with a storage capacity of 100

acre-feet. Situated on an unnamed creek tributary to San Dieguito River for storage purposes for irrigation use. Estimated cost \$7,000.

MODOC COUNTY—Williams Dam No. 149. J. Sheldon Potter, 315 Montgomery St., San Francisco, owner; rockfill, 4 feet above streambed with a storage capacity of 1495.5 acre-feet. Situated on no stream in Sec. 23, T. 43 N., R. 9 E., M. D. M., for storage purposes for irrigation use. Estimated cost \$500.

MODOC COUNTY—Duncan Dam No. 149-2. J. Sheldon Potter, 315 Montgomery St., San Francisco, owner; earthfill, 14 feet above streambed with a storage capacity of 2575 acre-feet. Situated on no stream in Sec. 33, T. 43 N., R. 9 E., M. D. M., for storage purposes for irrigation use. Estimated cost \$6,200.

MODOC COUNTY—Jack's Swamp Dam No. 149-3. J. Sheldon Potter, 315 Montgomery St., San Francisco, owner; rockfill, 6 feet above streambed with a storage capacity of 450 acre-feet. Situated on no stream in Sec. 23, T. 43 N., R. 10 E., M. D. M., for storage purposes for irrigation use. Estimated cost \$750.

MODOC COUNTY—Nelson Spring Dam No. 137. J. D. Flournoy Company, Likely, owner; earthfill, 118 feet above streambed with a storage capacity of 60 acre-feet. Situated on Nelson Spring tributary to Romero Gulch in Sec. 33, T. 40 N., R. 13 E., M. D. M., for storage purposes for irrigation use.

LASSEN COUNTY—Antelope Dam No. 242. Pierre Ducasse, Termo, owner; earthfill, 20 feet above streambed. Situated on Madeline Plains tributary to Antelope Creek in Sec. 3, T. 34 N., R. 13 E., M. D. M. Estimated cost \$12,000.

KERN COUNTY—Buena Vista Dam No. 732. Miller & Lux and Kern County Land Company, Bakersfield, owner; earthfill, 15 feet above streambed with a storage capacity of 205,000 acre-feet. Situated on Buena Vista Slough tributary to Kern River in Sec. 18, T. 31 S., R. 26 E., M. D. M., for storage purposes for irrigation use.

YUBA COUNTY—Depot Hill Dam No. 333. J. J. Joubert, Comptonville, owner; arch, 63 feet above streambed. Situated on Willow Creek tributary to North Fork of Yuba River in T. 19 N., R. 8 E., M. D. M., for storage purposes for debris use. Estimated cost \$22,000.

SAN JOAQUIN COUNTY—Woodbridge Diversion Dam No. 71. Woodbridge Irrigation District, Woodbridge, owner; gravity, 25.5 feet above streambed with a storage capacity of 2463.5 acre-feet. Situated on Mokelumne River tributary to San Joaquin River in Sec. 35, T. 4 N., R. 6 E., M. D. M., for diversion purposes for irrigation use. Estimated cost \$40,549.67.

PLUMAS COUNTY—Hydraulic King Dam No. 278. G. W. Fagg, Meadow Valley, owner; arch, 30 feet above streambed with a storage capacity of 15 acre-feet. Situated on Willow Creek tributary to Middle Fork Feather River in Sec. 14, T. 23 N., R. 7 E., M. D. M., for storage purposes for debris use. Estimated cost \$5,700.

YUBA COUNTY—Colgate Head Dam No. 97-2. Pacific Gas & Electric Company, San Francisco, owner; arch, 41 feet above streambed. Situated on North Fork of Yuba River tributary to Yuba River in Sec. 25, T. 18 N., R. 7 E., M. D. M., for diversion purposes for power use. Estimated cost \$55,000.

BUTTE COUNTY—Butte Creek Head Dam No. 97-4. Pacific Gas & Electric Company, San Francisco, owner; arch, 45 feet above streambed. Situated on Butte Creek tributary to Sacramento River in Sec. 36, T. 25 N., R. 3 E., M. D. M., for diversion purposes for power use. Estimated cost \$13,100.

BUTTE COUNTY—Hendricks Head Dam No. 97-6. Pacific Gas & Electric Company, San Francisco, owner; crib, 13½ feet above streambed. Situated on West Branch of North Fork of Feather River tributary to Feather River in Sec. 16, T. 24 N., R. 4 E., M. D. M., for diversion purposes for power use. Estimated cost \$15,500.

NEVADA AND PLACER COUNTIES—Bear River Head Dam No. 97-11. Pacific Gas & Electric Company, San Francisco, owner; gravity, 18 feet above streambed. Situated on Bear River tributary to Yuba River in Sec. 22, T. 15 N., R. 9 E., M. D. M., for diversion purposes for power use. Estimated cost \$50,500.

PLACER COUNTY—Kelly Lake Dam No. 97-24. Pacific Gas & Electric Company, San Francisco, owner; earthfill, 17 feet above streambed with a storage capacity of 360 acre-feet. Situated on Six-mile Valley tributary to North Fork of American River in Sec. 25, T. 17 N., R. 12 E., M. D. M., for storage purposes for irrigation and domestic use. Estimated cost \$3,900.

PLACER COUNTY—Lake Alta Dam No. 97-26. Pacific Gas & Electric Company, San Francisco,

owner; earthfill, 16.3 and 11.5 feet above streambed with a storage capacity of 270 acre-feet. Situated on an unnamed creek tributary to Bear River in Sec. 35, T. 16 N., R. 10 E., M. D. M., for regulation purposes for irrigation and domestic use. Estimated cost \$32,267.

PLACER COUNTY—Lake Arthur Dam No. 97-27. Pacific Gas & Electric Company, San Francisco, owner; earthfill, 41 feet above streambed with a storage capacity of 94 acre-feet. Situated on South Fork Dry Creek tributary to Yuba River in Sec. 19, T. 13 N., R. 9 E., M. D. M., for regulation purposes for irrigation and domestic use. Estimated cost \$33,738.

PLACER COUNTY—Lake Theodore Dam No. 97-31. Pacific Gas & Electric Company, San Francisco, owner; earthfill, 31 feet above streambed with a storage capacity of 344.3 acre-feet. Situated on South Fork of Dry Creek tributary to Yuba River in Sec. 18, T. 13 N., R. 9 E., M. D. M., for storage purposes for irrigation and domestic use. Estimated cost \$33,872.

PLACER COUNTY—Wise Forsbay Dam No. 97-50. Pacific Gas & Electric Company, San Francisco, owner; earthfill, 16 feet above streambed with a storage capacity of 41.3 acre-feet. Situated on no stream in Sec. 4, T. 12 N., R. 8 E., M. D. M., for regulation purposes for power use. Estimated cost \$133,898.

TUOLUMNE COUNTY—Main Strawberry Dam No. 97-74. Pacific Gas & Electric Company, San Francisco, owner; rockfill, 132 feet above streambed with a storage capacity of 17,900 acre-feet. Situated on South Fork of Stanislaus River tributary to Stanislaus River in Sec. 15, T. 4 N., R. 18 E., M. D. M., for storage purposes for power use. Estimated cost \$985,000.

SITASTA COUNTY—Manzanita Lake Dam No. 97-95. Pacific Gas & Electric Company, San Francisco, owner; earthfill, 13 feet above streambed with a storage capacity of 500 acre-feet. Situated on Manzanita Creek tributary to North Battle Creek in Sec. 18, T. 31 N., R. 4 E., M. D. M., for storage purposes for power use. Estimated cost \$3,719.

BUTTE COUNTY—Pound Valley Dam No. 97-9. Pacific Gas & Electric Company, San Francisco, owner; earthfill, 22 feet above streambed with a storage capacity of 1285 acre-feet. Situated on West Branch of North Fork of Feather River tributary to Feather River in Sec. 30, T. 26 N., R. 5 E., M. D. M., for storage purposes for power use. Estimated cost \$35,576.

LASSEN COUNTY—Coyote Flat Dam No. 233. C. W. Clarke Company, San Francisco, owner; earthfill, 35 feet above streambed with a storage capacity of 5666 acre-feet. Situated on Coyote Creek tributary to Horse Creek in Sec. 31, T. 36 N., R. 9 E., M. D. M., for storage purposes for irrigation use. Estimated cost \$27,469.84.

LOS ANGELES COUNTY—Devils Gate Dam No. 32-3. Los Angeles County Flood Control District, Los Angeles, owner; arch, 84 feet above streambed with a storage capacity of 7650 acre-feet. Situated on Arroyo Seco tributary to Los Angeles River in Sec. 7, T. 1 N., R. 12, S. B. M., for storage purposes for flood control use. Estimated cost \$455,350.

NAPA COUNTY—St. Helena Upper Dam No. 16. Town of St. Helena, St. Helena, owner; earthfill, 30 feet above streambed with a storage capacity of 30 acre-feet. Situated on York Creek tributary to Napa River in Sec. 27, T. 8 N., R. 6 W., M. D. M., for diversion and storage purposes for municipal use.

NAPA COUNTY—St. Helena Lower Reservoir No. 16-2. Town of St. Helena, St. Helena, owner; earthfill, 32 feet above streambed with a storage capacity of 123 acre-feet. Situated on York Creek tributary to Napa River located on Rancho Carne Hunoma for storage purposes for municipal use.

MODOC COUNTY—Hackmore Flat Dam No. 123. C. P. and J. L. Haskins, Merrill, owner; earthfill, 11 feet above streambed with a storage capacity of 552 acre-feet. Situated on hole in the Rock Canyon for storage purposes for stock-watering use.

MODOC COUNTY—Kelley A Dam No. 152-A. John Kelley and Gus Meckfessel, Alturas, owner; earthfill, 7.7 feet above streambed with a storage capacity of 1428 acre-feet. Situated on Canyon Creek and Pit River in Sec. 6, T. 41 N., R. 11 E., M. D. M., for storage purposes for irrigation use.

MODOC COUNTY—Kelley B Dam No. 152-B. John Kelley and Gus Meckfessel, Alturas, owner; earthfill, 8.5 feet above streambed with a storage capacity of 1428 acre-feet. Situated on Canyon Creek and Pit River for storage purposes for irrigation use.

MODOC COUNTY—Kelley C Dam No. 152-C. John Kelley and Gus Meckfessel, Alturas, owner; earthfill, 3.7 feet above streambed with a storage capacity of 1428 acre-feet. Situated on Canyon Creek and Pit

River in Sec. 7, T. 41 N., R. 11 E., M. D. M., for storage purposes for irrigation use.

ORANGE COUNTY—Modjeska Reservoir Dam No. 792. Modjeska Ranch Company, Crestline, owner; arch, 28.5 feet above streambed with a storage capacity of 23 acre-feet. Situated on Harding Creek tributary to Santiago Creek in Sec. 28, T. 5 S., R. 7 W., S. B. M., for storage purposes for domestic and irrigation use.

LOS ANGELES COUNTY—Burbank No. 4 Dam No. 4-4. City of Burbank, Burbank, owner; earthfill, 20 feet above streambed with a storage capacity of 21,177 acre-feet. Situated in Sec. 1, T. 1 N., R. 14 W., S. B. M., for storage purposes for municipal use. Estimated cost \$91,357.

BUTTE COUNTY—Lake Wyandotte Dam No. 63. Oroville-Wyandotte Irrigation District, Oroville, owner; earthfill, 41 feet above streambed with a storage capacity of 1300 acre-feet. Situated on North Honcut Creek tributary to Feather River in Sec. 16, T. 19 N., R. 5 E., for storage purposes for irrigation use. Estimated cost \$61,000.

BUTTE COUNTY—Lost Creek Dam No. 63-2. Oroville-Wyandotte Irrigation District, Oroville, owner; arch, 112 feet above streambed with a storage capacity of 5200 acre-feet. Situated on Lost Creek tributary to South Fork of Feather River in Sec. 24, T. 20 N., R. 7 E., M. D. M., for storage purposes for irrigation use. Estimated cost \$191,300.

PLACER COUNTY—Millers Defeat Dam No. 322. Miller's Defeat Mining Company, Bolinas, owner; located in Sec. 28, T. 15 R. 13 E., M. D. M., for storage purposes for mining use.

MARIN COUNTY—Belvedere Dam No. 33-4. Marin Municipal Water District, San Rafael, owner; earthfill, 30 feet above streambed with a storage capacity of 23 acre-feet. Situated on a gulch tributary to San Francisco Bay for regulation purposes for domestic use. Estimated cost \$35,000.

MARIN COUNTY—Cascade Dam No. 33-5. Marin Municipal Water District, San Rafael, owner; buttress, 25 feet above streambed with a storage capacity of 5 acre-feet. Situated on Mill Creek tributary to San Francisco Bay for storage purposes for domestic use. Estimated cost \$16,000.

