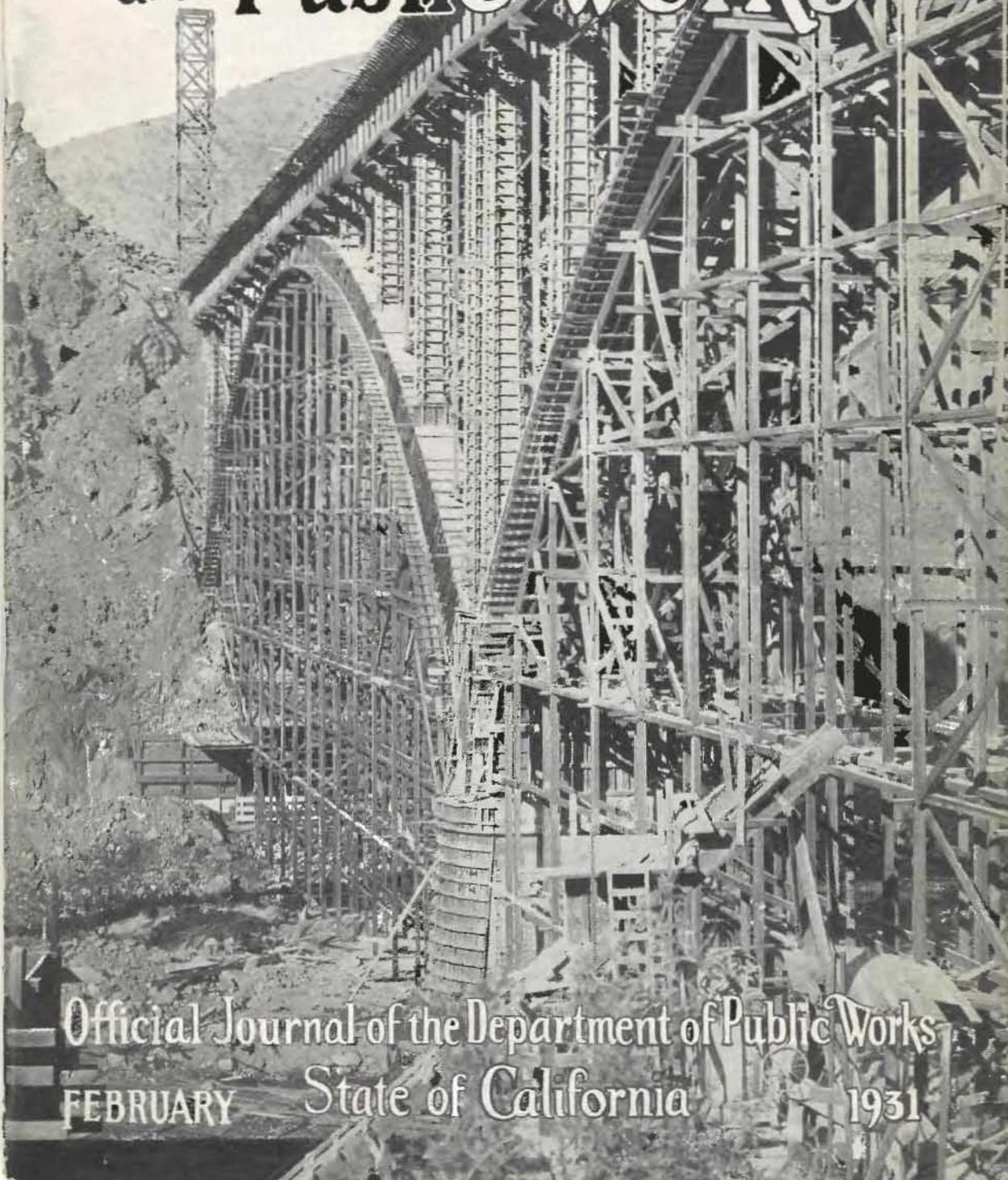


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Official Journal of the Department of Public Works
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Buying Power of Public Works Is Factor in Business Restoration

By JAMES I. HERZ, Deputy Director, Department of Public Works.

MUCH attention has been given, and properly so, to the very large part that the Department of Public Works is playing in relieving unemployment in California. It is indeed a great privilege given to those in charge of the public works to be able to provide a larger volume of employment for the labor of this state, and thus, by its example, to encourage private industry to do likewise.

But public works in California are not only a large factor in relieving the distress of the unemployed, but they also constitute a more important factor in creating a market for California commodities than the public generally realizes. Both labor and business, directly and indirectly, are thus the beneficiaries of the large public works program that Governor Rolph has launched throughout the State, and that various counties, cities and other governmental units have undertaken in their respective jurisdictions.

The largest purchases in the Department of Public Works are those made by the Division of Highways. These highway expenditures are ordinarily considered in terms of labor and of so-called highway materials, that is the materials that we actually see going into the road—cement, crushed rock, asphalt, steel, oil and so forth. These materials, however, are but a part of the purchases that are necessary in building a highway system.

Camps and maintenance crews must be maintained, and accordingly the purchase of groceries and supplies becomes necessary.

The work covers an enormous detail, and with each ramification, new supplies, varied in quantity and distinctive in character, become necessary.

Space will not permit an analysis of the score of items that make up the category of these supplies. They enter into every branch of industrial and agricultural life, and range from totals of millions paid during a biennium for such materials as gasoline, oils, and greases; asphalt and rock and fuel oils; cement and crushed rock, sand and gravel; explosives; timber; automobiles, trucks and equipment; to a few dollars expended for some minor item of camp use.



JAMES I. HERZ, Deputy Director of the Department of Public Works and Governor JAMES ROLPH, JR.

Not including materials and supplies purchased by contractors to whom state jobs are awarded, the cost of which was annually far into the millions, the purchases made directly by the Department of Public Works make it one of the largest single buyers in California.

The purchases made for building such portions of the highway as the Division of Highways may be directly constructing and for maintenance of the highways; the purchases of the Division of Architecture for construction and repair work at the state institutions; equipment bought for traffic work on the highways by the Division of Motor Vehicles and for automobile registration and supplies incidental thereto; the supplies needed for various activities carried on directly by the Division of Water Resources; all these approximate \$500,000 per month.

I have been impressed with the similarity that the distribution of materials purchased in highway work bears to the distribution of labor. One of the chief reasons that highway work is particularly valuable in relieving unemployment lies in the widespread distribution of the work. Roads must be built and maintained all over California. Hence labor must be employed in every county of the

State. The beneficial effects of this employment are thus automatically distributed.

Similarly with goods purchased. The spread is over the whole field of industry, and the stimulating effect of the market thus supplied is exceedingly far reaching.

There are a few general considerations governing the purchase of supplies that I know reflect the opinion and desire of Governor. Rolph's administration and which I believe constitute sound business for the people of California. These are:

First, the buying power of the Department of Public Works should be used to promote the general prosperity of California as far as possible. Supplies capable of purchase locally and at reasonable price should be purchased locally. This applies to purchases for work, whether carried on by the State directly or indirectly through contractors. In this way a spread of prosperity over the widest possible base is secured.

Second, the buying power of the state should be used to encourage the development of industry in California. Buying at home is good business both for the state and the individual.

Third, preference should be given wherever possible to the use of native California material.

Both Governor Rolph and Colonel Walter E. Garrison, director of the Department of Public Works, have requested me to give close and analytical attention, not only to the cost and quality of materials and supplies, but to the wide distribution of this business over the State, and the encouragement of the use of California manufactured, California produced and California grown goods. Governor Rolph feels, and the Department of Public Works is in full accord with this view, that this is a most important phase of his policy of bringing prosperity back to California on a basis that offers promise of permanence through the firmness of its economic foundation and the soundness of its business structure.

FRONT COVER PICTURE

The picture on the front cover gives a construction view of Shasta River Crossing No. 3 on the Pacific Highway. The bridge is a reinforced concrete arch structure of spectacular proportions and design.

Modern child (seeing rainbow for the first time)—
"What's it supposed to advertise, dad?"—*Passing Show.*

Registration Fees Are Apportioned to State and Counties

BASED on the registrations of motor vehicles to be found on page 22 of this issue, the Division of Motor Vehicles announced that the total apportionment of motor vehicle fees for the year 1930 to the State Highway Department and the various counties to be used for reconstruction and maintenance of highways totaled \$6,775,073. Of this sum, \$3,387,536 goes to the State Highway Department and the remaining half or \$3,387,536 goes to the counties, each county receiving its share in proportion to the number of vehicles registered shown below:

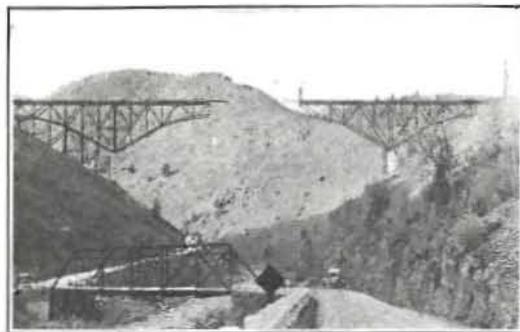
County	Total registrations	Counties share of apportionment
Alameda	148,381	\$233,435 90
Alpine	97	156 53
Amador	2,619	4,236 17
Butte	15,940	24,269 39
Calaveras	2,436	3,920 87
Colusa	4,863	7,847 21
Contra Costa	26,059	42,080 26
Del Norte	1,933	3,119 20
El Dorado	3,325	5,381 54
Fresno	61,312	98,926 48
Glenn	5,554	8,962 25
Humboldt	15,773	25,452 20
Imperial	25,548	41,225 68
Inyo	2,854	4,605 37
Kern	38,230	61,690 07
Kings	10,616	17,120 57
Lake	2,282	5,457 38
Lassen	4,125	6,656 23
Los Angeles	857,843	1,384,263 58
Madera	6,842	11,040 63
Marin	11,483	18,529 61
Mariposa	1,304	2,104 21
Mendocino	7,845	12,659 13
Merced	15,622	25,210 15
Modoc	3,165	5,091 68
Mono	482	779 40
Monterey	21,473	34,650 04
Napa	8,314	13,415 94
Nevada	3,473	5,604 23
Orange	51,681	83,395 36
Placer	9,410	15,194 19
Plumas	2,504	4,040 60
Riverside	31,718	51,181 94
Sacramento	49,279	79,519 37
San Benito	4,618	7,451 86
San Bernardino	48,755	78,073 80
San Diego	79,040	127,543 38
San Francisco	157,813	254,655 91
San Joaquin	40,800	65,837 17
San Luis Obispo	12,328	19,893 15
San Mateo	26,156	42,206 79
Santa Barbara	27,828	44,904 82
Santa Clara	58,784	94,857 16
Santa Cruz	15,703	25,329 24
Shasta	5,484	8,849 29
Sierra	813	1,311 90
Siskiyou	8,775	14,159 83
Sclano	14,381	23,205 99
Sonoma	27,603	44,541 75
Stanislaus	27,455	44,302 93
Sutter	6,424	10,366 13
Tehama	5,814	9,381 80
Trinity	774	1,248 97
Tulare	34,016	54,890 12
Tuolumne	3,236	5,221 79
Ventura	22,752	36,713 80
Yolo	10,164	16,401 20
Yuba	5,184	8,365 19
Totals	2,099,293	\$3,387,536 93
Exempts	37,337	
Total registrations	2,136,630	

Bridging Shasta Canyon Marks Monumental Highway Undertaking

ONE of the most monumental highway undertakings now under way in the United States is the relocation of the Pacific Highway along the Shasta River in Siskiyou County, California.

This project is of particular interest for these reasons:

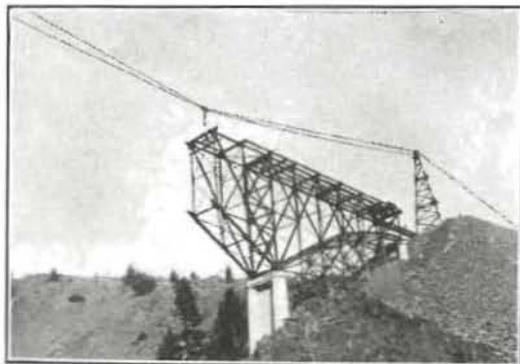
First, it completes on the California side



View showing Cantilever Steel Deck Truss at Shasta Crossing No. 2. The deck of this bridge is 260 feet above the stream bed. The picture shows the present State highway beneath the new bridge.

an adequate interstate connection with Oregon. This is of importance to travel.

Second, from the point of view of the engineers, the project is symbolic of the new era in highway construction, an era in which the expenditure of very large sums of money in short distance projects is justified by rea-



View of Shasta Bridge No. 2 showing anchor arm in place, the beginning of a construction of the cantilever and the highline used in construction.



CHARLES E. ANDREW, Bridge Engineer, Division of Highways.

son of heavy traffic, the large total savings that the improvement will afford to travel, and the increased measure of safety that the betterment will assure.

The Shasta River project is $7\frac{1}{2}$ miles in length and, except for the first two miles, lies entirely in the Shasta and Klamath River canyons.

A PUZZLING IMPROVEMENT PROBLEM

The original state highway built in 1915 had become entirely inadequate for travel. Although built to what were considered satisfactory standards at the time of its construction, traffic of today found its short tangents, short radius curves, adverse grades and width of only 16 feet both inadequate and

dangerous. Its improvement, however, presented a puzzling problem to engineers.

On the one hand, reconstruction of the road to present day standards on the alignment of the old road was prohibited by the natural restrictions of the Shasta River Canyon.

On the other hand, the relocation of the road involved enormous expenditures because

267 feet above the river bed, and is of sufficient height above the river to clear the State Capitol were it placed beneath it. The cost of grading and surfacing the connecting road is estimated at \$608,400.