INYO COUNTY—Longley Reservoir Dam No. 100-2. Hillside Water Company, Riverside, owner; earth and rockfill, 20 feet above streambed with a storage capacity of 185 acre-feet. Situated on McGee Creek tributary to Owens River in Sec. 2, T. 8 S., R. 30 E., M. D. M., for storage purposes for irrigation use.

AMADOR COUNTY—Elephant Mine Dam No. 474. J. W. Preston, Jr., San Francisco, owner; earthfill, 32 feet above streambed with a storage capacity of 6 acre-feet. Situated on Indian Flat tributary to Sutter Creek in Sec. 23, T. 7 N., R. 12 E., M. D. M., for storage purposes for mining use.

ALAMEDA COUNTY—Calaveras Dam No. 10. Spring Valley Water Company, San Francisco, owner; earthfill, 185 feet above streambed with a storage capacity of 100,000 acre-feet. Situated on Calaveras Creek tributary to Alameda Creek in Sec. 13, T. 5 S., R. 1 E., for storage purposes for domestic use. Estimated cost \$3,888,125.53.

SAN FRANCISCO COUNTY—College Hill Dam No. 10-2. Spring Valley Water Company, San Francisco, owner; earthfill, 16 feet above streambed with a storage capacity of 41.5 acre-feet. Situated on no stream for distributing purposes for domestic use.

SAN MATEO COUNTY—Lower Crystal Springs Dam No. 10-6. Spring Valley Water Company, San Francisco, owner; concrete, 131 feet above streambed with a storage capacity of 54,000 acre-feet. Situated on San Mateo Creek in Sec. 1, T. 5 S., R. 5 W., M. D. M., for storage purposes for domestic use.

ALAMEDA COUNTY—Niles Dam No. 10-7. Spring Valley Water Company, San Francisco, owner; earthfill, 16 feet above streambed with a storage capacity of 15 acre-feet. Situated on no stream in Sec. 15, T. 4 S., R. 1 W., M. D. M., for regulation purposes for domestic use. Estimated cost \$73,500.

SAN MATEO COUNTY—Pilarcitos Dam No. 10-8. Spring Valley Water Company, San Francisco, owner; earthfill, 74.25 feet above streambed with a storage capacity of 3100 acre-feet. Situated on Pilarcitos Creek in Sec. 33, T. 4 S., R. 5 W., M. D. M., for storage purposes for domestic use.

SAN MATEO COUNTY—San Andreas Dam No. 10-10. Spring Valley Water Company, San Francisco, owner; earthfill, 90 feet above streambed with a storage capacity of 18,500 acre-feet. Situated on San Andreas Creek tributary to San Mateo Creek in Sec. 16, T. 4 S., R. 5 W., M. D. M., for storage purposes for domestic use.

SAN MATEO COUNTY—San Mateo Creek No. 1. No. 10-11. Spring Valley Water Company, San Francisco, owner; earthfill, 13 feet above streambed. Situated on San Mateo Creek in Sec. 28, T. 4 S., R. 5 W., M. D. M., for diversion purposes for domestic use.

SAN MATEO COUNTY—San Mateo Creek No. 2. Dam No. 10-12. Spring Valley Water Company, San Francisco, owner; arch, 24.5 feet above streambed. Situated on San Mateo Creek in Sec. 33, T. 4 S., R. 5 W., M. D. M., for diversion purposes for domestic use.

SAN FRANCISCO COUNTY—Stanford Heights Dam No. 10-13. Spring Valley Water Company, San Francisco, owner; earthfill, 20 feet high with a storage capacity of 34 acre-feet. Situated on no stream for regulation purposes for domestic use. Estimated cost \$125,000.

SAN MATEO COUNTY—Stone Dam No. 10-14. Spring Valley Water Company, San Francisco, owner; arch, 22 feet above streambed. Situated on Pilarcitos Creek in Sec. 3, T. 5 S., R. 5 W., M. D. M., for diversion purposes for domestic use.

SAN FRANCISCO COUNTY—University Mound Dam No. 10-15. Spring Valley Water Company, San Francisco, owner; earthfill, 26 feet high with a storage capacity of 182 acre-feet. Situated on no stream for regulation purposes for domestic use.

SAN MATEO COUNTY—Upper Crystal Springs Dam No. 10-16. Spring Valley Water Company, San Francisco, owner; earthfill, 55 feet above streambed with a storage capacity of 15,500 acre-feet. Situated on Laguna Creek tributary to San Mateo Creek in Sec. 12, T. 5 S., R. 5 W., M. D. M., for storage purposes for domestic use.

ALAMEDA COUNTY—Sunol Dam No. 10-17. Spring Valley Water Company, San Francisco, owner; gravity, 1 foot above streambed. Situated on Alameda Creek in Sec. 7, T. 4 S., R. 1 E., M. D. M., for diversion purposes for domestic use.

LOS ANGELES COUNTY—Stone Canyon Dam No. 6-25. City of Los Angeles, Los Angeles, owner; earthfill, 154 feet above streambed with a storage capacity of 7960 acre-feet. Situated on Stone Canyon in T. 1 S., R. 15 W., S. B. M., for storage purposes for municipal use. Estimated cost \$613,727.

LOS ANGELES COUNTY—Sawtelle Pressure Break Dam No. 6-21. City of Los Angeles, Los Angeles, owner; earthfill, 401 feet above streambed with a storage capacity of 109.98 acre-feet. Located in T. 1 S., R. 15 W., S. B. M., for regulation purposes for municipal use. Estimated cost \$63,156.

PLUMAS COUNTY—Little Grizzly Dam No. 272. Wm. M. and U. J. Curtner, Milpitas, owners; rockfill, 23 feet above streambed. Situated on Little Grizzly Creek tributary to Indian Creek and Feather River for storage purposes for debris use.

SACRAMENTO AND PLACER COUNTIES—Baldwin Dam No. 324-2. North Fork Ditch Company, Sacramento, owner; earthfill, 37 feet above streambed with a storage capacity of 305.4 acre-feet. Situated on unnamed creek tributary to Linda Creek in Sec. 14, T. 10 N., R. 7 E., M. D. M., for storage purposes for irrigation use. Estimated cost \$53,214.95.

SAN MATEO COUNTY—Millbrae No. 1 Dam No. 618. Mills Estate, Inc., San Francisco, owner; earthfill, 36 feet above streambed with a storage capacity of 22.54 acre-feet. Situated on an unnamed creek for storage and diversion purposes for irrigation use.

SAN MATEO COUNTY—Millbrae No. 2 Dam No. 618-2. Mills Estate, Inc., San Francisco, owner; earthfill, 35 feet above streambed. Situated on an unnamed creek for storage and diversion purposes for irrigation use.

SAN MATEO COUNTY—Millbrae No. 3 Dam No. 618-3. Mills Estate, Inc., San Francisco, owner; earthfill, 37 feet above streambed with a storage capacity of 27.55 acre-feet. Situated on an unnamed creek for storage and diversion purposes for irrigation use. Estimated cost \$19,453.

PLUMAS COUNTY—Silver Lake Dam No. 274. Spanish Peak Lumber Company, San Francisco, owner; earth and rockfill, 15.0 feet above streambed with a storage capacity of 650 acre-feet. Situated on Silver Creek tributary to Spanish Creek in Sec. 1, T. 24 N., R. 7 E., M. D. M., for storage purposes for logging use. Estimated cost \$2,000.

MODOC COUNTY—Boles Meadow Dam No. 145-6. G. O. Tranzetta, Alturas, owner; rockfill, 10 feet above streambed. Situated on Boles Meadow tributary to Triangle Ranch in Sec. 15, T. 45 N., R. 9 E., M. D. M., for storage purposes for irrigation use.

FRESNO COUNTY—Ten Mile Dam No. 692. Sanger Lumber Company, Sanger, owner; multiple arch, 48 feet above streambed with a storage capacity of 1410 acre-feet. Situated on Ten Mile Creek tributary to

Kings River in Sec. 14, T. 13 S., R. 28 E., M. D. M., for storage purposes for logging use. Estimated cost \$90,000.

NAPA COUNTY—Veterans' Home Storage Dam No. 1-14. State of California Veterans' Home, Veterans' Home, Napa County, owner; earthfill, 43 feet above streambed with a storage capacity of 39 acre-feet. Situated on Overholt Creek tributary to Napa River for storage purposes for fire protection and irrigation use.

RIVERSIDE COUNTY—Railroad Canyon Dam No. 818. Temescal Water Company, Corona, owner; arch, 70 feet above streambed with a storage capacity of 12,000 acre-feet. Situated on San Jacinto tributary to Lake Elsinore and Santa Ana River in Sec. 2, T. 6 S., R. 4 W., S. B. M., for storage purposes for irrigation use. Estimated cost, \$268,500.

RIVERSIDE COUNTY—Lee Lake Dam No. 818-2. Temescal Water Company, Corona, owner; earthfill, 20 feet above streambed with a storage capacity of 1600 acre-feet. Situated on Temescal Creek tributary to Santa Ana River in Sec. 7, T. 5 S., R. 5 W., S. B. M., for storage purposes for irrigation use. Estimated cost \$36,778.62.

TUOLUMNE COUNTY—Standard Log Pond Dam No. 144-2. Pickering Lumber Company, Standard, owner; gravity, 20 feet above streambed with a storage capacity of 71 acre-feet. Situated on North Fork of Curtis Creek tributary to Curtis Creek in Sec. 3, T. 1 N., R. 15 E., M. D. M., for storage purposes for logging use. Estimated cost \$32,000.

TUOLUMNE COUNTY—Tuolumne Log Pond Dam No. 144-3. Pickering Lumber Company, Standard, Tuolumne County, owner; gravity, 7 feet above streambed with a storage capacity of 120 acre-feet. Situated on Turnback Creek tributary to Tuolumne River in Sec. 8, T. 1 N., R. 16 E., M. D. M., for storage purposes for log pond use. Estimated cost \$102,000.

NEVADA COUNTY—Lake Angela Dam No. 311. Central Pacific Railway Company, San Francisco, owner; earth and concrete, 6 feet above streambed with a storage capacity of 135 acre-feet. Situated on a small stream tributary to South Yuba River, in Sec. 16, T. 17 N., R. 15 E., M. D. M., for storage and diversion purposes for locomotive and domestic use.

NEVADA COUNTY—Crystal Lake Dam No. 311-2. Central Pacific Railway Company, San Francisco, owner; gravity, 9.5 feet above streambed with a storage capacity of 200 acre-feet. Situated on a small creek tributary to South Fork Yuba River in Sec. 24, T. 17 N., R. 12 E., M. D. M., for storage and diversion purposes for locomotive and domestic use. Estimated cost \$14,660.

PLACER COUNTY—Lake Mary Dam No. 311-3. Central Pacific Railway Company of San Francisco, owner; earthfill, 19 feet above streambed with a storage capacity of 172 acre-feet. Situated on a small stream tributary to South Yuba River in Sec. 20, T. 17 N., R. 15 E., M. D. M., for storage and diversion purposes for locomotive and domestic use. Estimated cost \$22,358.

PLACER COUNTY—Putts Lake, West Dam No. 311-4. Central Pacific Railway Company, San Francisco, owner; earthfill, 13 feet above streambed with a storage capacity of 249 acre-feet. Situated on Blue Canyon Creek tributary to North Fork of North Fork of American River in Sec. 36, T. 17 N., R. 11 E., M. D. M., for storage and diversion purposes for locomotive and domestic use. Estimated cost \$12,569.

PLACER COUNTY—Putts Lake East Dam No. 311-5. Central Pacific Railway Company of San Francisco, owner; earthfill, 4 feet above streambed with a storage capacity of 249 acre-feet. Situated on Blue Canon Creek tributary to North Fork of North Fork of American River in Sec. 36, T. 17 N., R. 11 E., M. D. M., for storage and diversion purposes for locomotive and domestic use. Estimated cost \$3,350.

PLACER COUNTY—Campbells Lake Upper Dam No. 311-6. Central Pacific Railway Company, San Francisco, owner; masonry, 11 feet above streambed with a storage capacity of 95.7 acre-feet. Situated on a stream tributary to South Fork of Yuba River in Sec. 30, T. 17 N., R. 13 E., M. D. M., for storage and diversion purposes for locomotive and domestic use.

PLACER COUNTY—Campbells Lake Lower Dam No. 311-7. Central Pacific Railway Company, San Francisco, owner; gravity, 12 feet above streambed with a storage capacity of 19.15 acre-feet. Situated on a small creek tributary to South Fork of Yuba River in Sec. 30, T. 17 N., R. 13 E., M. D. M., for storage and diversion purposes for locomotive and domestic use. Estimated cost \$34,250.

PLACER AND EL DORADO COUNTIES—Diversión Dam No. 324. North Fork Ditch Company, Sacramento, owner; gravity, 16 feet above streambed. Situated on North Fork American River tributary to American River in Sec. 23, T. 12 N., R. 8 E., M. D. M., for diversion purposes for irrigation use. Estimated cost \$75,000.

SACRAMENTO AND PLACER COUNTIES—Hinkle Dam No. 324-3. North Fork Ditch Company, Sacramento, owner; earthfill, 14.5 feet above streambed with a storage capacity of 47 acre-feet. Situated on North Fork Canal in Sec. 24, T. 10 N., R. 7 E., for regulation purposes for irrigation use. Estimated cost \$4,500.

MODOC COUNTY—Big Sage Dam No. 55. Hot Spring Valley Irrigation District, Alturas, for storage purposes for irrigation use.

LOS ANGELES COUNTY—Sawtelle Pressure Break Dam No. 6-21. City of Los Angeles, Los Angeles, owner; earthfill, 22 feet high with a storage capacity of 109.88 acre-feet. Situated on no stream in T. 1 S., R. 15 W., S. B. M., for regulation purposes for municipal use. Estimated cost \$63,156.

LOS ANGELES COUNTY—Stone Canyon Dam No. 6-25. City of Los Angeles, Los Angeles, owner; earthfill, 154 feet above streambed with a storage capacity of 7960 acre-feet. Situated on Stone Canyon, T. 1 S., R. 15 W., S. B. M., for storage purposes for municipal use. Estimated cost \$613,727.

LOS ANGELES COUNTY—Maclay Dam No. 6-9. City of Los Angeles, Los Angeles, owner; earth reservoir, 15.14 feet high with a storage capacity of 18.75 acre-feet. Situated on no stream in Sec. 23, T. 3 N., R. 15 W., S. B. M., for storage purposes for municipal use. Estimated cost \$22,800.

TUOLUMNE COUNTY—Early Intake Dam No. 9. City and County of San Francisco, San Francisco, owner; arch, 41 feet above streambed with a storage capacity of 115 acre-feet. Situated on Tuolumne River tributary to San Joaquin River in Sec. 11, T. 1 S., R. 18 E., M. D. M., for diversion purposes for domestic and power use. Estimated cost \$500,000.

TUOLUMNE COUNTY—Eleanor Dam No. 9-2. City and County of San Francisco, San Francisco, owner; arch, 57 feet above streambed with a storage capacity of 27,800 acre-feet. Situated on Eleanor Creek tributary to Cherry Creek and Tuolumne River in Sec. 3, T. 1 N., R. 19 E., M. D. M., for storage purposes for municipal and power use. Estimated cost \$320,000.

TUOLUMNE COUNTY—O'Shaughnessy Dam No. 9-5. City and County of San Francisco, San Francisco, owner; arched gravity, 220 feet above streambed with a storage capacity of 206,000 acre-feet. Situated on Tuolumne River tributary to San Joaquin River in Sec. 16, T. 1 N., R. 20 E., M. D. M., for storage purposes for municipal and power use. Estimated cost \$7,000,000.

TUOLUMNE COUNTY—Priest Dam No. 9-6. City and County of San Francisco, San Francisco, owner; rock and earthfill, 140 feet above streambed with a storage capacity of 2350 acre-feet. Situated on Rattlesnake Creek tributary to Moccasin Creek and Tuolumne River in Sec. 31, T. 1 S., R. 16 E., M. D. M., for diversion purposes for municipal power use. Estimated cost \$1,000,000.

LOS ANGELES COUNTY—Girard Dam No. 6-10. City of Los Angeles, Los Angeles, owner; earthfill, 28.2 feet high with a storage capacity of 40.8 acre-feet. Situated on no stream in Sec. 24, T. 1 N., R. 17 W., S. B. M., for storage purposes for municipal use. Estimated cost \$40,830.

LOS ANGELES COUNTY—Solano Dam No. 6-22. City of Los Angeles, Los Angeles, owner; earthfill, 19.12 feet high with a storage capacity of 16.53 acre-feet. Situated on no stream in T. 1 S., R. 13 W., S. B. M., for storage purposes for municipal use.

MODOC COUNTY—Essex Dam No. 121-2. S. X. Ranch, Alturas, owner; earthfill, 37 feet above streambed with a storage capacity of 2000 acre-feet. Situated on no stream in T. 43 N., R. 17 E., M. D. M., for storage purposes for irrigation use.

NEVADA COUNTY—Nesce and West Dam No. 308. You Bet Mining Company, Denver, Colorado, owner; log. Situated on Birdseye Canyon in Sec. 31, T. 16 N., R. 10 E., for storage purposes for debris use.

NEVADA COUNTY—Nevada Dam No. 308-2. You Bet Mining Company, Denver, Colorado, owner; log type. Situated on Greenhorn Creek tributary to Bear River in Sec. 2, T. 15 N., R. 9 E., for storage purposes for debris use.

NEVADA COUNTY—Chalk Bluff Dam No. 308-3. You Bet Mining Company, Denver, Colorado, owner; earthfill, with a storage capacity of 42 acre-feet. Situated on no stream tributary to Missouri Canyon in Sec. 31, T. 6 N., R. 10 E., M. D. M.

NEVADA COUNTY—Walloupa Dam No. 308-4. You Bet Mining Company, Denver, Colorado, owner. Situated on North Fork American River tributary to American River in Sec. 23, T. 12 N., R. 8 E., M. D. M., for diversion purposes for irrigation use. Estimated cost \$75,000.

ated on no stream tributary to Birdseye Canyon in Sec. 6, T. 15 N., R. 10 E., M. D. M., for storage purposes for mining use.

SIERRA COUNTY—Upper Sardine Lake Dam No. 294-3. E. A. and J. O. Hayes, San Jose, owner; rock-fill, 23 feet above streambed. Situated on outlet to Sardine Lake tributary to North Fork of Yuba River in Sec. 9, T. 20 N., R. 12 E., M. D. M., for storage purposes for power use.

FRESNO COUNTY—Bear Creek Diversion Dam No. 104. Southern California Edison Company, Los Angeles, owner; arch, 45 feet above streambed with a storage capacity of 103 acre-feet. Situated on Big Creek tributary to San Joaquin River in Sec. 12, T. 7 S., R. 27 E., M. D. M., for diversion purposes for power use.

KERN COUNTY—Diversion Dam No. 1 No. 104-2. Southern California Edison Company, Los Angeles, owner; gravity, 28 feet above streambed. Situated on Kern River in Sec. 5, T. 28 S., R. 31 E., M. D. M., for diversion purposes for power use.

TULARE COUNTY—Diversion Dam No. 3 No. 104-3. Southern California Edison Company, Los Angeles, owner; gravity, 17 feet above streambed with a storage capacity of 49 acre-feet. Situated on Kern River in Sec. 12, T. 25 S., R. 32 E., M. D. M., for diversion purposes for power use.

FRESNO COUNTY—Big Creek Diversion Dam No. 4 No. 104-4. Southern California Edison Company, Los Angeles, owner; arch, 63 feet above streambed with a storage capacity of 100 acre-feet. Situated on Big Creek tributary to San Joaquin River in Sec. 28, T. 8 S., R. 25 E., M. D. M., for diversion purposes for power use.

FRESNO COUNTY—Big Creek Diversion No. 5 Dam No. 104-5. Southern California Edison Company, Los Angeles, owner; arch, 44 feet above streambed with a storage capacity of 42 acre-feet. Situated on Big Creek tributary to San Joaquin River in Sec. 26, T. 8 S., R. 24 E., M. D. M., for diversion purposes for power use.

FRESNO AND MADERA COUNTIES—Big Creek Dam No. 6 No. 104-6. Southern California Edison Company, Los Angeles, owner; arch, 130 feet above streambed with a storage capacity of 993 acre-feet. Situated on San Joaquin River in Sec. 27, T. 8 S., R. 24 E., M. D. M., for diversion purposes for power use.

TULARE COUNTY—Eagle Lake Dam No. 104-7. Southern California Edison Company, Los Angeles, owner; gravity, 14 feet above streambed with a storage capacity of 209 acre-feet. Situated on East Fork tributary to Kaweah River in Sec. 28, T. 17 S., R. 31 E., M. D. M., for storage purposes for power use.

KERN COUNTY—Headwork and Embankment Dam No. 104-8. Southern California Edison Company, Los Angeles, owner; earthfill, 11.5 feet above streambed with a storage capacity of 92 acre-feet. Situated on Kern River in Sec. 33, T. 25 S., R. 33 E., M. D. M., for storage purposes for power use.

FRESNO COUNTY—Florence Lake Dam No. 104-9. Southern California Edison Company, Los Angeles, owner; multiple arch, 149 feet above streambed with a storage capacity of 64,406 acre-feet. Situated on South Fork of San Joaquin River tributary to San Joaquin River in Sec. 36, T. 7 S., R. 27 E., M. D. M., for storage and diversion purposes for power use.

FRESNO COUNTY—Huntington Lake Reservoir Dam No. 1 No. 104-10A. Southern California Edison Company, Los Angeles, owner; gravity arch, 155 feet above streambed. Situated on Big Creek tributary to San Joaquin River in Sec. 14, T. 8 S., R. 25 E., M. D. M., for storage and diversion purposes for power use.

FRESNO COUNTY—Huntington Lake No. 2. Dam No. 104-10B. Southern California Edison Company, Los Angeles, owner; arched gravity, 89½ feet above streambed with a storage capacity of 88,834 acre-feet. Situated on Big Creek tributary to San Joaquin River in Sec. 15, T. 8 S., R. 25 E., M. D. M., for storage and diversion purposes for power use.

FRESNO COUNTY—Huntington Lake No. 3A Dam No. 104-10C. Southern California Edison Company, Los Angeles, owner; gravity, 7 feet above streambed with a storage capacity of 88,834 acre-feet. Situated on Big Creek tributary to San Joaquin River in Sec. 22, T. 8 S., R. 25 E., M. D. M., for storage and diversion purposes for power use.

FRESNO COUNTY—Huntington Lake Reservoir No. 3 No. 104-10D. Southern California Edison Company, Los Angeles, owner; gravity arch, 84 feet above streambed with a storage capacity of 88,834 acre-feet. Situated on Big Creek tributary to San Joaquin River

in Sec. 22, T. 8 S., R. 25, for storage and diversion purposes for power use.

TULARE COUNTY—Lady Franklin Lake Dam No. 104-11. Southern California Edison Company, Los Angeles, owner; buttress, 20 feet above streambed with a storage capacity of 467 acre-feet. Situated on East Fork tributary to Kaweah in Sec. 25, T. 17 S., R. 31 E., M. D. M., for storage purposes for power use.

FRESNO COUNTY—Mono Creek Diversion Dam No. 104-12. Southern California Edison Company, Los Angeles, owner; arch, 40 feet above streambed with a storage capacity of 46 acre-feet. Situated on Mono Creek tributary to San Joaquin River in Sec. 35, T. 6 S., R. 27 E., M. D. M., for diversion purposes for power use.

TULARE COUNTY—North Fork of Tule River Diversion Dam No. 104-13. Southern California Edison Company, Los Angeles, owner; gravity, 12 feet above streambed. Situated on North Fork of Middle Fork tributary to Tule River in Sec. 27, T. 20 S., R. 30 E., M. D. M., for diversion purposes for power use.

SAN BERNARDINO COUNTY—Petty Regulation Reservoir for Mill Creek No. 3 Dam No. 104-14. Southern California Edison Company, Los Angeles, owner; earthfill, 64 feet above streambed. Situated on conduit of Mill Creek tributary to Santa Ana River in Sec. 17, T. 1 S., R. 1 W., S. B. M., for regulation purposes for power use.

SAN BERNARDINO COUNTY—Santa Ana Power House No. 1 Dam No. 104-16. Southern California Edison Company, Los Angeles, owner; gravity, 20 feet above streambed with a storage capacity of 4 acre-feet. Situated on conduit tributary to Santa Ana River in Sec. 19, T. 1 N., R. 1 W., S. B. M., for storage purposes for power use.

SAN BERNARDINO COUNTY—Santa Ana River Diversion Dam No. 104-17. Southern California Edison Company, Los Angeles, owner; gravity, 13 feet above streambed. Situated on Santa Ana River in Sec. 19, T. 1 N., R. 1 W., S. B. M., for diversion purposes for power use.

FRESNO COUNTY—Shaver Lake Dam No. 104-18. Southern California Edison Company, Los Angeles, owner; concrete gravity, 170 feet above streambed with a storage capacity of 135,283 acre-feet. Situated on Stevenson Creek tributary to San Joaquin River in Sec. 13, T. 9 S., R. 24 E., M. D. M., for storage and diversion purposes for power use.