The average per mile cost of the project, including highway and bridges, accordingly will approximate \$150,000.

SOME INTERESTING COMPARISONS

Compensating for the cost of the project is the improvement that it affords. Here are some interesting comparisons:

	<i>Old Road</i>	<i>New Road</i>
Length	9.37 miles	7.46 miles
Total angles.....	3659 degrees	1205 degrees
Number of curves.....	137	25
Maximum radius.....	1500 feet	5000 feet
Minimum radius.....	50 feet	400 feet
Maximum grade.....	7 per cent	4.14 per cent
Adverse grade.....	248 feet	146 feet

Added to this is the vastly greater scenic attractions of the new location.

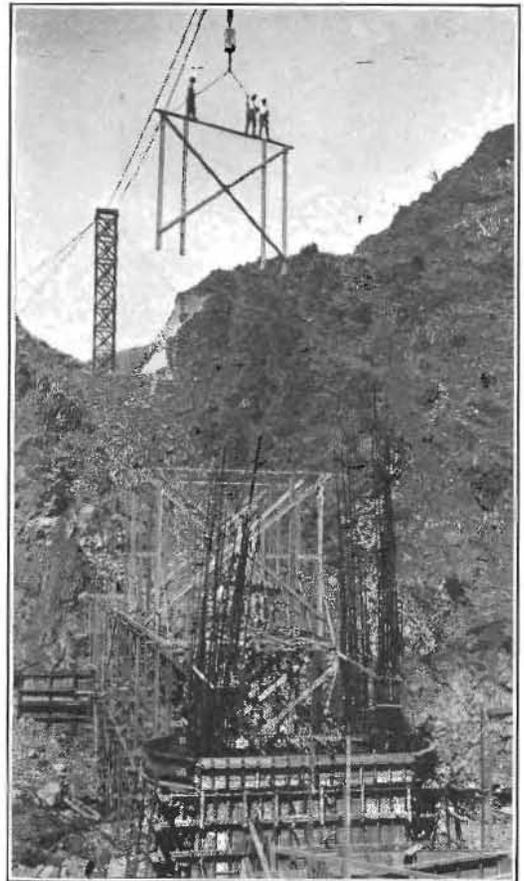


Placing a column form on Shasta Bridge No. 3. The reinforced arch has been partly poured.

of the rough and precipitous nature of the country, its high cliffs and rock so hard that it was both difficult to drill and extremely destructive to grading equipment.

The engineers had to choose between a low grade road involving the construction of tunnels, or a higher grade line, cutting with bridges across both the lateral canyons and the main canyon of the Shasta River. The latter plan was chosen.

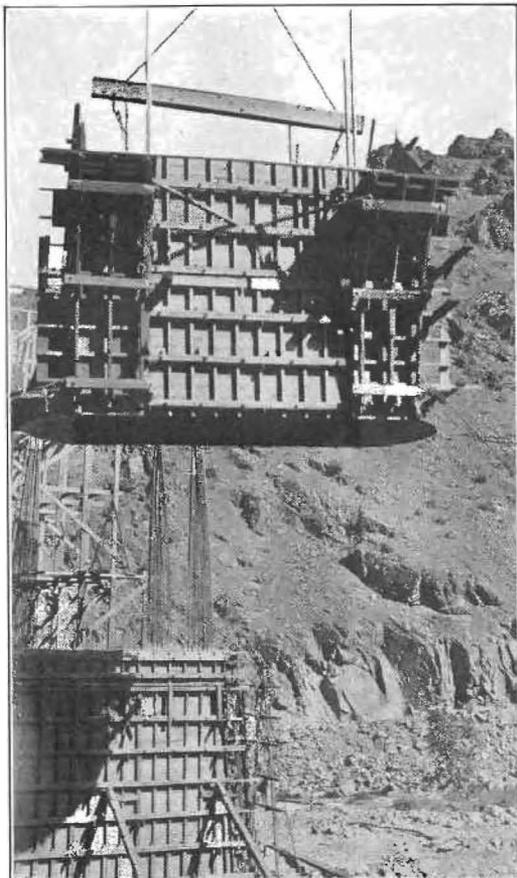
Under the plan as adopted, five bridges across these canyons have been completed or are now in course of construction together with the connecting highway. The total cost of these bridges will approximate \$467,000. The deck of the highest of these bridges is



Constructing false work for the arch on Shasta Bridge No. 3.

HOW TRAVEL WAS DETOURED

One of the important features of early construction was the preparation of suitable detours. Insofar as possible, the old road was used. In several locations, however, it was necessary to leave the old road and cross to the other side of the Shasta River. This not only required the construction of a new



Placing a center pier form on Shasta Bridge No. 3. This form contains reinforcing steel in place. The weight of the form with the steel is 8 tons.

road, two miles in length, 16 feet in width and with an oiled rock surfacing, but it also made necessary the construction of three temporary detour bridges across the Shasta River. These detour roads and bridges have served traffic in a most satisfactory manner.

After the road has been thrown open to travel, which it is believed will be about June, 1931, the old road will be cleared of debris, and left for the use of fishermen and local residents.

The beauty of the design of the bridges now being erected across the canyons of the

Shasta River has attracted widespread comment. Some details of these bridges will be of interest.

The first of these bridges to be constructed is known as Shasta No. 1 and crosses the Shasta River at a point about five miles north of Yreka. It is a reinforced concrete structure consisting of five girder spans supported by concrete piers and abutments. The total length is 250 feet and the roadway width 24 feet. This bridge was completed in November, 1929, at a total cost of \$28,200.

The second in the series crosses high above a narrow rock ravine known as Dry Gulch which feeds into the Shasta River location and is about five and one-half miles north of Yreka. This is also a reinforced concrete structure but of a different type than Shasta No. 1. The main span is a 200-foot open spandrel arch founded on concrete abutments resting on solid rock well up on the steep slopes of the ravine. Forty-foot girder spans on both ends connect the arch span with the roadway approach fills. The cost of the bridge was \$70,000. It was completed in December, 1930.

CLEARANCE FOR THE STATE CAPITOL

For the second crossing of the Shasta, about six miles north of Yreka, a structural steel bridge is being erected. This structure will consist of two cantilever arms, two anchor arms and a suspended span, each 138 feet long. In addition, 52-foot steel stringer spans at each end extend from the anchor piers to concrete bents set in the approach fills. The clear span between the main supporting piers of the cantilever span is 414 feet. The finished concrete roadway on the bridge will be about 267 feet above the river and 220 feet above the present highway. Between the roadway of this bridge and the river there is sufficient clearance to place the State Capitol.

The third and most northerly bridge over the Shasta River is about $7\frac{1}{2}$ miles north of Yreka and $2\frac{1}{2}$ miles above the mouth of the river. The reinforced concrete, open-spandrel arch type was selected for this crossing. The bridge consists of two 200-foot arch spans, two 40-foot and two 32-foot reinforced concrete girder spans. The construction of both this bridge, and that across the Klamath River about $2\frac{1}{2}$ miles north, was featured by rapid and careful work. It is expected that all work on both bridges will be finished in February. The estimated cost of Shasta River bridge No. 3 is \$98,000.

The Klamath River bridge is about 10 miles north of Yreka, just above the mouth of the Shasta River and near the northerly end of

(Continued on page 24.)

State Patrol Officers Are Given Widespread Praise for Courtesy

A. B. Saroni of Oakland writes the following letter to the headquarters of California Highway Patrol at Sacramento:

As I am a firm believer in giving credit where credit is due, I can not restrain myself from writing to advise you of the kindness of one of your State Patrolmen. On Wednesday, January 14th, was on my way to Sacramento where I was due at the U. S. Federal Court at 2 p.m. Between the town of Davis and the Causeway I blew out a tire. Just as this happened one of your State Patrol cars passed and I flagged it with the view of getting a ride into Sacramento in order to keep my appointment. However, the officer was not going into Sacramento but cheerfully volunteered to help me change my tire as I had explained to him the circumstances of my anxiety to be there on time, as I was a witness in a Federal case and I had been courteously granted a one-day leave of absence so that I might avail myself of the last duck hunt of the season, but only on the promise that I would return for the afternoon session of court on Wednesday.

This willingness and kindness on the part of your officer enabled me to reach Sacramento at the appointed time. The officer in question was State Patrolman Jacobs, and I wish to tell you at this time that I deeply appreciate his courtesy. It is highly praiseworthy that your men should be a little more than just interested in police work alone.

TRAFFIC OFFICER HELPED

The following appreciation of the manner in which Traffic Officer C. H. Nissen of Contra Costa County handled a traffic violation case was written by E. N. Deering of Dunsmuir:

We had occasion to be stopped by your Traffic Officer Number 98 for an infraction of the traffic regulations. It happened in Contra Costa County near Pinole. Now, in behalf of Mr. 98 I want you to know that he disposed of our case in a most gentlemanly and pleasing manner. I certainly believe him to be a credit to your department and I shall be very high in my praise for him and your department at all times. I should like to know what his name and address is if that isn't asking too much.

THANKS FROM STOCKTON

Under date of January 8th, the Down Town Association of Stockton writes as follows:

On behalf of the members and Directors of the Down Town Association of Stockton, I wish to thank you for the quick action that you took, to grant us permission to move the large Community Christmas tree to Stockton, and for assigning the two traffic officers to accompany it.

Words can not express our sincere appreciation, for your wonderful spirit of cooperation.

APPRECIATION FROM AMERICAN LEGION

This letter is from J. M. Yoakim, adjutant of the San Diego Council of the American Legion.

COL. GARRISON CHOOSES "363," ARMY NUMBER FOR HIS LICENSE PLATE

(From the *Stockton Record*)

SACRAMENTO, Jan. 27.—Is there luck in numbers? Colonel Walter E. Garrison of Lodi, now heading the important Department of Public Works in Governor Rolph's cabinet, thinks there is, and his choice is 363.

Going overseas with the famous 363d of the 91st Division in the World War, Garrison won rapid promotion and the *croix de guerre*.

Now prepared to go over the governmental top on good roads, a mammoth State building program, and schemes to meet the unemployment crisis, Garrison has chosen as his auto license number 363.

The San Diego County Council American Legion takes this opportunity to thank you, in behalf of the Legionnaires of San Diego County, for the motorcycle escort to the area meeting at Riverside January 11th.

We feel this was an honor shown us by the California Highway Patrol, and again we most heartily thank you.

AIDED HIGH SCHOOL BAND

The following letter is from the Board of Trustees of the Ventura Union High School District:

On behalf of the Board of Trustees of the Ventura Union High School District I wish to thank you for the fine services your department rendered on January 1st in conducting our School Band from Ventura to Pasadena. I assure you that we greatly appreciate this service and commend both you and your department very highly for it.

AID GIVEN IN ACCIDENT

S. M. Keene of Sacramento testifies in the following letter to aid given his wife:

My wife met with an automobile accident while driving between Sacramento and Folsom. Tom Taylor and Herb Bolton were on patrol at the time and rendered such wonderful service that I feel they are both worthy of a word of commendation to you, their superior officer. The efficient as well as courteous way in which they handled the emergency probably saved my wife much discomfort and there is nothing I can say that will express my appreciation to them, but I feel that such fine officers are what we need on the highways.

A. L. BANKS IS APPOINTED ASSISTANT TO MR. HERZ

A. L. Banks, for many years a prominent newspaperman of the San Joaquin Valley and recently city clerk of Stockton has been appointed assistant to James I. Herz, deputy director of the State Department of Public Works.

He: "My brow is lily white."

Her: "Yes, ivory is white, I know."

Pacific Highway Bridge Is Dedicated

AMID A fanfare of trumpets, the beat of drums, and the strains of music the half million dollar Cottonwood creek bridge was dedicated on January 17th, accepted by the State and thrown open to the traveling public.

State and county officials, civic leaders and 3000 citizens of all northern California counties gathered for the elaborate ceremony of dedication.

Earl Lee Kelly, chairman of the California State Highway Commission, accepted the bridge on behalf of Governor James Rolph.

In accepting the structure, Mr. Kelly spoke in part as follows:

We are assembled here today to dedicate this magnificent structure which shall be known for all time as the Cottonwood bridge.

This bridge forms one more link in the chain which binds the people of Redding, Anderson, Cottonwood, Red Bluff and Corning more closely together. It not



Subway at end of North Approach to Cottonwood Creek Bridge.

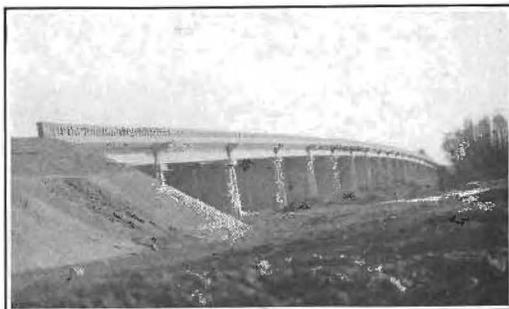
only brings the people of our own local communities more closely together, but it forges another link in the chain which connects the ends of the Pacific highway and extends from the Canadian line to the Mexican border.

I am proud today to stand before my friends and neighbors and, speaking as the chairman of the California State Highway Commission, accept this bridge on behalf of Governor Rolph and his administration.

I deem it a privilege to be assigned an active part in building and maintaining the roads of our State which roads and highways have contributed so largely to making California what it is today.

I know that I speak for all members of the California Highway Commission when I say that we are determined that the period for which Governor Rolph has entrusted us with responsibility in State highway matters shall be years of active development.

In a period of unemployment such as we are having at present it is the duty of those in charge of public



The New Cottonwood Creek Bridge.

works to expand their program. This we intend to do, which will result in the relief of the personal distress of large numbers of our deserving citizens.