TULARE COUNTY—Silver Lake Dam No. 104-19. Southern California Edison Company, Los Angeles, owner; buttress, 18 feet above streambed with a storage capacity of 162 acre-feet. Situated on East Fork tributary to Kaweah River in Sec. 24, T. 17 S., R. 31 E., M. D. M., for storage purposes for power use.

TULARE COUNTY—Upper Monarch Lake Dam No. 104-20. Southern California Edison Company, Los Angeles, owner; buttress, 21½ feet above streambed with a storage capacity of 314 acre-feet. Situated on East Fork tributary to Kaweah River in Sec. 13, T. 17 S., R. 31 E., M. D. M., for storage purposes for power use.

TULARE COUNTY—Kaweah No. 3 Dam No. 104-21. Southern California Edison Company, Los Angeles, owner; rockfill, 26 feet above streambed with a storage capacity of 11 acre-feet. Situated on conduit to Kaweah tributary to Kaweah River in Sec. 3, T. 17 S., R. 29 E., M. D. M., for regulation purposes for power use.

FRESNO COUNTY—Stevenson Creek Test Dam No. 691. Committee on Arch Dam Investigation, Los Angeles, owner; arch, 60 feet above streambed with a storage capacity of 3.5 acre-feet. Situated on Stevenson Creek tributary to San Joaquin River in Sec. 11, T. 9 S., R. 24 E., M. D. M., for experimental purposes.

SAN DIEGO COUNTY—Main Sweetwater Dam No. 840-A. Sweetwater Corporation, San Francisco, owner; arch, 90 feet above streambed with a storage capacity of 30,393 acre-feet. Situated on Sweetwater River in Rancho de la Nacion for storage purposes for domestic, irrigation, industrial and municipal uses. Estimated cost \$605,000.

SAN DIEGO COUNTY—Sweetwater South Dike Dam No. 840-B. Sweetwater Water Corporation, San Francisco, owner; earthfill, 32 feet above streambed with a storage capacity of 30,393 acre-feet. Situated on no stream, tributary to Sweetwater River in Sec. 29, T. 17 S., R. 1 W., S. B. M., for storage purposes for domestic, irrigation, industrial and municipal uses. Estimated cost \$47,000.

SAN DIEGO COUNTY—Sweetwater Stilling Pool Dam No. 840-C. Sweetwater Water Corporation, San Francisco, owner; buttress, 15 feet above streambed. Situated on Sweetwater River in Rancho de la Nacion

for storage purposes for stilling pool use. Estimated cost \$13,600.

INYO COUNTY—Big Pine Dam No. 6-11. City of Los Angeles, Los Angeles, owner; rock crib, with a storage capacity of 1071 acre-feet. Situated on Big Pine Creek tributary to Owens River in Sec. 33, T. 9 S., R. 32 E., M. D. M., for storage purposes for power and irrigation use.

LOS ANGELES COUNTY—Drinkwater Dam No. 6-16. City of Los Angeles, Los Angeles, owner; earthfill, 65 feet above streambed with a storage capacity of 92.5 acre-feet. Situated on Drinkwater Canyon tributary to San Francisquito Creek in Sec. 11, T. 5 N., R. 16 W., S. B. M., for storage purposes for power and municipal use. Estimated cost \$120,000.

ALPINE COUNTY—Silver Valley Dam No. 99. Emma Rose and Hobart Estate Company, San Francisco, owners; earthfill, 45 feet above streambed with a storage capacity of 4600 acre-feet. Situated on North Fork tributary to Stanislaus River in Sec. 9, T. 7 N., R. 18 E., M. D. M., for storage purposes for power, domestic and irrigation use. Estimated cost \$106,767.

CALAVERAS COUNTY—Hunter Dam No. 99-2. Emma Rose and Hobart Estate Company, San Francisco, owners; arch, 50 feet above streambed with a storage capacity of 200 acre-feet. Situated on Mill Creek tributary to Stanislaus River in Sec. 18, T. 4 N., R. 15 E., M. D. M., for storage and diversion purposes for domestic, irrigation and power uses. Estimated cost \$38,000.

CALAVERAS COUNTY—Ross Dam No. 99-3. Emma Rose and Hobart Estate Company, San Francisco, owners; arch 26 feet above streambed with a storage capacity of 85 acre-feet. Situated on San Domingo Creek tributary to Calaveras River in Sec. 14, T. 3 N., R. 13 E., M. D. M., for storage and diversion purposes for power, irrigation and domestic use. Estimated cost \$51,195.

TUOLUMNE COUNTY—Union Dam No. 99-5. Emma Rose and Hobart Estate Company, San Francisco, owners; earthfill, 32 feet above streambed with a storage capacity of 2000 acre-feet. Situated on North Fork tributary to Stanislaus River in Sec. 28, T. 7 N., R. 18 E., M. D. M., for storage purposes for domestic, irrigation and power uses.

ALPINE COUNTY—Utica Dam No. 99-6. Emma Rose and Hobart Estate Company, San Francisco, owners; rockfill, 52 feet above streambed with a storage capacity of 2400 acre-feet. Situated on North Fork tributary to Stanislaus River in Sec. 21, T. 7 N., R. 18 E., M. D. M., for storage purposes for domestic, irrigation and power uses. Estimated cost \$34,275.

SAN MATEO COUNTY—Filoli Dam No. 617. Filoli Estate, San Mateo, owner; earthfill, 30 feet above streambed with a storage capacity of 1.3 acre-feet. Situated on branch of Laguna Creek tributary to San Mateo Creek in Sec. 30, T. 5 S., R. 4 W., M. D. M., for storage purposes for domestic and irrigation use.

BUTTE COUNTY—De Sable Forebay Dam No. 97-5. Pacific Gas & Electric Company, San Francisco, owner; earthfill, 493 feet high with a storage capacity of 230 acre-feet. Situated on Butte Creek canal in Sec. 11, T. 23 N., R. 3 E., M. D. M., for regulation purposes for power use. Estimated cost \$163,355.

BUTTE COUNTY—Kunkle Dam No. 97-7. Pacific Gas & Electric Company, San Francisco, owner; earthfill, 44 feet above streambed with a storage capacity of 252.5 acre-feet. Situated on Kunkle Creek tributary to West Branch of North Fork of Feather River in Sec. 31, T. 22 N., R. 4 E., M. D. M., for regulation purposes for power use. Estimated cost \$81,110.

NEVADA COUNTY—Culvertson Dam No. 97-17. Pacific Gas & Electric Company, San Francisco, owner; earthfill, 14 feet above streambed with a storage capacity of 1079 acre-feet. Situated on branch of Texas Creek tributary to South Yuba River in Sec. 15, T. 18 N., R. 12 E., M. D. M., for storage purposes for power use. Estimated cost \$3,580.

PLACER COUNTY—Lake Valley Dam No. 97-32. Pacific Gas & Electric Company, San Francisco, owner; earthfill, 58 feet above streambed with a storage capacity of 8127 acre-feet. Situated on branch of North Fork of American River tributary to American River in Sec. 35, T. 17 N., R. 12 E., M. D. M., for storage purposes for power and irrigation use. Estimated cost \$203,648.

NEVADA COUNTY—Lake Van Norden Dam No. 97-33. Pacific Gas & Electric Company, San Francisco, owner; earthfill, 25 feet above streambed with a storage capacity of 5874 acre-feet. Situated on South Yuba River tributary to Yuba River in Sec. 23, T. 17 N., R. 14 E., M. D. M., for storage purposes for power use. Estimated cost \$78,161.

NEVADA COUNTY—Lost River Dam No. 97-34. Pacific Gas & Electric Company, San Francisco, owner; rock crib, 11 feet above streambed with a storage capacity of 250 acre-feet. Situated on unnamed creek tributary to Fordyce Creek and South Yuba River in Sec. 2, T. 17 N., R. 13 E., M. D. M., for storage purposes for power use. Estimated cost \$600.

PLACER COUNTY—Lower Peak Dam No. 97-37. Pacific Gas & Electric Company, San Francisco, owner; earthfill, 20 feet above streambed with a storage capacity of 494 acre-feet. Situated on unnamed stream tributary to South Yuba River in Sec. 30, T. 17 N., R. 14 E., M. D. M., for storage purposes for power use. Estimated cost \$12,672.

EL DORADO COUNTY—Echo Lake Dam No. 97-52. Pacific Gas & Electric Company, San Francisco, owner; earthfill, 5 feet above streambed with a storage capacity of 1900 acre-feet. Situated on branch of Upper Truckee River tributary to Lake Tahoe in Sec. 1, T. 11 N., R. 17 E., M. D. M., for storage purposes for power use. Estimated cost \$10,000.

EL DORADO COUNTY—Medley Lakes Dam No. 97-57. Pacific Gas & Electric Company, San Francisco, owner; masonry, 14 feet above streambed with a storage capacity of 5350 acre-feet. Situated on tributary of South Fork of American River tributary to American River in Sec. 30, T. 12 N., R. 17 E., M. D. M., for storage purposes for power use. Estimated cost \$35,000.

AMADOR COUNTY—Amador Dam No. 97-60. Pacific Gas & Electric Company, San Francisco, owner; earthfill, 14 feet above streambed with a storage capacity of 8.1 acre-feet. Situated on no stream in Sec. 6, T. 6 N., R. 11 E., M. D. M., for regulation purposes for mining, irrigation and domestic use. Estimated cost \$3,400.

AMADOR COUNTY—Tabeaud Dam No. 97-67. Pacific Gas & Electric Company, San Francisco, owner; earthfill, 113 feet above streambed with a storage capacity of 1158 acre-feet. Situated on tributary of Jackson Creek tributary to Dry Creek in Sec. 28, T. 5 N., R. 12 E., M. D. M., for storage purposes for power use. Estimated cost \$219,951.

TUOLUMNE COUNTY—Sand Bar Dam No. 97-81. Pacific Gas & Electric Company, San Francisco, owner; rock crib, 26 feet above streambed with a storage capacity of 51 acre-feet. Situated on North Fork of Stanislaus River tributary to Stanislaus River in Sec. 24, T. 4 N., R. 16 E., M. D. M., for storage and diversion purposes for power use. Estimated cost \$52,700.

TUOLUMNE COUNTY—Upper Strawberry Dam No. 97-84. Pacific Gas & Electric Company, San Francisco, owner; crib, 28 feet above streambed with a storage capacity of 1180 acre-feet. Situated on South Fork Stanislaus River tributary to Stanislaus River in Sec. 14, T. 4 N., R. 18 E., M. D. M., for storage purposes, for power and irrigation use. Estimated cost \$31,430.

SHASTA COUNTY—Baldwin Dam No. 97-85. Pacific Gas & Electric Company, San Francisco, owner; earthfill, 19 feet above streambed with a storage capacity of 100 acre-feet. Situated on no stream in Sec. 33, T. 31 N., R. 1 E., M. D. M., for regulation purposes for power use. Estimated cost \$11,650.

SHASTA COUNTY—Buckhorn Dam No. 97-86. Pacific Gas & Electric Company, San Francisco, owner; earth and rock fill, 12 feet above streambed with a storage capacity of 400 acre-feet. Situated on tributary of North Cow Creek tributary to Sacramento River in Sec. 19, T. 33 N., R. 2 E., M. D. M., for storage purposes for power use. Estimated cost \$300.

SHASTA COUNTY—Lake Nora Dam No. 97-93. Pacific Gas & Electric Company, San Francisco, owner; earthfill, 10 feet high with a storage capacity of 14.9 acre-feet. Situated on no stream in Sec. 4, T. 30 N., R. 1 E., M. D. M., for regulation purposes for power use. Estimated cost \$10,100.

SIERRA COUNTY—Upper Sardine Lake Dam No. 294-3. E. A. and J. O. Hayes, San Jose, owners; rockfill, 25 feet above streambed. Situated on outlet of Sardine Lake tributary to North Fork Yuba River in Sec. 9, T. 20 N., R. 12 E., M. D. M., for storage purposes for mining use.

MODOC COUNTY—Ess Ex Dam No. 121-2. S. X. Ranch Company, Alturas, owner; earthfill, 37 feet high with a storage capacity of 2000 acre-feet. Situated on no stream in T. 43 N., R. 17 E., M. D. M., for storage purposes for irrigation use.

NAPA COUNTY—Villa Del Rey Dam No. 412. J. G. Eccleston, St. Helena, owner; earthfill, 35 feet high with a storage capacity of 30 acre-feet. Situated on no creek for storage purposes for irrigation use.

SAN FRANCISCO COUNTY—Lombard St. Reservoir Dam No. 10-5. Spring Valley Water Company,

San Francisco, owner; earthfill, 17.5 feet high with a storage capacity of 8.3 acre-feet. Situated on no stream for distributing purposes for domestic use.