I desire to say that our every effort will be exerted to reflect credit upon our new governor and to assist him in making the next four years outstanding in the history of California—an era of friendly, sound and economical businesslike administration.

And in the building of our highways, and particularly in the dedication of this bridge which event we are celebrating today, I am reminded of

"The old man, traveling a lone highway,
Came at the evening, cold and gray,
To a chasm vast and deep and wide.
The old man crossed in the twilight dim,
The sullen stream had no fear for him.
But he paused when safe on the other side
And built a bridge to span the tide.
'Old Man,' said a fellow pilgrim near,
'You are wasting your time with building here;
You've crossed the chasm vast and wide,
Why build you this bridge at evening tide?'
The builder lifted his old gray head,
'Good friend, in the way I've come,' he said,
'There followeth after me today,
A youth whose feet must pass this way;
This stream that has been as naught to me,
To that fair haired youth might a pitfall be;
He, too, must cross in the twilight dim—
Good friend, I'm building this bridge for him.'"

And so it is with us my friends, we are building these beautiful highways and magnificent bridges, not only for ourselves, but for those who are coming and are yet to come. And hope that you and they, may be able to say of Governor Rolph and his administration that we have built wisely and well.

Governor Rolph Telegraphs Regrets

In a telegram expressing his regret at being unable to attend the dedication exercises, Governor Rolph said:

I greatly appreciate the invitation which your board, through you, has extended to me to participate in the opening and dedication of the Cottonwood Bridge, connecting Shasta County with Tehama

(Continued on page 19.)

Don't Tamper with Gasoline Tax Moneys

By COLONEL WALTER E. GARRISON, Director of the Department of Public Works

The following article was written by Colonel Garrison in response to a request by the California State Automobile Association for an expression of Colonel Garrison's views for publication in *Motor Land*, on the subject of suggested diversion of gasoline tax funds to uses other than to which they are not devoted. The article appeared in the current issue of *Motor Land*.

THE question has been asked me by the California State Automobile Association as to my attitude toward suggested changes in the allocation of revenues derived from gasoline taxes.

My answer is that I am opposed to using any part or portion of the three-cent gasoline tax for any purpose other than that for which it is being used at the present time.

The reason for my position in this matter can be stated very briefly: The highways of California need every cent of income that they are now getting from gasoline taxes, and this need will continue for some years yet to come.

I do not think that the need of the counties for the funds they receive from the one-cent gasoline tax apportioned to them for use upon local roads will be seriously disputed.

The study that has just been concluded of the requirements of the state highway system for the next ten years furnishes convincing proof that gasoline funds can not be diverted from the state highway system without serious delay and impairment of the road building program with consequent injury to the whole state.

It may be well to summarize again the findings of this important investigation.

Thus during this ten-year period, concluding with 1940, it is estimated that \$313,565,906 must be expended for construction and reconstruction projects on the state highway system. This sum is exclusive of maintenance or the improvement of roads that will undoubtedly come into the system at this session of the Legislature. These additional roads alone will ultimately cost \$71,387,655 for their improvement. The total income for construction and reconstruction of eleven miles same period is estimated at \$320,352,175. Certainly there is no undue surplus here.

I fully endorse the statement of State Highway Engineer C. H. Purcell, who, in commenting on this study, said:

Comparison of these carefully prepared estimates

of cost and revenue, derived independently of each other, leaves no doubt that, with revenues as now made available, a very cautious and conservative program must be pursued in state highway improvement and that any other course or a diversion of highway funds to other purposes will jeopardize the program of improving and constructing the state highways to a capacity adequate to take care of traffic developing during this ten-year period.

The public mind has not yet fully adjusted itself to the fact that highway construction and highway expenditures must be relative to the traffic demands to serve which highways are built.

We hark back to the days of the early bond issues, and think that because of the greatly increased revenues that the gasoline taxes are giving us, that there must be a surplus of highway funds.

We fail to remember that in a twenty-year period automobile registration in California has increased from slightly over 10,000 registered motor vehicles to over 2,000,000, and this huge increase in the use of our highways has made it necessary to build and maintain roads to standards of safety and traffic capacity both undreamed of and unnecessary in the days of lighter travel and lesser financing. We forget that were it not for the larger and continuous income that the gasoline tax funds have given state highways, the system would have completely collapsed years ago.

This is not a plea for more money for our state highways. I realize the heavy burden of taxes under which the people of California are laboring. I believe that our present revenues are adequate to do the work required within a reasonable period of time. I know, however, that the revenues now going to the highways can not be decreased by diversion of funds or otherwise, without serious injury to the state. Today, as never before, the growth and prosperity of California are dependent upon adequate highway transportation.

Nor do I mean to minimize the desirability of some of the purposes to which it has been suggested that gasoline tax funds be diverted. The more important of these purposes are now being cared for in an orderly manner out of present highway income. Others are and should be secondary to the big job now before us, that of completing our state highway system.

In this connection it may be of interest to know the status of the state highway system in

(Continued on next page.)

Architects at Work Speeding Up State Building Activities

IN PURSUANCE of the policy of Governor Rolph to speed up the construction of public buildings as a means of bettering business and relieving unemployment, Colonel Walter E. Garrison has appointed architects in private practice throughout the State to prepare plans and specifications for a number of projects included in the institutional building program. The appropriation bill providing funds for the work was passed by the Legislature at the request of Governor Rolph before the legislative recess. The employment of private architects will make plans available for contract many months in advance of the time that would be required had all these plans to be prepared by the Division of Architecture.

Architects who have been thus appointed up to February 15th and the buildings upon which they are preparing plans and specifications are as follows:

Russell Guerne De Lappe, Oakland; dairy unit, Preston School; appropriation, \$40,000.

Fred L. Swartz and C. J. Ryland, Fresno; library, Fresno State Teachers College; appropriation, \$125,000.

William H. Wheeler, San Diego; gymnasium and pool, San Diego State Teachers College; appropriation, \$155,000.

Peter L. Sula, Stockton; remodel kitchen, etc., Stockton State Hospital; appropriation, \$65,000.

Franklin T. Georgeson, Eureka; training school, Humboldt College, Arcata; appropriation, \$170,000.

Ralph Wyckoff, San Jose; training school, San Jose State Teachers College; appropriation, \$202,000.

Charles F. B. Roeth, Oakland; primary unit and dining room, California School for Deaf, Berkeley; appropriation, \$242,000.

Frederick H. Meyer, San Francisco; hospital, Veterans Home, Yountville; appropriation, \$500,000.

Charles F. Dean, Sacramento; California National Guard, Yuba City Armory; appropriation, \$25,000.

Chester Cole, Chico, library and class rooms, Chico State Teachers College; appropriation, \$117,000.

Frederick H. Eley, Santa Ana; superintendent's cottage and ward building, Narcotic State Hospital, Spadra; appropriation, \$55,000.

G. Stanley Wilson, Riverside; dairy unit, Patton State Hospital; appropriation, \$25,000.

Gilbert Stanley Underwood Company, Limited, Los Angeles; ward building at the farm, Norwalk State Hospital; appropriation, \$75,000.

Walker and Eisan, Los Angeles; dairy unit and patients farm cottage, Pacific Colony, Spadra; appropriation, \$75,000.

Bennett and Haskell, Pasadena; National Guard Armory, Pasadena; appropriation, \$50,000.

No one is useless in the world who lightens the burden of it for anyone else.—*Dickens.*

Ask Grade Crossing Driving Law Be More Vigorously Enforced

THE need for a more vigorous enforcement of section 114, of the California Vehicle Act, requiring motorists to stop before crossing railroad tracks when a danger signal is being displayed indicating the immediate approach of a train by municipalities throughout the state as a means of reducing grade crossing accidents, was stressed by the Railroad Commission in a decision rendered by Commissioner Leon O. Whitsell in a proceeding involving crossing protection in the city of Burlingame.

A recent report of Mr. Joseph G. Hunter, chief transportation engineer of the Railroad Commission, points out the fact that over one-half of the grade crossing accidents in California occur at protected crossings, including many accidents at grade crossings protected by gates. A large proportion of the accidents at crossings result from motorists trying deliberately to beat the train over the crossing.

DON'T TAMPER WITH GASOLINE TAX MONEYS

(Continued from page 8.)

terms of improved and unimproved mileage. The following table tells this story, and depicts the task yet before the people of California:

Type	Percentage of	
	Mileage	System
Cement concrete.....	1607.315	25.3
Asphalt concrete.....	573.788	9.1
Bituminous macadam	410.148	6.5
Oil-treated armor, crushed oil mix, gravel or stone miscellaneous...	1502.165	23.7
Rock surface	388.406	6.1
Earth	1830.688	28.9
Bridges	24.565	0.4

With this whole picture before us I feel certain that the motoring and taxpaying public of California will agree with me that any diversion of gasoline tax funds from their present uses would be most unwise and would serve to injure rather than advance the well-being of California.

CAN PARK IN THIS TOWN

Ground plans for the town to be built near the site of the Hoover Dam on the Colorado River have been worked out along lines providing ample parking space for automobiles with the object of keeping idle cars entirely off the streets.

New Bridge Entrance Into San Diego



The Rose Canyon Bridge.

ROSE CANYON BRIDGE, 50 feet wide and 210 feet long, recently completed at a contract cost of \$30,515, lies on the newly constructed Rose Canyon line change north of San Diego. This line change reduces travel distance approximately five miles and corrects slow speed alignment

between Los Angeles and San Diego sufficiently to reduce travel time approximately twenty-five minutes. It is roughly estimated that the present yearly saving to traffic is equivalent to 5 per cent interest on \$7,000,000, which latter sum is more than twenty times the total cost of building the road.

Highway Worker is Drowned; Companions Have Narrow Escape

AVIGILANT search was being made along the rocky coast line of Lime Kiln Canyon, north of Willow Creek, Saturday, for the body of Albert B. Castro, 28, who drowned trying to beach a boat near the Roosevelt highway convict camps, says the *San Luis Obispo Telegram*, under date of January 24th.

He was one of the engineering crew for the California Highway Commission which has been making surveys for a new San Simeon-Carmel road camp about 10 miles north of Willow Creek. He was swept out to sea by an undercurrent while attempting to swim to shore.

Accompanied by Kenneth Ackley, Tom Neff, Lloyd Jackson and William Owens, the young man had been at San Simeon since Wednesday, waiting for favorable tides before attempting sail by motor launch up to the canyon site and land supplies for the new camp.

They were warned by C. R. Burns, locating engineer, to await calm weather before making the trip; he continued on horseback to the isolated camp to await the boys' arrival by launch.

At about 5 o'clock Friday morning they left from San Simeon Bay by launch with weather and tide favorable.

According to highway officials, Castro had been working with the Commission for the past eight years and had proved himself particularly adept at making difficult landings among the rocky and treacherous shores which extend along the north coast into Monterey County.

SEA ROUGH

However, when the five boys reached the canyon landing the sea had turned rough and waves were lashing the little cove where they had planned to land.

A landing had been successfully made at the same place once before and Castro and Kenneth Ackley decided to swim ashore.

Burns was above the launch on the hillside watching the boys in their efforts, and threw a rope to their assistance. Ackley made the first dive but missed the rope and was caught with the tide and carried into the cove where he grasped a rock, to which he clung.

Castro saw Ackley go into the cove and began swimming towards him when he was suddenly caught in an undertow and his body swept from sight.

ACKLEY RESCUED

Ackley was rescued from the rock and is receiving treatment at the prison camp from the shock and exposure. Search for Castro's body has been continued since the fatal accident, but little hope is held for its recovery along the desolate and rocky coast.

Although exhausted from their battle with the waves and horrified at the tragic ending of their trip, the three remaining boys turned the launch back toward San Simeon to make a report of the accident. They reached San Luis Obispo about 5 o'clock and notified highway officials here.

A young salesman whose wife was making a prolonged visit at the home of her parents became quite excited on receiving the following telegram: "Twins arrived, doing fine, more later."

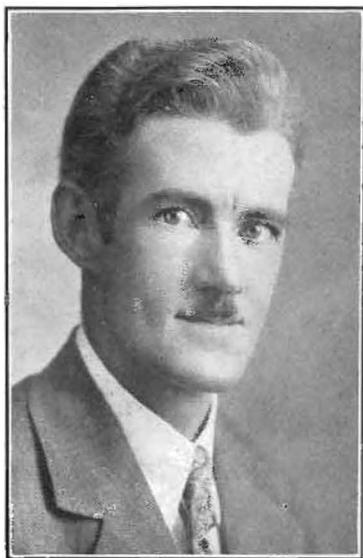
He rushed to the nearest telegraph office and wired to his wife:

"My gosh, kid, countermand later order, two is plenty."

Electrical Systems In State Institutions

By WALTER M. CALLAHAN, Electrical Engineer, Division of Architecture

A VISIT to any one of the major institutions of the State of California is in most instances quite interesting and novel to one on his initial visit. The impression formed is obviously contingent upon the type of institution; i.e., whether it be a hospital for the insane, a prison, a juvenile mental hospital or corrective institution, or a State



WALTER M. CALLAHAN

Teachers College. The individual inclinations of the visitor are also to be considered, as one visitor may be interested in the style of architecture of the buildings, another may particularly note the arrangement of the buildings, roads and walks, while still another may

observe the actions of the patients, inmates or students. Whatever the impression may be, it will doubtless be prompted by certain definite visible objects which we might refer to as being "on the surface."

THE THINGS NOT SEEN

Within the structures and under the ground of all State Institutions, as well as any other centralized group of buildings or buildings of similar functions, there are items which are necessary to insure safety of building structures, modern conveniences for the occupants, sanitary and other indispensable features, which promote the efficient performance of the functions of the institution. These items are often unobserved by the visitor in spite of the fact that considerable forethought and engineering study is involved in the original design. Such items as a safe structural design, water development and its distribution

for both irrigation and domestic usage, sewage disposal, heating and its distribution, electricity for lighting and power, are all essentials, and all are necessary in making up a complete plant.