AMADOR COUNTY—Kennedy Dam No. 477. Kennedy Mining & Milling Company, San Francisco, owner; multiple arch, 50 feet above streambed with a storage capacity of 8 acre-feet. Situated on a ravine for storage purposes for debris use. Estimated cost \$74,294.23.

SAN MATEO COUNTY—Emerald Lake No. 1 Dam No. 612. Emerald Lake Country Club, Redwood City, owner; earth and rockfill, 41 feet above streambed with a storage capacity of 45 acre-feet. Situated on no stream for storage purposes for recreational use.

SAN MATEO COUNTY—Emerald Lake No. 2 Dam No. 612-2. Leonard & Holt, San Francisco, owners; earthfill, 21½ feet above streambed with a storage capacity of 42 acre-feet. Situated on no stream, for storage purposes for recreational use. Estimated cost \$8,500.

ALPINE COUNTY—Scott Lake Dam No. 511. Dressler, Settlemeyer & Neddennrip, Minden, Nevada, owners; earthfill, 23.5 feet above streambed with a storage capacity of 600 acre-feet. Situated on Scott Creek tributary to West Carson River in Sec. 2, T. 10 N., R. 18 E., M. D. M., for storage purposes for irrigation use. Estimated cost \$7,500.

ALPINE COUNTY—Red Lake Dam No. 511-3. Dressler, Settlemeyer & Neddennrip, Minden, Nevada, owners; earthfill, 22 feet above streambed with a storage capacity of 900 acre-feet. Situated on Red Lake Creek tributary to West Carson River in Sec. 23, T. 10 N., R. 18 E., M. D. M., for storage purposes for irrigation use. Estimated cost \$14,000.

EL DORADO COUNTY—Fallen Leaf Dam No. 461. Anita M. Baldwin, Los Angeles, owner; gravity, 2 feet above streambed with a storage capacity of 7100 acre-feet. Situated on Taylor Creek tributary to Lake Tahoe in Sec. 1, T. 12 N., R. 17 E., M. D. M., for storage and diversion purposes for power, domestic and recreational uses. Estimated cost \$4,500.

LOS ANGELES COUNTY—Harold Dam No. 57-2. Palmdale Irrigation District, Palmdale, owner; earthfill, 35 feet above streambed with a storage capacity of 7424 acre-feet. Located in Sec. 2, T. 5 N., R. 12 W., S. B. M., for storage purposes for irrigation and domestic use. Estimated cost \$75,000.

LOS ANGELES COUNTY—Girard Dam No. 6-10. City of Los Angeles, Los Angeles, owner; earth reservoir, 28.2 feet high with a storage capacity of 40.8 acre-feet. Situated on no stream in Sec. 24, T. 1 N., R. 17 W., S. B. M., for storage purposes for municipal use. Estimated cost \$40,830.

LOS ANGELES COUNTY—Chatsworth No. 2 Dam No. 6-4A. City of Los Angeles, Los Angeles, owner; earthfill, 27 feet above streambed with a storage capacity of 7400 acre-feet. Situated on no stream tributary to Los Angeles River in Ex Mission de San Fernando for storage purposes for municipal use. Estimated cost \$202,200.

LOS ANGELES COUNTY—Chatsworth No. 3 Dam No. 6-4C. City of Los Angeles, Los Angeles, owner; earthfill, 37 feet above streambed with a storage capacity of 7400 acre-feet. Situated on canyon tributary to Los Angeles River in Ex Mission de San Fernando for storage purposes for municipal use. Estimated cost \$126,500.

BUTTE COUNTY—Sutter-Butte Diversion Dam No. 343. Sutter-Butte Canal Company, Gridley, owner; crib, 9 feet above streambed with a storage capacity of over 10 acre-feet. Situated on Feather River tributary to Sacramento River in Sec. 33, T. 19 N., R. 3 E., M. D. M., for diversion purposes for irrigation use.

CONTRA COSTA COUNTY—Antioch Dam No. 3. Town of Antioch, Antioch, owner; earthfill, 48 feet above streambed with a storage capacity of 520 acre-feet. Situated on an unnamed creek tributary to San Joaquin River in Sec. 36, T. 2 N., R. 1 E., M. D. M., for storage purposes for municipal use. Estimated cost \$12,500.

MADERA COUNTY—South Fork Dam No. 95-13. San Joaquin Light and Power Corporation, Fresno, owner; gravity, 26 feet above streambed with a storage capacity of 18 acre-feet. Situated on South Fork of North Fork of San Joaquin River tributary to San Joaquin River in Sec. 19, T. 8 S., R. 23 E., M. D. M., for storage purposes for power use.

FRESNO COUNTY—Balch Afterbay Dam No. 95-2. San Joaquin Light and Power Corporation, Fresno, owner; arch, 71 feet above streambed with a storage capacity of 125 acre-feet. Situated on North Fork of Kings River tributary to Kings River in Sec. 12, T. 12 S., R. 26 E., M. D. M., for storage purposes for afterbay pond use. Estimated cost, \$250,000.

MADERA COUNTY—Crane Valley Dam No. 95-3. San Joaquin Light and Power Company, Fresno, owner; earth and rock fill, 130 feet above streambed with a storage capacity of 45,000 acre-feet. Situated on North Fork of San Joaquin River tributary to San Joaquin River in Sec. 25, T. 7 S., R. 22 E., for storage purposes for power use. Estimated cost, \$1,450,000.

MADERA COUNTY—No. 1 Forebay Dam No. 95-4. San Joaquin Light and Power Corporation, Fresno, owner; earthfill, with a storage capacity of 50 acre-feet. Situated on No. 1 ditch in Sec. 7, T. 9 S., R. 23 E., M. D. M., for regulation purposes for power use.

MADERA COUNTY—No. 2 Forebay Dam No. 95-5. San Joaquin Light and Power Corporation, Fresno, owner; arch, 27 feet above streambed with a storage capacity of 11 acre-feet. Situated on No. 2 ditch in Sec. 30, T. 8 S., R. 23 E., M. D. M., for regulation purposes for power use.

MADERA COUNTY—No. 3 Forebay Dam No. 95-6. San Joaquin Light and Power Corporation, Fresno, owner; earthfill, 30 feet above streambed with a storage capacity of 20 acre-feet. Situated on ditch in Sec. 11, T. 8 S., R. 22 E., M. D. M., for regulation purposes for power use.

KERN COUNTY—Kern Canyon Diversion No. 95-7. San Joaquin Light and Power Corporation, Fresno, owner; gravity, 16 feet above streambed with a storage capacity of 27 acre-feet. Situated on Kern River in Sec. 29, T. 28 S., R. 30 E., M. D. M., for diversion purposes for power use. Estimated cost \$69,000.

FRESNO AND MADERA COUNTIES—Kerckhoff Diversion Dam No. 95-8. San Joaquin Light and Power Corporation, Fresno, owner; arch, 97 feet above streambed with a storage capacity of 4200 acre-feet. Situated on San Joaquin River in Sec. 24, T. 9 S., R. 22 E., M. D. M., for diversion purposes for power use. Estimated cost \$812,500.

MARIPOSA COUNTY—Mountain King Diversion Dam No. 95-11. San Joaquin Light and Power Corporation, Fresno, owner; gravity, 5.0 feet above streambed with a storage capacity of 14 acre-feet. Situated on Merced River tributary to San Joaquin River in Sec. 1, T. 4 S., R. 17 E., M. D. M., for diversion purposes for power use.

MADERA COUNTY—Manzanita Lake Dam No. 95-12. San Joaquin Light and Power Corporation, Fresno, owner; arch, 28 feet above streambed with a storage capacity of 200 acre-feet. Situated on North Fork of North Fork of San Joaquin River tributary to San Joaquin River in Sec. 12, T. 8 S., R. 22 E., M. D. M., for storage purposes for power use.

FRESNO COUNTY—Balch Diversion Dam No. 95. San Joaquin Light and Power Corporation, Fresno, owner; arch, 65 feet above streambed with a storage capacity of 185 acre-feet. Situated on North Fork Kings River tributary to Kings River in Sec. 3, T. 12 S., R. 27 E., for diversion purposes for power use. Estimated cost \$158,100.

SANTA BARBARA COUNTY—Gibraltar Dam No. 11. City of Santa Barbara, Santa Barbara, owner; arch, 140 feet above streambed with a storage capacity of 13,746 acre-feet. Situated on Santa Ynez River in Sec. 11, T. 5 N., R. 27 W., S. B. M., for storage and diversion purposes for municipal use. Estimated cost \$800,000.

SANTA BARBARA COUNTY—Sheffield Reservoir Dam No. 11-2. City of Santa Barbara, Santa Barbara, owner; earthfill, 15 feet above streambed with a storage capacity of 30 acre-feet. Situated on branch of Sycamore Creek for storage purposes for municipal use. Estimated cost \$60,000.

YUBA COUNTY—Lake Francis Dam No. 97-3. Pacific Gas & Electric Company, San Francisco, owner; earthfill, 65 feet above streambed with a storage capacity of 2410 acre-feet. Situated on Dobbins Creek tributary to Yuba River in Sec. 5, T. 17 N., R. 7 E., M. D. M., for storage purposes for power use. Estimated cost \$182,980.

PLACER COUNTY—Alta Forebay Dam No. 97-10. Pacific Gas & Electric Company, San Francisco, owner; earthfill, 9 feet high with a storage capacity of 65 acre-feet. Situated on no stream in Sec. 30, T. 16 N., R. 11 E., M. D. M., for regulating purposes for power use. Estimated cost \$4,700.

PLACER COUNTY—Bonnie Nook Dam No. 97-13. Pacific Gas & Electric Company, San Francisco, owner; earthfill, 18½ feet high with a storage capacity of 29 acre-feet. Located in Sec. 36, T. 16 N., R. 10 E., M. D. M., for regulating purposes for irrigation use. Estimated cost \$11,693.

PLACER COUNTY—Caperton Dam No. 97-14. Pacific Gas & Electric Company, San Francisco, owner; earthfill, 17½ feet high with a storage capacity of 10.8 acre-feet. Situated on no stream in Sec. 29, T. 12 N.,

R. 7 E., M. D. M., for regulation purposes for mining and irrigation use. Estimated cost \$8,134.

PLACER COUNTY—Clover Valley Dam No. 97-16. Pacific Gas & Electric Company, San Francisco, owner; earthfill, 37 feet above streambed with a storage capacity of 29 acre-feet. Situated on branch of Antelope Creek tributary to Sacramento River in Sec. 28, T. 12 N., R. 7 E., M. D. M., for regulation purposes for irrigation use. Estimated cost \$12,136.

NEVADA COUNTY—Deer Creek Forebay Dam No. 97-18. Pacific Gas & Electric Company, San Francisco, owner; earthfill, 11½ feet high with a storage capacity of 20.2 acre-feet. Situated on no stream in Sec. 35, T. 17 N., R. 10 E., M. D. M., for regulation purposes for power use. Estimated cost \$21,000.

NEVADA AND PLACER COUNTIES—Gold Hill Head Dam No. 97-22. Pacific Gas & Electric Company, San Francisco, owner; gravity, 25 feet above streambed. Situated on Bear River tributary to Yuba River in Sec. 2, T. 13 N., R. 8 E., M. D. M., for diversion purposes for irrigation use. Estimated cost \$16,110.

NEVADA COUNTY—Lake Sterling Dam No. 97-30. Pacific Gas & Electric Company, San Francisco, owner; rock crib, 19 feet above streambed with a storage capacity of 1648 acre-feet. Situated on Sterling Creek tributary to Fordyce Creek in Sec. 10, T. 17 N., R. 13 E., M. D. M., for storage purposes for power use. Estimated cost \$10,000.

PLACER COUNTY—Mammoth Reservoir Dam No. 97-39. Pacific Gas & Electric Company, San Francisco, owner; earthfill, 17 feet high with a storage capacity of 115 acre-feet. Situated on no stream in Sec. 7, T. 11 N., R. 8 E., M. D. M., for regulating purposes for irrigation use. Estimated cost \$115,326.

PLACER COUNTY—Orr Creek No. 97-42. Pacific Gas & Electric Company, San Francisco, owner; rubble, 22.5 feet above streambed with a storage capacity of 27.5 acre-feet. Situated on Orr Creek tributary to Dry Creek in Sec. 18, T. 13 N., R. 8 E., M. D. M., for regulation purposes for irrigation use. Estimated cost \$8,442.

EL DORADO COUNTY—American River Head Dam No. 97-51. Pacific Gas & Electric Company, San Francisco, owner; crib, 25 feet above streambed. Situated on South Fork of American River tributary to Sacramento River in Sec. 24, T. 11 N., R. 11 E., M. D. M., for diversion purposes for power use. Estimated cost \$32,000.