ELECTRICAL INSTALLATIONS

Electrical installations in a major State institution consist of many branches, each of which requires considerable study to adapt the system to the routine functions of the institution. The particular application of any electrical system depends largely upon the type of institution. It is in this connection that the Division of Architecture is frequently called upon to develop special systems of electrical apparatus and control in order that a definite function desired by the institution authorities may be accomplished. The past experiences of the Division of Architecture in this regard, together with a general knowledge of the routine functions of the particular institution involved, is of material importance and results in a satisfactory and efficient installation at a minimum cost to the State.

THE VARIED WORK OF LIGHTING

To convey a general idea as to the varied items involved in the numerous branches of the electrical installations, it will be enlightening to briefly consider some of the cases in detail:

1. General illumination is provided in practically every building structure. The type of equipment and intensity of illumination is governed by the type of structure as well as the need of the occupants. This portion of the electrical installations is probably the most diversified of all the branches, as it involves problems in lighting of cell blocks in prisons, class rooms in schools, hospital wards, children's study rooms, and recreational rooms. Floodlighting is, in many instances, used for precautionary purposes in penal institutions and for artistic applications on or around monumental buildings and surrounding grounds. A complete system of grounds lighting is usually provided for all major institutions. Modern stage equipment and lighting is an integral part of all auditoriums in which motion pictures and theatrical performances are shown. Drafting rooms and various testing laboratories which require high intensity, properly diffused, and equal distribution of illumination, are given thorough study and treated so that the eye will function at the maximum degree of efficiency. In fact, every problem of artificial illumination is given thorough consideration and study before a final decision as to the type of installation is reached.

2. The pumping of water, both for domestic purposes and water for irrigation and fire protection,

involves the installation of electric motors and their automatic control equipment.

3. Refrigeration plants play an important role in all institutions for the reason that in practically every instance the institution is somewhat isolated from the centers of population, thus necessitating the storage of food and perishable commodities. It is essential that the electrical equipment used in conjunction with refrigeration be installed in such a manner as to reduce the possibility of failure to a minimum.

4. Laundry machinery and equipment involves a multiplicity of electrical controls for efficient operation.

5. Various local industries which are carried on in the Institutions each require individual investigation. Fruit and vegetable canneries, jute mills, broom and basket weaving factories, shoe shops, printing plants and other minor industrial activities have certain definite requirements for electrical drives and controls.

6. Provisions for telephone, fire alarm and miscellaneous signal systems are provided as required.

7. The item which requires the greatest forethought and study is that which involves the distribution of power, telephone and signal systems throughout the institution grounds, interconnecting all buildings and isolated units under a common main distribution service, originating at a central source of supply. These

Highway Patrol Asks Medal for Brave Rescue by Checker

BECAUSE of heroic conduct displayed in rescuing two persons from drowning in the waters of Donner Lake, Tony Beard, Sacramento Junior College student, employed last summer by the State as a border checker, has been recommended for a Carnegie award from the Carnegie Hero Fund Commission by the California Highway Patrol.

The application of the patrol on behalf of the 21-year-old student has been signed by Governor Rolph, Lieutenant Governor Merriam and other prominent persons and is now being considered by the commission.

Young Beard risked his life on two occasions last summer to pull drowning persons from the lake. On the first occasion he rescued Mrs. Leida Brown from



Ward-Kitchen-Steam Plant Building at Agnews State Hospital.

services are, however possible, installed underground in fiber ducts encased in concrete which eliminates the expense incurred by the deterioration of overhead pole line construction.

PLANNING FOR THE FUTURE

In contemplating the layout for an underground distribution system, it is advantageous to be aware of the future development of the institution. The ten-year building program, under which the Division of Architecture is now operating, anticipates the future requirements of the various institutions and furnishes pertinent information to be used as a basis for the design of a distribution system. With this information in mind, it is possible to design and provide facilities of sufficient capacity for the ultimate project. This prevents the installation of a series of small individual services to care for the immediate needs, the combined costs of which would far exceed the cost of a single service of sufficient capacity.

drowning and revived her after several hours of resuscitation. Evidence was not presented to the commission in this case, however, as witnesses could not be found.

The second incident occurred on August 8th when John Van Ek, Oakland insurance agent, and another man named Warner began struggling in the lake while swimming and sank to the bottom. Beard sprang into the water with his clothes on, broke the two men apart and was dragging Van Ek out when a Negro boy who had arrived in a boat to assist in the rescue sprang into the water and lost control of himself. Beard was then compelled to drag both the Negro and Van Ek to the bank.

The Negro revived but several hours of resuscitation failed to revive Van Ek and he perished, as did Warner.

After applying artificial respiration for an hour Beard collapsed and was unconscious for four hours.

The design of a distribution system also requires negotiations with the public utility companies in order that the rate upon which the cost of electric energy is based will be the one most favorable to the State.

Shade Trees Are Saved in Highway Widening Operations

HERE are news items concerning shade trees along the State highway system that will meet with enthusiastic approval.

The first article, an editorial in the *Stockton Independent*, reads as follows:

Here is cheering news to all tree-lovers of San Joaquin County and particularly those residing in the Lockeford-Clements section.

State Highway Department has announced that it seems likely that not ten of the fine trees along the Lockeford-Clements highway will have to be disturbed in the work of widening and improving the road, which runs from the Waterloo Road to a point one mile east of Clements. Mr. Pierce states that it is the policy of the Highway Commission to preserve trees whenever possible.

Nearly all Stockton people will remember the fine old trees on the Lockeford-Clements road running in front of the W. S. Montgomery place, where about 1000 splendid trees makes a magnificent avenue.

It is gratifying to know that but a very few of the trees will be disturbed, as they are a valuable asset to the county and every means should be taken to preserve them.

The second article is a news dispatch from Bakersfield, and tells the following story:

BAKERSFIELD, Feb. 2.—The Board of Supervisors today, by unanimous vote, made possible the consummation of a plan to adorn with shade trees the highway from the north line of the county to the Famosa crossing, a distance of ten miles, this being the first step in the creation of a shaded avenue from Delano to Bakersfield.

The matter was presented to the board by Alfred Harrell, who reviewed briefly the history of the movement, which he said had its inception in a resolution passed by the Woman's Club of Bakersfield something more than a year ago. In their behalf, the speaker said he had taken up the project with the State, ascertaining that tree planting was stopped because of the narrowness of the right of way, it being necessary to increase the width of such right of way from sixty to ninety feet.

I like to watch the rooster crow,
He's like so many men I know
Who brag and bluster, rant and shout,
And beat their manly chest without
The first damn thing to brag about.

NATIONAL—Traffic planning, regulation and control are advocated by the National Safety Council in speeding up traffic in metropolitan districts during the busy hours of the day.

COLORADO—Over one hundred road building projects involving the expenditure of more than \$6,000,000 are under way in this state. The projects, part of the largest road building program ever outlined in Colorado, are being pushed by highway officials to relieve unemployment.

"ALIMONY SAM," BUDDY OF DIRECTORS IN FRANCE, RENEWS ACQUAINTANCE

(From the *San Francisco Call*.)

Colonel Walter Garrison, director of public works, and James Herz, his deputy director, were reminiscing over wartime days in France when a man walked into their office and shouted the greeting:

"Hello buddies!"

It was Sam Reid of Willows, former buck private in the 363d Infantry, in which Director Garrison served as major and Herz as sergeant-major.

Reid gained national attention two years ago when he went to jail for several months as an alimony martyr in Glenn County, and since then he has borne the sobriquet of "Alimony Sam."

"Buddies," Sam proclaimed, "I'm broke. I've hardly eaten for the last two weeks. I don't want charity; I want work—anything."

"Sam," Colonel Garrison answered, "all we have is road work, at \$4 a day, and only three days' work a week at that. It's hard labor—pick and shovel—"

"I'll take the job, and mighty glad to get it!" interrupted Sam Reid.

Accident Percentage Higher In Country; Speed Is Cause

INDICATIVE of the fact that excessive speed is a contributory cause to fatal motor accidents, the California Highway Patrol today made public the results of a survey showing that while more accidents occur in cities of the state, the percentage of deaths in the rural districts on the open road is greater than in the cities.

Pointing out that the greater the speed, the greater the chance of death if an accident occurs, the patrol's survey shows that although 50.8 per cent of all fatal motor accidents occurred in cities during the last two years, these accidents account for but 48.9 per cent of the total number of persons killed.

On the rural roads, where the motorist is tempted to exceed the speed limit, 49.1 per cent of the accidents account for 51 per cent of the deaths. The figures show that in cities 1.049 persons were killed per accident where a fatality occurred, while in the country where speeding is indulged in, 1.131 persons were killed per accident.

Collisions at speeds less than 40 miles an hour may or may not result in fatalities, it was stated, but collisions at greater speeds are almost sure to result fatally.

Traffic Enforcement Must Be Consistent If It Is To Be Effective

By E. RAYMOND CATO, Superintendent of the California Highway Patrol

Captain E. Raymond Cato of the Los Angeles police department was appointed recently by Governor Rolph as superintendent of the California Highway Patrol. Captain Cato brings to his new position the experience of more than twenty years as a peace officer and police executive. In this article, he outlines some of the policies by which he will be guided in his new position.

STEADY, consistent enforcement of the traffic laws, unmarked by spasmodic "raids" and "campaigns," will be the policy we shall strive to carry out in administering the affairs of the California Highway Patrol.



Captain E. RAYMOND CATO

We have no sure-secure remedies or specifics to offer as a solution of our traffic problems. We believe that as long as motor vehicles continue to run on the public highways we will have traffic problems. At best we can only hope to mitigate the evils that exist by studying these problems carefully and by giving the best that is in us toward making the highways safe.

Therefore, we will "carry on," doing the best we can, hopeful of receiving the cooperation of the motoring public, knowing that 90 per cent of the fight is to awaken the individual driver of a motor vehicle to a sense of his responsibility.

Personally, I can see little merit in emphasizing one kind of enforcement at the expense

of another. We have a tremendous problem in headlight enforcement but we cannot devote all of our time to headlights and let reckless and intoxicated drivers escape. A mixed program with officers on the alert for all types of violations is better, in my opinion.

This does not mean that we are going to ignore the headlight problem. We shall continue to devote one night a week to this work. It is my hope to be able to augment the various squads in time so that we may have sufficient men to keep a regular night patrol on duty all the time.

There is a vast field for study by specialists in the construction of lights. Nothing absolutely satisfactory has been evolved as yet but some one may find a way to keep headlights from getting out of adjustment so easily. When that day comes the problem will have been solved to a large extent.

It will be our policy to keep the major part of our forces on the main-traveled highways. We will work on the theory that more men are needed where there is more travel. In extraordinary cases, such as fiestas, football games, etc, we will not hesitate to avail ourselves of the provisions of the law permitting us to move our men from one point to another.

I do not agree with those who would remove all speed restrictions from our laws and allow the motorists to run wild. I regard a maximum speed limit as absolutely essential. It is too important a matter to be left open for discussion as to what constitutes a safe speed and what does not.

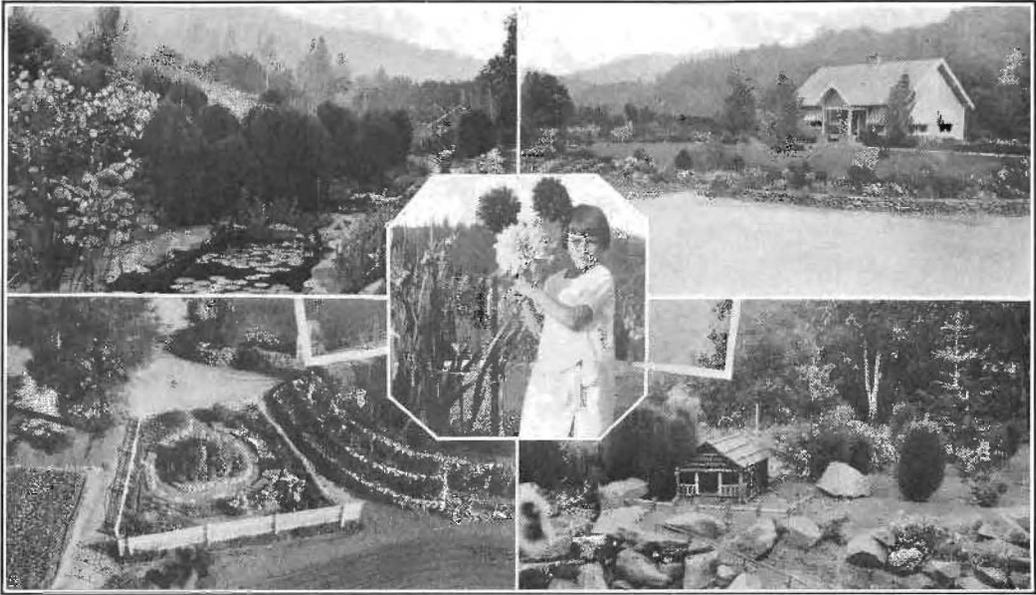
It is possible that some plan might be worked out by the legislature whereby higher rates of speed than are now permitted might be allowed on the open road under some conditions. I do not know whether 40 miles an hour is the maximum that should be allowed but I know some maximum should be established.

As for the patrol, we shall enforce the speed laws as set down in the motor vehicle act.

We shall insist that our officers exhibit the utmost courtesy toward the motoring public. But in doing so they must not overlook offenses endangering life and property. Many cases will arise where it will be entirely up to the officer's judgment to determine

(Continued on next page.)

Model State Highway Maintenance Yard



THE WORK of Highway Maintenance Superintendent L. C. Evans in beautifying the Douglas City, Trinity County, maintenance yard deserves especial commendation.

The yard occupies a site that was originally nothing but a rock pile. In four years Super-

intendent Evans has turned it into a veritable garden. This improvement has been practically no expense to the State and is, for Mr. Evans, a work of love.

The above photographs illustrate, the beauty of this yard. The daughter of Mr. and Mrs. Evans appears in the center.

TRAFFIC ENFORCEMENT MUST BE CONSISTENT IF IT IS TO BE EFFECTIVE

(Continued from page 14.)

what course he shall take. He must be guided by circumstances but in the main his guide is the motor vehicle act and he must deal with violations in a stern manner.

To the men themselves I will say that I am one of your organization in the California Highway Patrol and am for you when trying rightfully to perform your duty.

One thing I will insist upon and that is that members of the patrol keep themselves out of local political fights. The men are servants of the state and not political bosses. As members of the patrol they should have no interest in local politics.

We shall insist that the men pay careful attention to their personal appearance and condition of equipment. An efficient officer

can be noted by the exhibition of his personal pride in this manner.

The patrol has an ideal to attain, a tradition to live up to for it is an intricate part of our state government. We are not living up to the patrol standard if uniforms are allowed to become unkempt or if duties are performed in a slovenly manner.

We ask the cooperation of the men and the motoring public.

STOP, LOOK, LISTEN

He heard the toot, but tried to scoot
And beat the choo-choo to it.
The poor galoot now twangs a loot,
Take heed that you don't do it.

New Yorker (incredulously)—"And you mean to say that in California you have 365 days of sunshine a year?"

Man from Los Angeles—"Exactly so, sir, and that's a mighty conservative estimate."—*Stray Bits.*

Recommendations Made for Irrigation District Financing and Refinancing

AS a result of the study by a commission appointed in the spring of 1929 for the purpose of securing a definite method whereby the financing and refinancing of irrigation, reclamation and other public improvement districts may be put on a better credit basis, recommendations have been submitted to the Legislature which, if approved, should be of the utmost importance to the entire irrigation situation, both from a financial and a public standpoint.

Members of the commission signing the report are Will C. Wood, former State Superintendent of Banks; Edward Hyatt, State Engineer; U. S. Webb, Attorney General of California; Fred W. Kiesel, Sacramento banker; Charles E. Maclean, San Francisco banker; W. P. Jeffries, Los Angeles banker.

Charles L. Childers, El Centro attorney, also a member of the Commission, approved the report with certain reservations. These reservations will be found at the conclusion of this article.

Of primary importance in the majority report is the recommendation for the enactment of legislation which will assist in the refinancing of distressed districts organized under existing statutes and, secondarily, the elimination of such defects in future district organizations as have contributed to failures in the past.

One of the most important recommendations of the commission is that legislation be enacted creating a state irrigation and reclamation bond fund, to which \$5,000,000 shall be appropriated.

STATE RELIEF FUND PROPOSED

This money is intended to be used for the purchase, under certain conditions, of refunding bonds of reclamation and irrigation districts in amounts that will enable the districts to take up that amount of maturing bonds found to be in excess of the district's ability to pay during a year, and which likely would be the chief cause in necessitating a refunding issue. The mechanics of the operation of the bond fund would be placed in motion by application to the California Bond Certification Commission by any irrigation or reclamation

district for relief, on account of a too heavy program of bond maturities.

While the commission finds that fundamentally the present laws are sound, difficulties have been encountered in the operation of these statutes, traceable principally to their application and the lack of adequately supported agencies or means to make them effective, and changes in the laws are strongly advised:

1. To prevent as far as possible unwarranted depreciation in the credit standing of irrigation and reclamation district securities;
2. To establish the confidence of the investing public in these securities, and,
3. To strengthen the individual borrowing power of the land owners within such districts.

LACK OF PUBLIC CONFIDENCE

Primarily, depreciation, lack of borrowing power and loss of confidence may be accounted for by the abnormally depressed conditions of agriculture. This situation has brought to light faults in economic analysis and legislation which under normal conditions would not have developed. The confidence of the investing public in these securities, therefore, has been shaken and the ability of even sound districts to finance through the sale of bonds, under present conditions, is impaired seriously. This skepticism is due largely to the experience of the investor with defaulting securities and is attributed in part, the commission in its report to the governor and the legislature says, to the following:

1. In case of default the laws provide no practical recourse or remedy;
2. Periodical reporting is either not required or is so irregular that accurate district information is frequently unobtainable;
3. Certification by the bond commission or approval by the superintendent of banks, due to lack of personnel, finances, and authority, has not always carried the assurance of a comprehensive study of economic soundness.

Rectification of these difficulties in the case of future bond issues, the commission reports, may be accomplished through legislation supported by adequate appropriation, but the amount of these securities now outstanding, their loss of credit and the rapidly approaching necessity for refunding in many instances,

makes solution or alleviation of existing district difficulties the major problem.

AGRICULTURE HELD BASIC

The commission urges that as agriculture is so basic to this state's prosperity that its success is vital to the welfare of every community within its boundaries, every assistance, other than subsidy, that can be legally given should be rendered.

Details of the commission's recommendations follow:

1. That the California Bond Certification Commission be given power to extend to reclamation districts any privileges now accruing to irrigation districts and that any new privileges added through legislation be applicable to both irrigation and reclamation districts.
2. That personnel of the commission be increased by two members, to be appointed by the Governor, with approval of the Senate, for a period of four years.
3. That \$100,000 for the next biennial period be appropriated for the use of the commission.
4. That the commission be authorized to employ a secretary and executive officer and such experts and assistants as it may deem necessary.
5. That the commission be given wide discretion in certifying any bond issue and not limited in its considerations to the specific factors named in the present laws.

ANNUAL REPORT TO BE MADE

6. That the commission be empowered to make an examination at least once each year, of records, financial affairs and physical properties of districts under its supervision and to publish or require the districts to publish, at least once a year, a report of their affairs, so that district residents, creditors and others may have authentic data concerning the districts.
7. That the commission be authorized to cooperate with any district in working out a refunding program, in case the commission deems refunding necessary.
8. That the commission be empowered to make a thorough investigation and report on the physical, financial and economic conditions of each district going into default, and to take the necessary steps and be charged with the duty of bringing together all interests in a plan of reorganization when it appears that the district will be unable to cure the default within a reasonable length of time.
9. That in case of a default continuing for a year, the commission may, subject to approval of a judge of the superior court of the county in which the district, or greater portion of it, lies, appoint a special agent to keep the district works in order and in operation and to raise money for such purposes in a way to be specified by law.

LEGAL CHANGES OUTLINED

Specific changes in existing statutes are recommended as follows:

1. That the California Irrigation District Act be amended to allow under proper safeguards the redemption of a portion of the land sold for delinquent assessments, in the case of a large tract sold in one block. (This is permissible with county taxes and should assist in clearing up delinquencies.)
2. That the act be amended to allow under proper safeguards the establishment of district sinking or surplus funds and permitting their use for the purchase of unmaturing bonds.
3. That the act be amended to allow the district

under proper safeguards to enforce payment of assessments by the refusal to deliver water.

(Public utilities and municipal bureaus now employ this method.)

4. That the act be amended to allow the establishment of a depreciation fund for the replacement of irrigation works.

(This provision was suggested to aid districts with pipe lines and such other works as are comparatively short lived.)

POLITICAL CODE CHARGES URGED

5. That the Political Code be amended to provide that no reclamation district warrants shall be issued unless covered by assessments and that no assessments except for the payment of interest charges and current expenses shall be levied without the approval of the commission.

(The present statute providing for the issuance of warrants is not clear as to the precise status of the warrant, though it is apparent that they are, or may be made, a lien on the properties of the district and to all intents and purposes are in the same status as the bonds. When issued in excessive amounts, they dilute seriously the securities of the bond. In case of foreclosure by the bondholders, the outstanding warrants, if supported by assessments, remain as a lien against the property, which in effect places the warrant in a prior position to the bond.)

6. That the Political Code be amended to provide for the semiannual payment of interest on reclamation district warrants.

(The lack of an interest payment date is a serious banking objection.)

7. That the Political Code be amended to authorize a reclamation district to take possession of, farm and operate or lease such land to which the county treasurer, as trustee of the bond fund, has taken title after sale for delinquencies.

(In case of default in the payment of assessment, the delinquent lands in lieu of other bidders are sold to the county treasurer as trustee of the bond fund. The statute now is not clear as to what may be done with the lands thereafter. The treasurer has no power to lease the lands, nor authority to operate them, nor is he provided with funds to prosecute a suit for possession. This situation leads to a loss of revenue to the district and eventually to the bondholders.)

8. That the Political Code be amended to reduce the 20 per cent penalty imposed by reclamation districts which attaches upon delinquency to 10 per cent.

(This penalty has not resulted in the payment of additional taxes, but is almost confiscatory in its severity.)

BOND FUND PROVISIONS

Any refunding bonds purchased through the state irrigation and reclamation bond fund may be sold at any time by the Commission, through which the bond fund will be administered, but in no case for an amount less than the purchase price, and the money received from such sale will revert to the fund. Until the purchased bonds are sold, they will be held in the fund, and all interest received thereon shall be retained in the fund to be used again by the commission for the purpose of assisting other districts to refund their bonded obligations in case of demonstrated need.

When it appears to the commission, after it makes a full and thorough investigation of the affairs of any district that applies to it for relief on account of too heavy a program of bond maturities, that the district can, with a readjustment and extension of the program of maturities, pay off its entire bonded indebtedness within a period of 40 years after voting of the refunding issue, the commission will consent to assist the district through the bond fund. The commission will grant the district permission to vote a refunding issue

(Continued on page 27.)

Road Crew Fight Cloudbursts; Forget Hours to Keep Road Open

FIGHTING CLOUDBURSTS

Oxnard, California January 11, 1931.

MR. S. V. CORTELYOU,
Dist. Engr., Div. of Highways,
Los Angeles, California.

Dear Sir: The following is a report of storm damage and performance of maintenance crew during the storm of January 7 and 8, 1931. We started with the storm at noon Wednesday, January 7th, to patrol the cliff section, draining water-holes along the pavement and removing falling rocks. At about 3.30 p.m. the storm changed to a cloudburst, and I noticed at the Miller quarry site a large volume of water coming off the portion of the hill that burned early this fall. As there was a large amount of debris along with this water, I stationed one man at this culvert to keep it from becoming clogged with brush and rocks. I took two men and started for Decker Road, as all of my section from the Los Angeles-Ventura line to Decker Road was in the path of the run-off from the burned area.

At Station 158+88 we found the culvert unable to carry the volume of water. We turned as much as possible of the water down the hill to keep from washing the fill opposite the culvert. As the water was subsiding, we left to see what other damage had been done. An average of 18 inches of mud and rocks had been deposited on the pavement for about 60 feet, but was passable for one way traffic.

At Station 221+25 I found the traffic halted. I was informed that the first one

there had been there for nearly one-half hour. There were rocks and mud to the depth of about four feet across the pavement. It took us about 10 minutes to get the largest of the rocks out, and we were able to get the passenger cars through. The trucks had to wait another half hour. I sent word back for all of my men to come over towards Decker Road. At Station 223+86 the traffic had to use the shoulder, and was for one way traffic only. I sent one man back for lanterns and

barricades; the other men I put to cleaning off one half of the pavement. At 10 p.m. I had the road so one way travel could get by all places without difficulty, so I then let part of my men go for supper and the rest of us worked until the others had had their supper and returned. We then went to supper and came back. I had two trucks hauling rocks and mud off the worst places; caterpillar and grader grading the mud to both sides of the pavement where it wasn't as deep.

At 3.30 a.m. Thursday, January 8th,

another storm with thunder and lightning came up. At 3.45 a car stopped and said there was a regular river crossing the highway near the county line. I left two flagmen where we were working and took the rest of the crew. We found rock, brush, mud and fencing about 5 feet deep across the pavement and traffic blocked. In one hour we had one way traffic moving on the shoulder; at 7 a.m. we had one-way traffic on the pavement. I then put the crew to cleaning the pavement of rocks too large for the patrolman to get off.

I took the six relief employment men out to improve the one-way passages we had. At

OFFICIAL COMMENDATION

Sacramento, California,

January 27, 1931.

Mr. Glenn H. Cheeseman
Maintenance Foreman
Oxnard, California

Dear Mr. Cheeseman:

District Engineer Cortelyou has informed this office of the efforts made by your crew in keeping a portion of our coast highway open during the severe storm of January 7th and 8th.

I wish at this time to express the appreciation not only of myself but the entire organization for the untiring efforts of yourself and crew in displaying a spirit which should be and is typical of our organization where the care and safety of travel is concerned.

Yours very truly,

C. H. PURCELL,
State Highway Engineer,

By
T. H. DENNIS,
Maintenance Engineer,

9 a.m. my boys met Sullivan's crew cleaning the pavement (they had cleaned from Point Mugu to Pelican Point). I sent the men that had worked all night home for some sleep and to show up at 1 p.m. as it had been raining since we opened one way traffic. At some points more mud had been washed on. We worked until 10 p.m. Thursday, January 8th. The storm was over and we called it a day. Myself and crew that was on worked from 7 a.m. Wednesday, January 7th, to 10 p.m. Thursday, January 8th, with the exception of about 2 hours the boys had for sleep.

The following are the places the mud washed over the pavement, with the station number and approximate amount of mud:

Station 158+88—60 ft. pavement covered at approximately 18 inches deep. Graded to both sides. One-way traffic.

Station 179+52 to station 160+50—Pavement covered 2 feet deep, mud and rocks off Rindge property. One-way traffic.