EL DORADO COUNTY—El Dorado Forebay Dam No. 97-53. Pacific Gas & Electric Company, San Francisco, owner; earthfill, 82 feet above streambed with a storage capacity of 400 acre-feet. Situated on Long Canyon tributary to South Fork of American River in Sec. 25, T. 11 N., R. 12 E., M. D. M., for regulation purposes for power use. Estimated cost \$719,800.

EL DORADO COUNTY—El Dorado Head Dam No. 97-54. Pacific Gas & Electric Company, San Francisco, owner; rockfill, 10 feet above streambed. Situated on South Fork of American River tributary to Sacramento River in Sec. 29, T. 11 N., R. 15 E., M. D. M., for diversion purposes for power use. Estimated cost \$36,500.

EL DORADO COUNTY—Finnon Dam No. 97-55. Pacific Gas & Electric Company, San Francisco, owner; earthfill, 50 feet above streambed with a storage capacity of 600 acre-feet. Situated on Jay Bird Creek tributary to South Fork of American River in Sec. 16, T. 11 N., R. 11 E., M. D. M., for storage purposes for power use. Estimated cost \$113,900.

SACRAMENTO COUNTY—Folsom Dam No. 97-56. Pacific Gas & Electric Company, San Francisco, owner; gravity, 68 feet above streambed. Situated on American River tributary to Sacramento River in Sec. 24, T. 10 N., R. 7 E., M. D. M., for diversion purposes for power use. Estimated cost \$595,379.

ALPINE COUNTY—Twin Lakes Dam No. 97-59. Pacific Gas & Electric Company, San Francisco, owner; earthfill, 77½ feet above streambed with a storage capacity of 21,250 acre-feet. Situated on branch of Silver Fork tributary to American River in Sec. 18, T. 10 N., R. 18 E., M. D. M., for storage purposes for power use. Estimated cost \$1,089,750.

AMADOR COUNTY—Bear River Dam No. 97-61. Pacific Gas & Electric Company, San Francisco, owner; rockfill, 75 feet above streambed with a storage capacity of 6712 acre-feet. Situated on Bear River tributary to North Fork of Mokelumne River in Sec. 9, T. 8 N., R. 16 E., M. D. M., for storage purposes for power use. Estimated cost \$250,000.

AMADOR COUNTY—New York Reservoir Dam No. 97-64. Pacific Gas & Electric Company, San Francisco, owner; earthfill, 17 feet above streambed with a storage capacity of 49 acre-feet. Situated on tributary

to Jackson Creek tributary to Dry Creek in Sec. 1, T. 6 N., R. 11 E., M. D. M., for regulation purposes for domestic and irrigation use. Estimated cost \$9,063.

AMADOR COUNTY—Petty Forebay Dam No. 97-65. Pacific Gas & Electric Company, San Francisco, owner; earthfill, 8 feet high with a storage capacity of 12.4 acre-feet. Situated on no stream in Sec. 28, T. 6 N., R. 12 E., M. D. M., for regulation purposes for power use. Estimated cost \$48,000.

AMADOR COUNTY—Tanner Reservoir Dam No. 97-68. Pacific Gas & Electric Company, San Francisco, owner; earthfill, 7½ feet above streambed with a storage capacity of 12.3 acre-feet. Situated on no stream in Sec. 8, T. 6 N., R. 11 E., M. D. M., for regulation purposes for domestic and mining use. Estimated cost \$9,238.

TUOLUMNE COUNTY—Kincaid Reservoir Dam No. 97-72. Sierra & San Francisco Power Company, San Francisco, owner; earthfill, 15 feet above streambed with a storage capacity of 75 acre-feet. Situated on a small stream tributary to Curtis Creek in Sec. 9, T. 1 N., R. 15 E., M. D. M., for regulation purposes for irrigation use. Estimated cost \$5,613.

TUOLUMNE COUNTY—Matelot Dam No. 97-75. Sierra & San Francisco Power Company, San Francisco, owner; earthfill, 13 feet high with a storage capacity of 12 acre-feet. Situated on no stream in Sec. 1, T. 2 N., R. 14 E., M. D. M., for regulation purposes for irrigation use. Estimated cost \$6,428.

TUOLUMNE COUNTY—Montezuma Dam No. 97-76. Sierra & San Francisco Power Company, San Francisco, owner; earthfill, 9 feet high with a storage capacity of 11.5 acre-feet. Situated on no stream in Sec. 30, T. 1 N., R. 14 E., M. D. M., for regulation purposes for irrigation use. Estimated cost \$3,150.

TUOLUMNE COUNTY—O'Neill Dam No. 97-77. Sierra & San Francisco Power Company, San Francisco, owner; earthfill, 5 feet high with a storage capacity of 12 acre-feet. Situated on no stream in Sec. 4, T. 1 N., R. 14 E., M. D. M., for regulation purposes for irrigation use. Estimated cost \$3,629.

TUOLUMNE COUNTY—Phoenix Dam No. 97-78. Pacific Gas & Electric Company, San Francisco, owner; earth and masonry, 30½ feet above streambed with a storage capacity of 1215 acre-feet. Situated on Sullivan Creek tributary to Woods Creek in Sec. 28, T. 2 N., R. 15 E., M. D. M., for regulation purposes for irrigation and domestic use. Estimated cost \$36,490.

TUOLUMNE COUNTY—Racetrack Reservoir No. 97-79. Sierra & San Francisco Power Company, San Francisco, owner; earthfill, 5 feet high with a storage capacity of 6 acre-feet. Situated on no stream in Sec. 26, T. 2 N., R. 14 E., M. D. M., for storage purposes for irrigation use. Estimated cost \$825.

TUOLUMNE COUNTY—Relief Dam No. 97-80. Sierra & San Francisco Power Company, San Francisco, owner; rockfill, 130 feet above streambed with a storage capacity of 15,122 acre-feet. Situated on Relief Creek tributary to Middle Fork Stanislaus River in Sec. 13, T. 5 N., R. 20 E., M. D. M., for storage purposes for power use. Estimated cost \$850,402.

TUOLUMNE COUNTY—San Diego Reservoir No. 97-82. Sierra & San Francisco Power Company, San Francisco, owner; earthfill, 28.5 feet high with a storage capacity of 40 acre-feet. Situated on no stream in Sec. 13, T. 2 N., R. 14 E., M. D. M., for regulation purposes for irrigation use. Estimated cost \$4,980.

TUOLUMNE COUNTY—Stanislaus Forebay Dam No. 97-83. Sierra & San Francisco Power Company, San Francisco, owner; earthfill, 54 feet high with a storage capacity of 301 acre-feet. Situated on no stream in Sec. 5, T. 3 N., R. 15 E., M. D. M., for regulation purposes for power use. Estimated cost \$114,800.

SHASTA COUNTY—Coleman Forebay Dam No. 97-87. Pacific Gas & Electric Company, San Francisco, owner; earth and rockfill, 17 feet high with a storage capacity of 73 acre-feet. Situated on no stream in Sec. 32, T. 30 N., R. 2 W., M. D. M., for regulation purposes for power use. Estimated cost \$54,874.

SHASTA COUNTY—Cow Creek Forebay Dam No. 97-88. Pacific Gas & Electric Company, San Francisco, owner; earth fill, 14 feet high with a storage capacity of 5.3 acre-feet. Situated on no stream in Sec. 32, T. 32 N., R. 1 W., M. D. M., for regulation purposes for power use. Estimated cost \$7,550.

SHASTA AND TEHAMA COUNTIES—Eagle Canyon Diversion Dam No. 97-89. Pacific Gas & Electric Company, San Francisco, owner; gravity, 11 feet above streambed. Situated on North Battle Creek tributary to Battle Creek in Sec. 25, T. 30 N., R. 1 W., M. D. M., for diversion purposes for power use. Estimated cost \$4,000.

TEHAMA COUNTY—Inskip Head Dam No. 97-90. Pacific Gas & Electric Company, San Francisco, owner; gravity, 32 feet above streambed. Situated on South Battle Creek, tributary to Battle Creek in Sec. 5, T. 29 N., R. 1 E., M. D. M., for diversion purposes for power use. Estimated cost \$12,327.

SHASTA COUNTY—Kilrac Forebay Dam No. 97-91. Pacific Gas & Electric Company, San Francisco, owner; earthfill, 10 feet high with a storage capacity of 30.4 acre-feet. Situated on no stream in Sec. 33, T. 33 N., R. 1 E., M. D. M., for regulation purposes for power use.

SHASTA COUNTY—Lake Grace Dam No. 97-92. Pacific Gas & Electric Company, San Francisco, owner; earthfill, 12 feet high with a storage capacity of 25.1 acre-feet. Situated on no stream in Sec. 4, T. 30 N., R. 1 E., M. D. M., for regulation purposes for power use. Estimated cost \$15,136.

SHASTA COUNTY—Macumber Dam No. 97-94. Pacific Gas & Electric Company, San Francisco, owner; combination, 20 feet above streambed with a storage capacity of 1213 acre-feet. Situated on North Battle Creek tributary to Battle Creek in Sec. 15, T. 31 N., R. 2 E., M. D. M., for storage purposes for power use. Estimated cost \$28,132.

SHASTA COUNTY—North Battle Creek Reservoir Dam No. 97-96. Pacific Gas & Electric Company, owner; gravity, 52 feet above streambed with a storage capacity of 2534 acre-feet. Situated on North Battle Creek tributary to Battle Creek in Sec. 20, T. 32 N., R. 3 E., M. D. M., for storage purposes for power use. Estimated cost \$153,115.

SHASTA COUNTY—Hat Creek No. 1 Forebay Dam No. 97-97. Mt. Shasta Power Corporation, San Francisco, owner; earthfill, 12 feet above streambed with a storage capacity of 6434 acre-feet. Situated on Hat Creek Canal in Sec. 32, T. 36 N., R. 4 E., M. D. M., for regulation purposes for power use. Estimated cost \$88,052.

LAKE COUNTY—Scott Dam No. 97-101. Snow Mountain Water & Power Company, San Francisco, owner; gravity, 120 feet above streambed with a storage capacity of 73,163 acre-feet. Situated on South Eel River tributary to Eel River in Sec. 14, T. 18 N., R. 10 W., M. D. M., for storage purposes for power use.

MENDOCINO COUNTY—Van Arsdale Dam No. 97-102. Snow Mountain Water & Power Company, San Francisco, owner; earthfill, 12 feet above streambed with a storage capacity of 700 acre-feet. Situated on South Eel River tributary to Eel River in Sec. 30, T. 18 N., R. 11 W., M. D. M., for storage and diversion purposes for power use.

LOS ANGELES COUNTY—Big Dalton Dam No. 32. Los Angeles County Flood Control District, Los Angeles, owner; arched gravity, 70 feet above streambed with a storage capacity of 1290 acre-feet. Situated on Big Dalton Creek tributary to Walnut Creek in Sec. 15, T. 1 N., R. 9 W., S. B. M., for storage purposes for flood control use. Estimated cost \$911,000.

LOS ANGELES COUNTY—Live Oak Dam No. 32-7. Los Angeles County Flood Control District, Los Angeles, owner; arched gravity, 10 feet above streambed with a storage capacity of 300 acre-feet. Situated on Live Oak Creek tributary to San Jose Creek in Sec. 32, T. 1 N., R. 8 W., S. B. M., for storage purposes for flood control use. Estimated cost \$173,254.

LOS ANGELES COUNTY—Puddingstone Dam No. 32-9. Los Angeles County Flood Control District, Los Angeles, owner; earthfill, 135 feet above streambed with a storage capacity of 17,398 acre-feet. Situated on Walnut Creek tributary to San Gabriel River in Sec. 15, T. 1 S., R. 9 W., S. B. M., for storage purposes for flood control use. Estimated cost \$930,000.

LOS ANGELES COUNTY—San Dimas Dam No. 32-10. Los Angeles County Flood Control District, Los Angeles, owner; arched gravity, 109 feet above streambed with a storage capacity of 1810 acre-feet. Situated on San Dimas Creek tributary to Walnut Creek in Sec. 24, T. 1 N., R. 9 W., S. B. M., for storage purposes for flood control. Estimated cost \$564,620.

LOS ANGELES COUNTY—Thompson Creek Dam No. 32-15. Los Angeles County Flood Control District, Los Angeles, owner; earthfill, 58 feet above streambed with a storage capacity of 877 acre-feet. Situated on Thompson Creek tributary to San Jose Creek in Sec. 27, T. 1 N., R. 8 W., S. B. M., for storage purposes for flood control use. Estimated cost \$241,645.

LOS ANGELES COUNTY—Puddingstone Diversion Dam No. 32-16. Los Angeles County Flood Control District, Los Angeles, owner; earthfill, 23 feet above streambed with a storage capacity of 148 acre-feet. Situated on San Dimas Creek tributary to Walnut Creek in Sec. 36, T. 1 N., R. 9 W., S. B. M., for

diversion purposes for flood control use. Estimated cost \$185,443.28.

SAN BERNARDINO COUNTY—Lake Arrowhead Dam No. 805. Arrowhead Lake Company, Lake Arrowhead, owner; earthfill, 170 feet above streambed with a storage capacity of 47,000 acre-feet. Situated on Little Bear Creek tributary to Deep Creek in Sec. 14, T. 2 N., R. 3 W., S. B. M., for storage purposes for irrigation, domestic, power and recreation use.

AMADOR COUNTY—Henderson Dam No. 1-10. Preston School of Industry, Waterman, owner; earthfill, 43½ feet above streambed with a storage capacity of 500 acre-feet. Situated on Mule Creek tributary to Mokelumne River in Sec. 9, T. 6 N., R. 10 E., M. D. M., for storage purposes for power and irrigation use. Estimated cost \$50,000.

AMADOR COUNTY—Henderson Forebay Dam No. 1-11. Preston School of Industry, Waterman, owner; earthfill, 31 feet above streambed with a storage capacity of 30 acre-feet. Situated on Sutter Creek in Sec. 18, T. 6 N., R. 10 E., M. D. M., for storage purposes for power and irrigation use.

RIVERSIDE COUNTY—El Casco Dam No. 145-7. G. O. Trauzettal, El Casco, owner; earthfill, 16 feet above streambed with a storage capacity of 15 acre-feet. Located in Sec. 20, T. 2 S., R. 2 W., S. B. M., for storage purposes for irrigation use.

SANTA BARBARA COUNTY—Buell Dam No. 34. Montecito County Water District, Santa Barbara, owner; earthfill, 90 feet above streambed with a storage capacity of 172 acre-feet. Situated on a small gulch tributary to Toro Canyon Creek in Sec. 11, T. 4 N., R. 26 W., S. B. M., for storage purposes for municipal use. Estimated cost \$183,950.

MENDOCINO COUNTY—Mendocino Middle Dam No. 1-3. Mendocino State Hospital, Talmage, owner; gravity and rock, 27 feet above streambed with a storage capacity of 30 acre-feet. Situated on South Mill Creek tributary to Russian River in Sec. 25, T. 15 N., for storage and diversion purposes for irrigation use. Estimated cost \$9,500.

MENDOCINO COUNTY—Mendocino Upper Dam No. 1-4. Mendocino State Hospital, Talmage, owner; gravity, 33 feet above streambed with a storage capacity of 65 acre-feet. Situated on South Mill Creek tributary to Russian River in Sec. 25, T. 15 N., M. D. M., for storage and diversion purposes for irrigation use. Estimated cost \$56,400.

PLUMAS COUNTY—Bucks Diversion Dam No. 94. Feather River Power Company, San Francisco, owner; arch, 86 feet above streambed with a storage capacity of 5843 acre-feet. Situated on Bucks Creek tributary to North Fork of Feather River in Sec. 29, T. 24 N., R. 7 E., M. D. M., for diversion and storage purposes for power and irrigation use. Estimated cost \$746,079.

PLUMAS COUNTY—Bucks Storage Dam No. 94-2. Feather River Power Company, San Francisco, owner; rockfill, 109 feet above streambed with a storage capacity of 101,926 acre-feet. Situated on Bucks Creek tributary to North Fork Feather River in Sec. 33, T. 24 N., R. 7 E., M. D. M., for storage purposes for power and irrigation use. Estimated cost \$2,359,492.

PLUMAS COUNTY—Grizzly Forebay Dam No. 94-3. Feather River Power Company, San Francisco, owner; arch, 79 feet above streambed with a storage capacity of 1112 acre-feet. Situated on Grizzly Creek tributary to North Fork of Feather River in Sec. 34, T. 24 N., R. 6 E., M. D. M., for storage and diversion purposes for power and irrigation use. Estimated cost \$651,910.

PLUMAS COUNTY—Lower Three Lakes Dam No. 94-4. Feather River Power Company, San Francisco, owner; rockfill, 24.3 feet above streambed with a storage capacity of 513 acre-feet. Situated on Milk Ranch Creek tributary to North Fork of Feather River in Sec. 5, T. 24 N., R. 7 E., M. D. M., for storage purposes for power and irrigation use. Estimated cost \$86,339.

PLUMAS COUNTY—Butt Valley Dam No. 93. Great Western Power Company, San Francisco, owner; earthfill, 62 feet above streambed with a storage capacity of 49,763 acre-feet. Situated on Butt Creek tributary to North Fork of Feather River in Sec. 13, T. 26 N., R. 7 E., M. D. M., for storage and diversion purposes for power and irrigation use. Estimated cost \$388,000.

BUTE COUNTY—Intake Dam No. 93-2. Great Western Power Company, San Francisco, owner; gravity, 45 feet above streambed with a storage capacity of 600 acre-feet. Situated on North Fork of Feather River tributary to Sacramento River in Sec. 36, T. 22 N., R. 4 E., M. D. M., for diversion and storage purposes for power use. Estimated cost \$775,000.

PLUMAS COUNTY—Big Meadows Dam No. 93-3. Great Western Power Company, San Francisco, owner; earthfill. Situated on North Fork of Feather River tributary to Feather River in Sec. 28, T. 27 N., R. 8 E., M. D. M.,

LOS ANGELES COUNTY—Chatsworth No. 2 Dam No. 6-4A. City of Los Angeles, Los Angeles, owner; earthfill, 28 feet above streambed with a storage capacity of 7400 acre-feet. Situated in Chatsworth Hills tributary to Los Angeles, located in Ex Mission de San Fernando for storage purposes for municipal use. Estimated cost \$202,200.

LOS ANGELES COUNTY—Chatsworth No. 3 Dam No. 6-4C. City of Los Angeles, Los Angeles, owner; earthfill, 27 feet above streambed with a storage capacity of 7400 acre-feet. Situated in Chatsworth Hills tributary to Los Angeles River located in Ex Mission de San Fernando for storage purposes for municipal use. Estimated cost \$126,500.

YUBA COUNTY—Los Verjels Dam No. 334. Los Verjels Land & Water Company, Sacramento, owner; multiple arch, 56 feet above streambed with a storage capacity of 1500 acre-feet. Situated on Dry Creek tributary to Yuba River in Sec. 34, T. 18 N., R. 6 E., M. D. M., for storage purposes for irrigation use.

SAN FRANCISCO COUNTY—Lombard St. Reservoir Dam No. 19-5. Spring Valley Water Company, San Francisco, owner; earth embankment, 17.5 feet high with a storage capacity of 8.3 acre-feet. Situated on no stream for distribution purposes for domestic use.

RIVERSIDE COUNTY—Mocking Bird Dam No. 814. Gago Canal Company, Riverside, owner; earthfill, 69 feet above streambed with a storage capacity of 2262 acre-feet. Situated on Mocking Bird Canyon in Sec. 20, T. 3 S., R. 5 W., S. B. M., for storage purposes for irrigation use. Estimated cost \$100,000.

SONOMA COUNTY—Industrial Farm for Women Dam No. 1. Industrial Farm for Women, State of California, Sonoma, owner; arch, 32.5 feet above streambed with a storage capacity of 7.7 acre-feet. Situated on Johnson Creek tributary to Sonoma Creek in Sec. 4, T. 5 N., R. 5 W., M. D. M., for storage purposes for irrigation use. Estimated cost \$24,920.

SONOMA COUNTY—Fern Lake-South Dam No. 1-13A. Sonoma State Home, Eldridge, owner; earthfill, 26 feet above streambed with a storage capacity of 185 acre-feet. Situated on Hill Creek tributary to Sonoma Creek, Sec. 21, T. 5 N., R. 6 W., M. D. M., for storage purposes for irrigation and fire protection use.

EL DORADO COUNTY—American Reservoir Dam No. 462. Diamond Ridge Water Company, Diamond Springs, owner; earthfill, 22 feet above streambed with a storage capacity of 1200 acre-feet. Situated on no stream in Sec. 31, T. 10 N., R. 9 E., M. D. M., for storage purposes for stock watering use. Estimated cost \$14,500.

PLUMAS COUNTY—Quincy Log Pond Dam No. 281. Quincy Lumber Co., Inc., Quincy, owner; earthfill, 8 feet above streambed. Situated on an unnamed drainage tributary to Spanish Creek in Sec. 14, T. 24 N., R. 9 E., M. D. M., for storage purposes for logging use. Estimated cost \$7,000.

SISKIYOU COUNTY—Montague City Reservoir Dam No. 69-2. Montague Water Conservation District, Montague, owner; earthfill, 17 feet above streambed with a storage capacity of 5 acre-feet. Situated on a ravine tributary to Little Shasta River in Sec. 23, T. 45 N., R. 6 W., M. D. M., for storage purposes for municipal use. Estimated cost \$4,984.

NEVADA COUNTY—Bowman North Rockfill Dam No. 61-2A. Nevada Irrigation District, Grass Valley, owner; rockfill, 63 feet above streambed with a storage capacity of 67,000 acre-feet. Situated on Canyon Creek tributary to South Yuba River in Sec. 5, T. 18 N., R. 12 E., M. D. M., for storage purposes for irrigation and other uses. Estimated cost \$680,000.

NEVADA COUNTY—Rowman South Arch Dam No. 61-2B. Nevada Irrigation District, Grass Valley, owner; arch, 108 feet above streambed with a storage capacity of 67,000 acre-feet. Situated on Canyon Creek tributary to South Yuba River in Sec. 8, T. 18 N., R. 12 E., M. D. M., for storage purposes for irrigation and other uses. Estimated cost \$245,000.

NEVADA COUNTY—Sawmill Lake Dam No. 61-10. Nevada Irrigation District, Grass Valley, owner; rockfill, 45 feet above streambed with a storage capacity of 2000 acre-feet. Situated on Canyon Creek tributary to South Yuba River in Sec. 11, T. 18 N., R. 12 E., M. D. M., for storage purposes for irrigation and other uses.

RIVERSIDE COUNTY—Lake Hemet Dam No. 817-A. Lake Hemet Water Company, Hemet, owner; arched gravity, 135 feet above streambed with a

storage capacity of 14,000 acre-feet. Situated on South Fork tributary to San Jacinto River in Sec. 7, T. 6 S., R. 3 E., S. B. M., for storage purposes for irrigation use. Estimated cost \$213,900.

RIVERSIDE COUNTY—Little Lake Dam No. 817-2. Lake Hemet Water Company, Hemet, owner; earthfill, 14 feet above streambed with a storage capacity of 90 acre-feet. Located in Sec. 18, T. 5 S., R. 1 E., S. B. M., for storage purposes for irrigation use. Estimated cost \$3,300.

RIVERSIDE COUNTY—Lake Hemet Spillway Dam No. 811-B. Lake Hemet Water Company, Hemet, owner; arch, 14 feet above streambed with a storage capacity of 12,930 acre-feet. Situated on no stream, tributary to San Jacinto River in Sec. 7, T. 6 S., R. 3 E., S. B. M., for storage purposes for irrigation use. Estimated cost \$23,600.

SIERRA COUNTY—Upper Salmon Dam No. 294. E. A. & J. O. Hayes, San Jose, owners; rockfill, 19 feet above streambed with a storage capacity of 400 acre-feet. Situated on Salmon Lake outlet tributary to North Fork of Yuba River in Sec. 29, T. 21 N., R. 12 E., M. D. M., for storage purposes for power use.

SIERRA COUNTY—Lower Salmon Lake Dam No. 294-2. E. A. & J. O. Hayes, San Jose, owners; rock and earthfill, 12 feet above streambed with a storage capacity of 1000 acre-feet. Situated on outlet Lower Salmon Lake tributary to North Fork of Yuba River in Sec. 28, T. 21 N., R. 12 E., M. D. M., for storage purposes for power use.

NEVADA COUNTY—Deer Creek Diversion Dam No. 61-3. Nevada Irrigation District, Grass Valley, owner; 86 feet above streambed with a storage capacity of 1400 acre-feet. Situated on Deer Creek tributary to Yuba River in Sec. 10, T. 16 N., R. 9 E., M. D. M., for diversion purposes for irrigation and other uses.

NEVADA COUNTY—Faucherie Dam No. 61-5. Nevada Irrigation District, Grass Valley, owner; timber, 33 feet above streambed with a storage capacity of 2000 acre-feet. Situated on Canyon Creek tributary to South Yuba River in Sec. 13, T. 13 N., R. 12 E., M. D. M., for storage purposes for irrigation use.