Station 216+00 to Station 219+00—Average depth rocks and mud 1 foot.

Station 219+50 to Station 221+25—Average depth of rocks, brush and mud 4 feet. Traffic halted 45 minutes.

Station 223+86—Average depth of rocks and mud 3½ feet. One-way traffic.

Station 254+13 to Station 255+13—Mud to depth of 8 inches, washed off Decker Road.

Station 107+00 to Station 107+95—Average depth 4 feet. Traffic halted 1 hour.

Rocks were removed that were 3½ feet in diameter. This damage was due to the burned off area, as in very few cases did this dirt and rocks come near a culvert, but new washes were formed and considerable drainage work will have to be done to keep drainage from every rain from coming on the pavement instead of to the culverts that are already installed.

Yours very truly,

GLENN H. CHEESEMAN.

DISTRICT ENGINEER'S REPORT

Los Angeles, California,

January 20, 1931.

MR. C. H. PURCELL,
State Highway Engineer,
Sacramento, California.

Dear Sir: Attached hereto for your information is copy of report dated January 11th from maintenance foreman G. H. Cheeseman, regarding the emergency work of himself and his crew in keeping open the El Rio to San Juan Capistrano State highway (route 60),

during the severe storm of January 7 and 8, 1931.

You will recall that last summer there was a very severe forest fire which burned all of the forest cover on a very large area in the mountains to the north of this highway. As a result, the storm of January 7th and 8th, which under normal conditions would have caused little trouble, resulted in washing down large quantities of debris over our pavement. Foreman Cheeseman and his crew worked continuously from 7 o'clock Wednesday, January 7th, to 10 p.m., January 8th, 39 hours, with the exception of about two hours off for sleep.

This is the kind of men and kind of spirit which gives such a high standing to our maintenance organization. I think Foreman Cheeseman and his crew are certainly to be commended for this additional example of their fidelity to and interest in their work.

Yours very truly,

S. V. CORTELYON,
District Engineer.

PACIFIC HIGHWAY BRIDGE IS DEDICATED

(Continued from page 7.)

County, I would like very much to have been able to participate in the completion and dedication of this bridge, which marks constructive progress in your two counties and adds another link to our great highway chain.

I take a keen interest in the welfare of your two fine counties. Please give my compliments to all the people attending the ceremonies and say to them that I shall as early as possible return to your counties and visit my fellow citizens who welcomed me so delightfully when I visited them in the recent campaign.

My compliments and good wishes.

Telegram from Colonel Garrison

Colonel Walter E. Garrison, Director of the Department of Public Works, wired Mr. Kelly as follows:

I am indeed sorry that stress of business here makes it impossible for me to be present at dedication of Cottonwood Bridge today. Please convey my regrets to those who attend the ceremony. This bridge will add another scenic feature to Pacific Highway and it will perform a two-fold service binding the counties and communities of that section closer together and serving outside travel in a better and more attractive manner. Congratulations to you and your friends through whose efforts this important betterment was obtained.

"What became of that unpaid bill Dunn sent to us?" remarked the bank clerk to his wife.

"Oh, that?" she asked. "I sent it back marked 'insufficient funds.'—*Portland Express*."

State Highway Commission Speeds Up Governor Rolph's Highway Building Program

THE California Highway Commission at its meeting in Sacramento on January 29th authorized the necessary appropriations for engineering and right of way expenditures necessary to put Governor Rolph's highway program into immediate effect. The Commission directed State Highway Engineer C. H. Purcell to proceed at once with the preliminary work.

Present at the meeting of the California Highway Commission were Earl Lee Kelly, chairman; Commissioners Frank A. Tetley, Riverside; Philip A. Stanton, Anaheim; Harry A. Hopkins, Taft; Timothy A. Rear-don, San Francisco; Colonel Walter E. Garrison, director of the Department of Public Works, and C. H. Purcell, State Highway Engineer.

HIGHWAY ALLOCATIONS

The following allocations were made for highway projects designated for construction upon advice from State Highway Engineer C. H. Purcell that preliminary engineering for these projects was ready for advertising.

Coast Highway: \$931,600 for grading and paving 18 miles between Los Alamos and Santa Maria in Santa Barbara County, including the construction of the Los Alamos Creek Bridge.

Tahoe-Ukiah Highway: \$242,000 for placing oil surface for 19.1 miles between the Abbott Mine and 5 miles west of Williams. This work lies in Lake and Colusa counties, and will complete the improvement of the section of the Tahoe-Ukiah Highway between Calpella on the Redwood Highway and Marysville on the Pacific Highway, with the exception of the Lucerne-Upper Lake section.

San Diego-El Centro Highway: \$240,000 for grading and paving 5 miles between Claydelle Station and west end of Bostonia line change, Las Caches line change and the Flynn Springs line change. This will materially improve the alignment of this highway between El Cajon and Flynn Springs.

San Bernardino-El Centro Highway: \$481,400 for grading and paving 8.3 miles between a point 6 miles north of southerly county line of Riverside County and Avenue 62. With work underway, this project will complete the work of widening the old 15-foot pavement south of Indio to the standard 20-foot width.

El Centro-Yuma Highway: \$150,000 for grading and widening to 20 feet between Highline canal and Sand Hills in Imperial County, a distance of 20.7

miles. With this project and all appropriations of the state highway budget as presented to the legislature by Governor Rolph, the work of widening the entire pavement from El Centro to Yuma to 20 feet will be completed.

Pacific Highway (East Side): \$77,300 for grading and surfacing shoulders for 19.4 miles between Yuba City in Sutter County and Biggs in Butte County. This allocation provides for grading, shoulder work and bituminous surfacing that will provide a 20-foot surfaced roadway in place of the existing 15-foot pavement.

San Fernando-San Bernardino Highway: \$150 for grading and paving the west entrance to San Bernardino, including provision for pavement of state's share of a viaduct. This will greatly improve the state highway entrance to San Bernardino from Los Angeles.

Golden State Highway (Valley Route): \$635,000 for grading and paving 7.5 miles between Tipton Crossing and Tulare in Tulare County. This appropriation also provides for the construction of bridges across Elk Bayon River, Tulare River and Canal. This project with others authorized will complete the work of widening the old 15-foot pavement in Tulare County to 20 feet and will leave only a very small mileage on this route yet to be widened.

San Diego-El Centro Highway: \$106,000 for the construction of the Boundary Creek bridge and approaches and for the Jacumba grade separation, all in San Diego County. This improvement will provide a wider highway on a better and safer alignment through Jacumba with an overhead crossing over the tracks of the San Diego and Arizona railroad.

El Rio-San Juan Capistrano Highway: \$281,300 for grading and paving 3.7 miles between Newport Beach and Corona del Mar in Orange County together with a bridge across the North Channel of Newport Bay. This project will greatly improve the alignment of the section it covers on this very heavily traveled highway.

ADOPTION OF ROUTES

Formal adoption of routes was announced by the commission as follows:

The long mooted question of whether the East-of-the-Sierras highway would pass directly through Bridgeport or bypass that town about 3 miles to the west was settled by the adoption of the Bridgeport routing.

The question of whether the Redwood Highway should pass directly through Crescent City or be routed to Grants Pass about a mile south of the Del Norte County seat was settled in favor of the Crescent City routing.

(Continued on next page.)

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.

COLONEL WALTER E. GARRISON.....Director
GEORGE C. MANSFIELD.....Editor

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

Vol. 9 FEBRUARY, 1931 No. 2

Right of Way Men Find Prospects in Dire Need; Aid Given

THE following letter written by George W. Pulich, right of way agent in State Highway District X to Colonel Walter E. Garrison, director of the Department of Public Works, is self-explanatory:

A very kind and gracious act came to my notice a couple of days ago and I feel it only fair to the men whom you have employed that I give this information to you.

In the work of securing rights of way, Messrs. Malatesta and Perry, respectively, were engaged in their duties and called upon certain people within the outskirts of Stockton for the purpose of signing them on a deed for rights of way being secured on the Hogan Road, between Mariposa Road and Turner Station.

In one particular case the people they interviewed were very poor and at the present time very much in distress. The boys observed the situation and it appealed to their sympathy. Upon coming into Stockton they informed certain friends of theirs and appealed for help for this family. The result was that the next day the family received a sack of potatoes, a sack of onions, half a sack of beans, a gallon of milk, a suit of clothes and pair of shoes for the husband, a dress and pair of shoes and stockings for the wife, and some clothes for the children. Inasmuch as the husband was a member of the American Legion the boys also interviewed the American Legion at Stockton and I am quite sure that further relief will be given this particular family.

I mention this instance because the situation and promptness in which relief was given this particular family appealed to me personally very strongly, and I feel that these boys are deserving of a great deal of credit.

ACTION COMMENDED

The letter was referred by Colonel Walter E. Garrison to C. C. Carleton, Chief of the Division of Contracts and Rights of Way, who addressed the following letter to Louis J. Malatesta and B. J. Perry, as follows:

The attention of Col. Walter E. Garrison, Director of Public Works, has been called to an act of helpfulness rendered by you and your coworker in obtaining

STATE HIGHWAY PATROL TO HAVE MILAN EXHIBIT

THE California Highway Patrol will be represented at the International Exhibition for Safety of Highway Traffic at Milan, Italy, April 12th to 27th of this year.

E. Raymond Cato, superintendent of the patrol, announced today that the patrol had responded to the invitation of the Royal Automobile Club of Italy to participate and would send an inexpensive exhibit.

The exhibit will consist largely of manuals of the patrol, statistical pamphlets and photographs depicting the work of the officers in uniform.

STATE HIGHWAY COMMISSION SPEEDS UP GOVERNOR ROLPH'S HIGHWAY BUILDING PROGRAM

(Continued from page 20.)

The route, as adopted by the commission, provides that the highway shall enter Crescent City at 9th and L Streets.

The Prunedale route for the San Juan Grade relocation was formally adopted.

INCLUSION OF SECONDARY HIGHWAYS

The following resolution was adopted:

Resolved, That the California Highway Commission hereby approves and endorses Senate Bill No. 46, "An act establishing certain additional State highways and classifying them as secondary highways," introduced by Senators Edwards, Breed, Allen, Baker, Cassidy, Duval, Harper, McCormack, McKinley, Riley, Swing and Wag, and the secretary is hereby directed to transmit copies of this resolution to the Senate and Assembly, respectively.

The highways included in this bill are those recommended by the Division of Highways after a study made under a joint resolution adopted by the last Legislature.

RIGHT OF WAY AGENT

Frank B. Durkee has been appointed right of way agent, Division of Highways, attached to headquarters staff.

prompt relief for certain property owners near Stockton, whom you went to interview concerning right of way but whom you found to be lacking the necessities of life.

The Director has requested me to commend you for the thoughtful and sympathetic initiative taken by you in this situation as such acts do much to "humanize" the routine of State work, besides being of personal satisfaction to yourselves.

Motor Vehicle Registration Shows Three Per Cent Gain in 1930

DESPITE a rather adverse business year, California motor vehicle registrations showed a net gain of 62,325 in 1930. The year's total reached well over the two million mark, being 2,099,293, inclusive of motorcycles and trailers.

The figures show a 3 per cent gain over 1929, not including approximately 36,000 cars registered under the license exempt classification nor the 91,247 cars registered from other states.

Registrations for the year were announced as follows:

Passenger cars, 1,941,969. Solid trucks, 15,500. Pneumatic trucks, 83,887. Motorcycles, 9,405. Solid trailers, 9,563. Pneumatic trailers, 38,969.

The official totals will be used as a basis for apportioning the motor vehicle license fund, half of which goes to the State Highway Department and half to the counties for road building purposes after deductions are made for the expenses of the division and of the California Highway Patrol. Total fees for apportionment will amount to a figure close to \$7,000,000.

TOTAL FEE PAID REGISTRATION OF MOTOR VEHICLES BY COUNTIES, FOR THE PERIOD JANUARY 1, 1930, TO DECEMBER 31, 1930

Counties	Autos	Solid trucks	Pneumatic trucks	Motorcycles	Trailers	
					solid	pneumatic
Alameda	139,885	1,302	4,509	797	405	1,483
Alpine	90	---	3	2	---	2
Amador	2,422	38	134	5	2	23
Butte	13,574	55	637	40	93	641
Calaveras	2,242	13	110	6	2	63
Colusa	4,276	24	253	7	39	264
Contra Costa	24,329	167	899	173	70	421
Del Norte	1,706	11	133	8	7	68
El Dorado	3,034	22	226	5	4	44
Fresno	53,598	468	2,810	276	515	3,645
Glenn	4,709	30	228	19	83	485
Humboldt	14,691	82	708	62	25	205
Imperial	23,255	59	1,583	69	73	509
Inyo	2,651	11	138	7	4	43
Kern	34,171	235	1,676	177	308	1,663
Kings	9,016	57	461	42	205	841
Lake	3,083	22	198	15	3	61
Lassen	8,798	11	188	14	7	107
Los Angeles	806,264	5,582	30,682	3,289	3,174	8,852
Madera	5,953	33	329	24	39	464
Marin	10,836	107	405	64	5	66
Mariposa	1,192	13	64	4	2	29
Mendocino	7,214	29	471	26	10	95
Merced	13,756	50	731	78	70	938
Modoc	2,926	5	151	6	1	66
Mono	447	1	29	---	---	6
Monterey	19,334	121	1,221	116	89	592
Napa	7,604	97	387	58	41	127
Nevada	3,235	19	175	13	8	23
Orange	47,158	177	2,244	214	711	1,177
Placer	8,755	36	418	33	13	161
Plumas	2,294	18	143	11	7	31
Riverside	28,849	103	1,375	120	298	973
Sacramento	45,137	366	2,429	204	166	977
San Benito	4,175	41	203	34	38	127
San Bernardino	44,858	151	2,258	181	330	977
San Diego	74,486	307	2,678	618	141	810
San Francisco	146,182	3,245	5,461	1,625	339	561
San Joaquin	36,406	336	1,886	191	325	1,656
San Luis Obispo	11,326	43	583	58	39	279
San Mateo	24,427	307	926	137	80	279
Santa Barbara	25,745	86	1,343	143	112	399
Santa Clara	53,948	506	2,245	259	533	1,293
Santa Cruz	14,312	118	813	106	51	303
Shasta	4,986	41	258	16	19	164
Sierra	763	4	37	3	1	5
Siskiyou	8,128	39	427	27	9	145
Solano	13,334	87	530	81	59	290
Sonoma	25,376	227	1,482	138	57	323
Stanislaus	23,840	97	1,381	120	250	1,767
Sutter	5,754	89	305	20	32	224
Tehama	5,126	23	190	16	31	428
Trinity	792	4	34	---	3	11
Tulare	29,165	166	1,612	124	344	2,605
Tuolumne	3,006	16	150	8	5	51
Ventura	20,635	106	1,120	63	209	619
Yolo	9,066	72	570	44	56	356
Yuba	4,725	30	247	9	21	152
Totals	1,941,969	15,500	83,887	9,405	9,563	38,969

First 1931 Snow Survey Data Announced

THE first regular monthly surveys of the 1931 season at the "key" snow courses throughout the State were completed in the last few days of January, and a report issued to present the results of these surveys as well as all of the available data to February 1st from those precipitation stations of the U. S. Weather Bureau, the State, districts, and public utilities located in the mountainous portions of the various stream basins.