NEVADA COUNTY—French Lake Dam No. 61-6. Nevada Irrigation District, Grass Valley, owner; rockfill, 56 feet above streambed with a storage capacity of 12,500 acre-feet. Situated on Canyon Creek tributary to South Yuba River in Sec. 17, T. 18 N., R. 13 E., M. D. M., for storage purposes for irrigation and other uses.

SIERRA AND NEVADA COUNTIES—Milton Diversion No. 61-7. Nevada Irrigation District, Grass Valley, owner; arch, 27 feet above streambed. Situated on Middle Fork tributary to Yuba River in Sec. 12, T. 18 N., R. 12 E., M. D. M., for diversion purposes for irrigation and other uses. Estimated cost \$26,000.

PLACER AND NEVADA COUNTIES—Van Geisen Diversion Dam No. 61-9. Nevada Irrigation District, Grass Valley, owner; arch, 75 feet above streambed with a storage capacity of 9000 acre-feet. Situated on Bear River tributary to Yuba River in Sec. 2, T. 13 N., R. 8 E., M. D. M., for diversion and storage purposes for irrigation and other uses.

SISKIYOU COUNTY—Hart Dam No. 181. E. C. and Kate C. Hart, Montague, owners; earthfill, 19 feet above streambed with a storage capacity of 100 acre-feet. Situated on Martin Creek tributary to Little Shasta Creek in Sec. 19, T. 45 N., R. 4 W., M. D. M., for storage purposes for irrigation use.

AMADOR COUNTY—Silver Lake Dam No. 97-58. Pacific Gas & Electric Company, San Francisco, owner; rock crib, 22½ feet above streambed with a storage capacity of 5860 acre-feet. Situated on an unnamed stream tributary to Silver Fork of American River in Sec. 32, T. 10 N., R. 17 E., M. D. M., for storage purposes for power use. Estimated cost \$18,074.

CONTRA COSTA COUNTY—Port Costa Brick Works Dam No. 585. Port Costa Brick Works, Port Costa, owner; earthfill, 28 feet above streambed with a storage capacity of 20 acre-feet. Situated on a ravine for storage purposes for industrial use. Estimated cost \$10,000.

LOS ANGELES COUNTY—San Gabriel Diversion Dam No. 104-15. Southern California Edison Company, Los Angeles, owner. Situated on San Gabriel River in Sec. 31, T. 2 N., R. 9 W., S. B. M., for diversion purposes for power use.

SAN DIEGO COUNTY—O'Neill Dam No. 821. Rancho Santa Margarita, Inc., Oceanside, owner; earthfill, 8 feet high with a storage capacity of 1390 acre-feet. Situated on no stream tributary to Santa Margarita River in Sec. 8, T. 10 S., R. 4 W., S. B. M., for storage purposes for irrigation and domestic use.

SANTA CLARA COUNTY—Searsville Dam No. 614. Leland Stanford Jr., University, Stanford University,

owner; arched gravity, 63 feet above streambed with a storage capacity of 952 acre-feet. Situated on Corte Madera Creek tributary to Searsville Creek in Sec. 18, T. 6 S., R. 3 W., M. D. M., for storage purposes for irrigation use.

SONOMA COUNTY—Fern Lake-South Dam No. 1-13B. Sonoma State Home, Eldridge, owner; earthfill, 20 feet above streambed with a storage capacity of 185 acre-feet. Situated on Hill Creek tributary to Sonoma Creek in Sec. 21, T. 6 N., R. 6 W., M. D. M., for storage purposes for irrigation and fire protection use.

SISKIYOU COUNTY—Taimslea Dam No. 185. Minnie A. Taimslea, Montague, owner; earthfill, 4 feet above streambed for storage purposes for irrigation use. Estimated cost \$750.

NAPA COUNTY—Lake Camille Dam No. 1-5. Napa State Hospital, Imola, owner; earthfill, 25 feet above streambed with a storage capacity of 61 acre-feet. Situated on Tulocay Creek tributary to Napa River in T. 5 N., R. 4 W., M. D. M., for storage purposes for irrigation use.

NAPA COUNTY—Lake Marie Dam No. 1-6. Napa State Hospital, Imola, owner; earthfill, 45 feet above streambed with a storage capacity of 376 acre-feet. Situated on Tulocay Creek tributary to Napa River in Sec. 19, T. 5 N., R. 3 W., M. D. M., for storage purposes for domestic and irrigation use.

NAPA COUNTY—Napa Middle Reservoir No. 2 Dam No. 1-8. Napa State Hospital, Imola, owner; earthfill, 20 feet high with a storage capacity of 46 acre-feet. Situated on Tulocay Creek tributary to Napa River in T. 5 N., R. 4 W., M. D. M., for storage purposes for irrigation use.

NAPA COUNTY—Fire Dam. Napa State Hospital, Imola, owner; sump with a storage capacity of 7.7 acre-feet. Situated on no stream for storage purposes for fire protection.

Applications for approval of plans and specifications for construction or enlargement of dams filed with the State Department of Public Works, Division of Water Resources, during the month of February, 1930.

SANTA CLARA COUNTY—Felt Lake Dam No. 614-2. Leland Stanford Jr., University, Stanford University, owner; earthfill, 80 feet above streambed with a storage capacity of 900 acre-feet. Situated on a small draw tributary to Los Trancos Creek in Sec. 22, T. 6 S., R. 3 W., M. D. M., for storage purposes for irrigation and domestic use. Estimated cost \$78,962 after August 14, 1929. Fees paid \$789.62.

LOS ANGELES COUNTY—Chatsworth Dam No. 6-4. City of Los Angeles, Los Angeles, owner; earthfill, with a storage capacity of 42,600 acre-feet. Situated on an unnamed water course tributary to Los Angeles River located in Ex Mission de San Fernando for storage purposes for municipal use. Estimated cost \$3,894,055. Fees paid \$8,294.96.

Applications for approval of plans and specifications for repair or alteration of dams filed with the State Department of Public Works, Division of Water Resources, during the month of February, 1930.

LOS ANGELES COUNTY—Burbank No. 4 Dam No. 4-4. City of Burbank, Burbank, owner; earthfill. Located in Sec. 1, T. 1 N., R. 14 W., S. B. M.

VENTURA COUNTY—Dennison Dam No. 761. Dennison Ranch Co., Ojai, owner; buttress. Situated on Lion Canyon Creek tributary to San Antonio Creek and Ventura River in Sec. 9, T. 4 N., R. 22 W., S. B. M. Nature of repairs, gunting earth wing.

MARIN COUNTY—Belvedere Dam No. 33-4. Marin Municipal Water District, San Rafael, owner; earthfill, nature of work; installing outlet pipe.

Plans and specifications for the construction or enlargement of dams approved by the State Department of Public Works, Division of Water Resources, during the month of February, 1930.

MODOC COUNTY—Everly Dam No. 125. Irving C. Everly, Davis Creek, owner; earthfill, 10 feet above streambed with a storage capacity of 1700 acre-feet. Situated on Bean Flat tributary to Long Branch and Goose Lake in Sec. 26, T. 47 N., R. 12 E., M. D. M., for storage purposes for irrigation use. Estimated cost of enlargement \$1,500.

LOS ANGELES COUNTY—Sunset Canyon Dam No. 32-14. Los Angeles County Flood Control District, Los Angeles, owner; arch, 28 feet above streambed with a storage capacity of 9.1 acre-feet. Situated on Sunset Canyon tributary to Los Angeles River in Sec.

6, T. 1 N., R. 13 W., S. B. M., for storage purposes for debris use. Estimated cost \$22,660.

TUOLUMNE COUNTY—Moccasin Creek Dam No. 9-4. City and County of San Francisco, San Francisco, owner; rock and earthfill, 62 feet above streambed with a storage capacity of 525 acre-feet. Situated on Moccasin Creek tributary to Tuolumne River in Sec. 34, T. 1 S., R. 15 E., M. D. M., for regulation purposes for municipal and power use. Estimated cost \$600,000.

AMADOR COUNTY—Silver Lake Dam No. 97-58. Pacific Gas & Electric Company, San Francisco, owner; crib, 30 feet above streambed with a storage capacity of 12,000 acre-feet. Situated on Silver Creek tributary to South Fork of American River in Sec. 32, T. 10 N., R. 17 E., M. D. M., for storage purposes for power use. Estimated cost \$16,000 total cost, \$8,840 after August 14, 1929.

SANTA BARBARA COUNTY—Juncal Main Dam No. 34-2A. Montecito County Water District, Santa Barbara, owner; arch, 134 feet above streambed with a storage capacity of 7000 acre-feet. Situated on Santa Ynez River in Sec. 23, T. 5 N., R. 25 W., S. B. M., for diversion and storage purposes for municipal, domestic and irrigation uses. Estimated cost \$388,862.82, total.

AMADOR AND CALAVERAS COUNTIES—Salt Springs Dam No. 97-66. Pacific Gas & Electric Company, San Francisco, owner; rockfill, 285 feet above streambed with a storage capacity of 130,000 acre-feet. Situated on North Fork tributary to Mokelumne River in Sec. 33, T. 8 N., R. 16 E., M. D. M., for storage purposes for power use. Estimated cost \$6,930,600, total.

TUOLUMNE COUNTY—Lyons Dam No. 97-73. Sierra & San Francisco Power Company, San Francisco, owner; arch, 95 feet above streambed with a storage capacity of 5500 acre-feet. Situated on South Fork tributary to Stanislaus River in Sec. 24, T. 3 N., R. 16 E., M. D. M., for storage purposes for power use. Estimated cost \$287,000, total.

MONTEREY COUNTY—Peach Tree Dam No. 641. Fort Klamath Meadows Company, Hollister, owner; earthfill, 16 feet above streambed with a storage capacity of 16 acre-feet. Situated on Peach Tree Creek tributary to San Lorenzo River in San Lorenzo Ranch for storage purposes for domestic and irrigation use. Estimated cost \$800.

LOS ANGELES COUNTY—Wrigley Reservoir No. 2 Dam No. 778-B. Santa Catalina Island Company, Avalon, owner; earthfill, 10 feet above streambed with a storage capacity of 70 acre-feet. Situated on Grand Canyon tributary to Pacific Ocean in Sec. 32, T. 9 S., R. 14 W., S. B. M., for storage purposes for municipal and domestic use. Estimated cost \$5,500.

LOS ANGELES COUNTY—Wrigley Reservoir No. 1 Dam No. 778-A. Santa Catalina Island Company, Avalon, owner; earthfill, 40 feet above streambed with a storage capacity of 70 acre-feet. Situated on Grand Canyon Creek tributary to Pacific Ocean in Sec. 32, T. 9 S., R. 14 W., S. B. M., for storage purposes for municipal and domestic use. Estimated cost \$14,650.

Plans for the repair or alteration of dams approved by the State Department of Public Works, Division of Water Resources, during the month of February, 1930.

ORANGE COUNTY—Yorba Dam No. 791. Anaheim Union Water Company, Anaheim, owner; earthfill. Situated on no stream in Sec. 34, T. 3 N., R. 9 W., S. B. M. Nature of repairs—oiling face.

LOS ANGELES COUNTY—Burbank No. 4 Dam No. 4-4. City of Burbank, Burbank, owner; earthfill reservoir. Located in Sec. 1, T. 1 N., R. 14 W., S. B. M.

MARIN COUNTY—Belvedere Dam No. 33-4. Marin Municipal Utility District, San Rafael, owner; earthfill. Nature of repairs—installing new outlet pipe.

Herodotus tells of a road built 4000 B. C. It was in Egypt and reached half way across the African continent. It required 10,000 men working ten years to build a single mile of it. The stone for the Pyramids was hauled over this road.

NEVADA—Reconstruction and oiling of 54 miles of Victory Highway, 52 miles of Lincoln Highway and 21 miles of Arrowhead Trail are on the program for 1930.

STATE OF CALIFORNIA
Department of Public Works

HEADQUARTERS: PUBLIC WORKS BUILDING, ELEVENTH AND P STS., SACRAMENTO

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B. B. MEEK.....Director

CORNING DE SAULES.....Deputy Director

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JOSEPH M. SCHENCK, Commissioner, c/o United Artists Studio, Santa Monica Blvd., Los Angeles
FRED S. MOODY, Commissioner, 640 Kohl Bldg., San Francisco

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FRED J. GRUMM, Engineer of Surveys and Plans
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DIVISION OF CONTRACTS AND RIGHTS OF WAY

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DIVISION OF PORTS

Port of Eureka—F. B. Barnum, Supervisor
Port of San Jose—Not appointed
Port of San Diego—Edgar A. Luce

STATE HIGHWAYS IN CALIFORNIA SHOWING THE PRIMARY AND SECONDARY ROAD SYSTEMS AND THE DIVISION OF THE STATE UNDER THE BREED BILL.



CALIFORNIA STATE PRINTING OFFICE
SACRAMENTO, 1930