It is to be noted that the main survey of all snow courses as a basis for forecasts of stream flow is made in the latter part of March and the present surveys cover only selected or key courses to furnish data in the nature of a progress report. The table printed below presents the results of the snow surveys and affords an opportunity for comparison with the snow pack as shown by the surveys of February 1, 1930, the latter being the first season of the State's entry upon work of this character. In some instances where snow surveys were made for a period of years prior to 1930 by agencies now cooperating with the State, it has been possible to develop tentative "normals" and in these cases the water content of the snow as measured at the first of February is given also in percentage of these seasonal normals.

In so far as generalizations for entire stream basins can be made from the as yet somewhat scattered and limited snow courses, the surveys indicate a water content on February 1st of this year in per cent of the water content at the same time last year, as follows:

Upper Sacramento, and McCloud (one course) 60 per cent.

Pit (one course) 80 per cent.

Feather (3 courses) 50 per cent.

Yuba (3 courses) 105 per cent.

American (3 courses) 90 per cent.

Mokelumne (one course) 60 per cent.

Stanislaus (3 courses) 85 per cent.

Tuolumne (6 courses) 75 per cent.

Merced (6 courses) 100 per cent.

Mono (2 courses) 55 per cent.

Kings (2 courses) 80 per cent.

Kaweah and Kern (one course each) 85 per cent.

Reviewing the data from the precipitation stations, the precipitation to February 1st in per cent of normal is shown for the various stream basins about as follows: Upper Sacramento, Pit and McCloud, 60 per cent; Feather and Yuba, 55 per cent; American, 60 per cent; Mokelumne, 65 per cent; Tuolumne and Merced, 70 per cent; Mono (one station), 60 per cent; Upper San Joaquin and Kings, 60 per cent;

Kaweah, 65 per cent; Kern, 75 per cent; Owens (one station on Bishop Creek), 85 per cent; Upper Valley (one station), 50 per cent; Lower Valley (3 stations) ranging from 10 to 50 per cent; Santa Ana, 70 per cent; San Gabriel and Los Angeles (Mt. Wilson station only, January data for other stations not available to date), 60 per cent.

HUMAN SIDE OF SNOW SURVEYS

The following clipping from the *Redding Searchlight* of January 31st, reveals the method by which these snow observations are obtained:

Breaking in on the solitude of the bleak slopes of Lassen Peak with crunching skis, Norman Brown of the State Highway Department and A. G. Holmes, park ranger, negotiated a level just 600 feet from the top of Lassen Peak yesterday to make a snow survey for the State Division of Water Resources of which H. M. Stafford is director at Sacramento.

Brown and Holmes set out from the checking station about 9 o'clock and took 34 soundings of the snow depth before returning. At Lake Helen there was a level of 86 inches, while at the foot of the volcano peak the measurements showed 96 inches. The density of the snow tested about 45 per cent water.

On the return trip, the men made the distance from Lake Helen to Mineral in just four hours, the total time being 26 hours including their period of sleep at the checking station.

DUG INTO CABIN

Brown stated yesterday that they made a brief stop at Lake Helen, where a cabin was left by the road contractors last summer. They dug their way in and heated a cup of coffee for refreshment. Only one end of the cabin eave was visible when they came upon it.

The men reported only a few snow slides and encountered only one fallen tree on the park highway.

The trip made this week is the first one for the year and the men will make their second visit the latter part of February. The snowfall is not yet equal to last year's total.

"Iceland," said the teacher in the geography class, "is about as large as Siam."

"Iceland," wrote John at examination time, "is about as large as teacher."

DETAIL OF SNOW SURVEY

PROGRESS REPORT OF SNOW SURVEY AND PRECIPITATION DATA TO FEBRUARY 1, 1931.

Drainage Basins and Snow Courses	Elevation in Feet	Depth of Snow, Inches	Density, Per cent	Water Content, Inches	Water Content this date last year, Inches
PIT					
Mount Lassen.....	8400	78.6	36.0	28.3	35.0
UPPER SACRAMENTO					
Mount Shasta.....	8000	46.9	32.2	15.1	25.0
McCLOUD					
Mount Shasta.....	8000	46.9	32.2	15.1	25.0
FEATHER					
Mount Lassen.....	8400	78.6	36.0	28.3	36.0
Mount Dyer.....	7400	18.2	32.4	5.0	
Fredonia Pass.....	6400	9.5	34.8	3.3	
Harkness Flat.....	6400	29.6	31.1	9.2	
Three Lakes.....	8100	16.1	29.8	4.8	13.5
Mt. Stover.....	5500	13.7	32.2	4.4	
Haskins Flat.....	5300	15.1	32.8	5.1	12.5
Feather River Meadows	5000	22.4	34.2	7.7	
Warner Creek.....	5000	16.2	27.8	4.5	
Humburg Summit.....	5000	14.9	29.8	4.4	
Chester Flat.....	4600	11.9	30.2	3.6	
YUBA					
Summit.....	7050	43.7	34.1	14.9	4.5
		44.7	40.3	18.0	17.0
Furnace Flat.....	6000	52.1	32.6	17.0	
		51.5	37.2	19.2	18.5
Lake Fordyce.....	6500	42.3	26.9	11.4	0
		43.7	38.5	16.8	15.0
La Porte.....	5000	14.8	45.3	6.7	
TRUCKEE					
Summit.....	7020	43.7	34.1	14.9	4.5
		44.7	40.3	18.0	17.0
AMERICAN					
Carson Pass.....	8600	19.0	31.0	5.9	
		46.9	23.2	10.2	10.5
		39.2	30.1	11.8	21.5
Silver Lake.....	7300	13.6	30.9	4.2	
		33.8	24.3	8.2	1
		30.2	29.4	8.9	9.5
Summit.....	7020	43.7	34.1	14.9	4.5
		44.7	40.3	18.0	17.0
CARSON					
Carson Pass.....	8600	19.0	31.0	5.9	
		46.9	22.2	10.2	10.5
		39.2	30.1	11.8	21.5
Blue Lakes.....	8000	42.4	30.3	12.8	22
MOKELUMNE					
Blue Lakes.....	8000	42.4	30.3	12.8	22
STANISLAUS					
Lower Relief Valley...	8200	41.5	29.2	12.1	
		29.7	32.5	12.9	
Soda Creek Flat.....	7900	24.1	25.3	6.1	
		23.7	29.5	7.9	
Upper Kennedy Md'ows	7000	22.0	24.6	5.4	
Relief Dam.....	7300	27.6	25.7	7.1	
		25.0	32.4	8.3	8.5
Niagara Flat.....	6500	31.1	22.5	7.0	
		20.5	37.0	7.7	8
Strawberry Lake.....	5700	11.6	29.4	3.4	
		10.7	35.5	3.8	6.5
TUOLUMNE					
Fletcher Lake.....	10300	21.7	32.7	7.1	13.5
Upper Lyell Forks.....	8200	19.2	23.4	4.5	7.5
Tuolumne Meadows.....	8600	27.8	25.0	7.1	12.5
White Wolf Meadows.....	8000	44.1	27.2	12.0	13
Gln Flat.....	7100	38.3	41.0	15.7	10.5
Strawberry Lake.....	5700	11.6	29.4	3.4	
		10.7	35.5	3.8	6.5
MERCED					
Fletcher Lake.....	10300	21.7	32.7	7.1	13.5
Snow Flat.....	8700	53.5	39.8	16.5	21
Lake Tenaya.....	8150	42.3	25.4	12.9	15.5
Gln Flat.....	7100	38.3	41.9	15.7	10.5
Merced Lake.....	7400	13.4	39.3	5.3	4.9
Pergoy Meadow.....	7900	36.4	39.5	11.1	10
MONO					
Rhinedollar Lake.....	9500	30.6	21.6	6.6	5.5
		34.1	27.6	8.4	12.5
Gem Lake.....	9200	21.6	23.6	5.1	15.5

UPPER SAN JOAQUIN

Drainage Basins and Snow Courses	Elevation in Feet	Depth of Snow, Inches	Density, Per cent	Water Content, Inches	Water Content this date last year, Inches
Mammoth Pass.....	9560	40.6	31.8	12.9	
Florence Lake.....	7200	9.6	26.1	2.5	
OWENS					
Cottonwood Creek.....	11100	8.7	29.8	1.8	
Cottonwood Creek.....	10600	6.9	29.3	1.4	
Lamarek Creek.....	10500	10	11 25	11 2.5	
Sawmill.....	10200	13.8	26.7	3.7	
Big Pine.....	10000	12.8	19.5	2.5	
Rock Creek.....	10000	12.5	22.4	2.8	
Big Pine.....	9860	8.8	20.1	1.8	
Big Pine.....	9760	9.8	17.4	1.7	
Mammoth Pass.....	9500	40.6	31.8	12.9	
North Lake.....	9500	%	No Meas.	No Meas.	
Rock Creek.....	9050	10.3	18.5	1.9	
Minarets.....	9060	32.4	30.8	10.0	
Mammoth.....	8300	18.7	28.4	5.3	
Minarets.....	8300	20.4	28.9	5.9	
KINGS					
General Grant.....	6660	16.2	38.9	6.3	8
Cliff Camp.....	6300	18.0	26.5	4.8	6
KAWEAH					
Panther Meadow.....	8650	44.9	27.8	12.5	
Hockett Meadow.....	8600	41.7	31.2	13.0	
Giant Forest.....	6500	24.1	28.2	6.8	8
KERN					
Round Meadow.....	9000	31.0	29.7	9.2	12 11

BRIDGING SHASTA CANYON MARKS MONUMENTAL HIGHWAY UNDERTAKING

(Continued from page 5.)

the section of highway being reconstructed. It consists of four 80-foot and two 72-foot reinforced concrete girder spans supported by concrete piers and towers. No unusual features were encountered in the construction of this bridge with the exception of the daily rise and fall of five or six feet in the stream flow. This variation added to the hazards and expense of constructing the footings and piers. This bridge when complete will cost approximately \$80,000.

DEDICATIONS TO PIONEER STAGE DRIVERS

An interesting feature of the project is the plan to dedicate these bridges to the memory of the pioneer stage drivers of Siskiyou County. The project accordingly not only links together the great states of the Pacific Coast in a closer bond, but it also serves as a fitting monument to the brave men who, driving over rough, rocky, steep and dangerous roads, blazed the trail for the modern highways over which, daily, thousands of automobiles now travel in complete comfort and with perfect delight.

Insurance companies last year paid out approximately three hundred million dollars as a result of highway crashes. Casualty, life and fire insurance companies all contributed to this huge sum, with casualty companies bearing the heaviest part of the burden. A large part of the total was paid out as a result of personal injuries, fatal or otherwise.

Road Machinery is Playing Larger Role in Road Building

By C. H. PURCELL, California State Highway Engineer *

THE work of the California contractors on highway construction during the past year has been of especial interest as a study in the use of modern machinery and its possibilities in economical highway construction operations.

To state that the financial depression is the sole cause of lower bids now received on construction work indicates a lack of knowledge of the modern contractor's method of operation.

Our contractors today are doing more work with less labor and getting a greater output than ever before with far greater effects on production costs than Wall Street could ever exert; new records for output are being made not for one day's run to be followed by a profit-destroying breakdown, but time after time the average daily production for a whole project is exceeding figures considered impossible a few years ago.

RECORD IN ASPHALT PAVING FIELD

In the asphalt paving field, we have the record made last year of more than one thousand tons daily output by a four thousand pound mixer on the production of some forty thousand tons. This was made possible in the first place by the use of the mechanical spreader and raker, originally developed in California, to take care of the tonnage, and second by the elimination of all lost motion in plant operation. The time clock with its bell was originally brought out to insure full mixing time on concrete paving machines. Last year, a California firm attached one of these timers onto the asphalt plant with the result that not only were all batches correctly timed but production immediately jumped and now, on most of the contracts this device is being installed although its use has never been specified.

On Portland cement paving work, a run of over four hundred yards with a six-sack mixer is not the exception but rather the rule. Improved batching and charging with properly organized mechanical finishing has insured continuity of operation. An unusual example

of efficient operation was shown this year when two mixers in tandem averaged well over 800 cubic yards per day.

In grading operations, a total of twelve hundred yards or more in eight hours for a yard and a quarter shovel has become a common occurrence rather than a record breaking performance. In connection with this, it should be remembered that the excavated material is not merely pushed over a bank as was once done, but when hauled to the fill is spread in thin layers, watered and rolled.

BEST IN MACHINERY NECESSARY

Such productions are the outcome of the finest organization using the best machinery that can be had. To secure them, everything must "click" from start to finish of the work. They have never been secured in any case by sacrifice of quality of the work, deviating from the specification requirements, or deduction from the value of the finished product. Each year shows more value given, our pavements are built smoother and our laboratory tests show increasingly excellent results.

It has been a source of satisfaction that throughout the enormous volume of work handled by the contract method, the Division of Highways has received the full cooperation of the contractors doing the work. With two hundred twenty-five contracts in the past year and a half totaling about twenty-eight million dollars, the disputed claims on the work have been at a minimum. This condition, so essential to the successful carrying out of California's highway program, requires the harmonious effort of all parties concerned. Every contractor properly labors to conduct his work to produce the greatest possible profit; our work today demonstrates that, in striving to improve himself to produce that profit, he has not only worked for his own advantage but also for the benefit of the people whom he serves.

At a time when economical quantity production of work by the use of the highest type of machinery is so essential to a contractor's welfare, as well as the economical production of work for the State, it becomes of vital importance that a contractor earn a net

* This article was written for Pacific Constructor and appears in the A. G. C. Convention Number of that magazine.

(Continued on page 23.)

Court Okehs Revenue Bonds Issued Under Joint Highway District Act

THE DECISION of the appellate court upholding the action of the board of directors of Joint Highway Number Six in issuing revenue bonds is reprinted below. The decision of the court has been awaited with interest by counties all over California, who are interested in road construction through Joint Highway District Act.

Joint Highway District Number Six is made up of Kern, Ventura and Santa Barbara counties. It was organized to build a highway from Maricopa to Ventura.

Revenue bonds in the sum of \$550,000 were issued, to be repaid over a period of eight years, from taxes levied by the counties in the joint highway district to meet the cost of constructing the road. These revenue bonds were attacked as invalid. The validity of the bonds was upheld in the superior court of Ventura County and the decision of this court was affirmed in the following decision of the appellate court:

IN THE DISTRICT COURT OF APPEAL OF
THE STATE OF CALIFORNIA, IN AND
FOR THE FIRST APPELLATE DISTRICT,
DIVISION TWO.

J. M. SHARP, Plaintiff and Appellant, vs. JOINT
HIGHWAY DISTRICT No. 6, etc., et al, De-
fendants and Respondents.

Claiming that the defendants were about to issue a series of illegal "revenue bonds," the plaintiff commenced this action to obtain an injunction against the defendants restraining them from further proceeding with the issue. The defendants answered and a trial was had before the trial court sitting without a jury. The trial court made findings in favor of the defendants and from a judgment entered thereon the plaintiff has appealed and has brought up typewritten transcripts. The case arises under an act of the legislature known as "Joint Highway District Act." Chapter 52, Statutes 1917, as amended in 1921, 1925, and 1927. (Here follows a detailed description of the operations of the act.)

* * * * *

The first point which the plaintiff makes is that he adopted the proper remedy. The defendants do not dispute the claim except to assert that the plaintiff has no cause of action.

In his second point the plaintiff claims that the bond issue is void because it is prohibited by the provisions of section 18, Article XI of the State Constitution. A State Legislature has such powers, in these matters, as are not prohibited by the constitution. A bare reading of the section cited shows that it does not contain any prohibitions directed to such an entity as the defendant district. (See also *In re Madera Irrigation District*, 92 Cal. 296, 342-343.)

In his third point the plaintiff claims that the issuance of bonds can not be justified under the authority of a special assessment district because the proceedings would deprive the plaintiff of his property without due process of law. He quotes many of the provisions of the statute which we have epitomized and then he cites *Gadd vs. McGuire*, 69 Cal. App. 347, and contends that the statute gives him no opportunity to state his objections, gives him no hearing, and operates

to deprive him of his property without due process of law. The defendants reply that if the statute provides for due notice and a hearing at some time in the proceedings the parties interested may not complain (*Henshaw vs. Foster*, 176 Cal. 507, 514-515). They also assert that the plaintiff was represented in the legislature that enacted the enabling act and he was represented by his supervisors, one of whom acted as a member of the local board which initiated the proceeding, and that he has had all of the notice that the law requires (*Gadd vs. McGuire*, 69 Cal. App. 347, 363; *Allied Amusement Co. vs. Bryam*, 201 Cal. 316). Furthermore the power to build and pay for roads is one of the powers which is vested in the local board of supervisors. Many county roads are built to the county line, there to be met by a road to be built by the adjoining county; however, no taxpayer would claim the right to be given any notice, regarding such construction, different than the notice regarding other road expenditures. Continuing the defendants claim that Joint Highway District No. 6 is a quasi municipal corporation and not an assessment district and therefore no additional notice was necessary. (*In re Oroqui Public Utility District*, 196 Cal. 43, 50.) With this claim we understand the plaintiff disagrees. He claims the statute is but a subterfuge, that the powers to be exercised are merely those powers which, under general statutes now rest with the several boards of supervisors, and that the entire statute is but a sham for giving some support to the issuance of the bonds. But we can not so hold. Let us consider a supposititious set of facts. Let us assume that the total mileage is twenty-five miles; that ten miles lie in the county of A and that the cost of construction is \$5,000 per mile; that ten miles lie in the county of B and that the cost of construction is \$4,500 per mile; and that five miles lie in the county of C and that the cost of construction is \$150,000 per mile; and, that if constructed, such road would be highly valuable as an outlet to each and every one of said counties. It is clear that, as to the county of C the cost may be prohibitive. However, spreading the cost over three counties the cost may not be prohibitive, and the benefits may greatly outweigh the pro rata costs of construction. Under such

facts it is clear that a statute authorizing cooperation is not necessarily a subterfuge. The solution of the doubt, if any, rested with the legislature and not the courts. (*In re Madera Irr. Dist.*, 92 Cal. 296, 309-310.)

Finally the plaintiff asserts that the defendant district has no valid existence as a taxing agency and therefore it has no authority to issue bonds based upon a nonexistent taxing power. This is not a proceeding in quo warranto and there are no allegations showing that the defendant district has not complied with every provision of the statute. The point is, therefore, but another claim that the statute is invalid. The plaintiff cites and relies on *People vs. Van Nuys Lighting District*, 173 Cal. 792. The case is not helpful. In that case the court held that the defendant was not authorized to operate beyond the confines of certain towns and villages and that the relator's property did not lie within the confines of such towns and villages. He also quotes from *Fallbrook Irrigation Dist. vs. Bradley*, 164 U. S. 112, 174, showing that after the organization of the Fallbrook District would be completed it would "* * * almost necessarily be followed by and result in an assessment upon all the lands included within the boundaries of the district." That feature is not present in the instant case. The statute before us does not necessarily imply that assessments will be levied on individuals and the record discloses that the defendant board has passed a resolution that none will be made. For the purposes of this decision we must assume that said resolution is true and that it was passed and adopted in good faith. When assessments in fact are to be made on private holdings, the statute provides that notice must be given and a hearing must be held to ascertain the amounts of benefits if any.

We find no error in the record. The judgment is affirmed.

STURTEVANT, J.

We concur:

NOURSE, P. J.
SPENCE, J.

RECOMMENDATIONS MADE FOR IRRIGATION DISTRICT FINANCING AND REFINANCING

(Continued from page 17.)

for such part of the outstanding bonded indebtedness as the commission estimates should be refunded. The refunding bonds will bear interest not exceeding 6 per cent and will be exchanged at par or be sold at a price approved by the commission.

Refunding problems of meritorious reclamation or irrigation districts should be greatly simplified if the irrigation and reclamation bond fund is voted and with the recommended tightening of the supervisory structure in operation, the credit standing and position of the entire irrigation and reclamation system should be placed on a more dignified level.

Reservations by Mr. Childers to Charles L. Childers made certain reservations to the report in the following statement filed by him:

I concur generally in the report of the majority of the commission but can not concur in recommendations I 5 and I-6 and the statements based upon them.

Recommendation No. I-5:

An examination of the defaulting districts discloses that most if not quite all of them should not have

been organized in the first place and in the light of the information that has been acquired over the last twenty years mistakes in this regard are not likely to be made in the future, particularly if the Bond Certification Commission has sufficient authority to consider every phase of a new district. It does not seem practicable to make a thorough and exhaustive investigation of all conditions of such a district prior to organization, but when the district first applies to the commission for certification of its bonds the commission can and should make an exhaustive study of the new district and consider all questions that might lead to success or failure and certify its first bond issue only after the commission is thoroughly satisfied that the district has within it the necessary elements of success.

After the district is organized and has passed the commission on its first bond issue and is an active going concern, then the powers that the commission has at the present time are quite ample for all purposes. The people in a district once in a going condition are ordinarily better qualified to determine its ability, its limitations, and its needs than a commission wholly out of touch with the district excepting through its representatives and investigators.

At the present time the commission is required to report on nearly every phase of district activity when a proposal is submitted to it for the issuance of bonds and it is authorized to certify such bonds only after the commission shall have found that the irrigation system of the district and the specific project for which the bonds under consideration are desired are feasible and that the aggregate amount of the bonds under consideration, together with all other outstanding bonds, including those authorized but not sold, does not exceed 60 per cent of the aggregate market value of the lands within the district and of the water, water rights, canals, reservoirs, reservoir sites and irrigation works owned or to be acquired by the district. These are broad powers. They are sufficiently broad to prevent an improvement or excessive bond issue and yet sufficiently limited so as not to wholly deny to the people within a district that is an active going concern, the right of self-government.

Recommendation No. I-6:

I believe the commission should have authority to make, verify and approve reports of the several districts in addition to those now required by law. I doubt the wisdom of making such general reports compulsory. Whether or not the district's credit standing might be injured for lack of such report should be left to the district to decide so long as it is an active going district, meeting its obligations. If the district goes into default, that is covered by recommendations I-8 and I-9.

As a substitution for recommendations I-5 and I-6 of the commission, I would suggest:

Recommendation No. I-5:

That the commission be given wide discretion in certifying the first bond issue of any district and not be limited in its considerations to the specific factors named in the present law, but the powers of the commission remain as now provided by law in the consideration of any bond issues after the first.

Recommendation No. I-6:

That the commission be authorized and empowered upon the written request of any irrigation district to make an examination of the records, the financial affairs, and the physical properties of such district and to publish or authorize such district to publish a report of its affairs approved by the commission.

Unique Highway Sector is Opened With Celebration

THE opening of a section of the Foothill Boulevard through Claremont, a co-operative State and County project, was the occasion for a community celebration.

Approaching Claremont from the east and Indian Hill Boulevard from the west the motorist is introduced to a spacious boulevard with two highway lanes approximately a mile



District Engineer Cortelyou preparing to break the tape, opening the road.

and a half long, separated by a mall between 13 and 20 feet in width. This project extends from the Los Angeles-San Bernardino county line, through the city to Mountain avenue on the west.

UNIQUE FEATURE

But the unique feature in the project is the provision made for handling local traffic.



Speaker: Mr. Gill. Claremont High School girls on left and Boy Scouts on right.

Although two streets with the mall in the center have been constructed, the city has

been given setbacks by property owners on both sides of the boulevard, providing room for additional streets to be built when traffic needs demand them.

The present two thoroughfares are constructed to the ultimate width of Foothill Boulevard as a State highway, which is 76 feet of paving. Setbacks for local roads were established in order that no building will be erected which later would prevent construction of by-passes when needed.

The plan is said to be the only one of its kind in this region, highway engineers state. The local project was started nearly a year ago and has been finished only a few weeks. The cost was approximately \$100,000.

It is pointed out by S. V. Cortelyou, State Highway Commission engineer, that when the entire project is completed Claremont will have a four-lane highway with two by-passes 35 feet wide, separated from the main 38-foot-wide arterials by two planted safety aisles 10 feet in width. The two main traffic arterials are separated by a mall 16 to 20 feet in width.

A unique and beautiful planting program for the highway has been evolved by Ralph D. Cornell, landscape architect of Pomona College.

The central mall will be planted to low shrubs with ornamental lights located in this section. The two smaller malls separating through traffic ways from local by-pass streets will be planted to low shrubs and encalyptus trees. This program will result in a beautiful highway of four lanes with four rows of encalyptus trees with the central mall planted to low shrubs, offering southern California one of its most scenic boulevards in any incorporated area.

ROAD MACHINERY IS PLAYING LARGER ROLE IN ROAD BUILDING

(Continued from page 25.)

amount on his work that he is able to take advantage of the rapid development and improvement of machinery. A contractor who does not properly amortize his equipment and accumulates used equipment, which has not been written off, will not be able to compete and remain in this business any length of time.

I do not believe there was ever a time since the original development of the steam shovel when it has been so essential for a contractor to take into consideration his equipment account and to be certain that he is not exaggerating his net profit statement on each project by failure to make the proper equipment write off.

Highway Interests Seek Uniformity in Specifications for Asphalt Road Oils

By THOS. E. STANTON, Research Engineer, Division of Highways

ON February 2 and 3, 1931, Maintenance Engineer T. H. Dennis and the writer attended a conference of the United State Bureau of Public Roads, State Highway Department Officials, and asphalt producers in Salt Lake City. The meeting, one of a series of five throughout the United States, was arranged by the United States Bureau of Public Roads and the Asphalt Institute for the purpose of reaching an agreement on uniform methods of specifying the liquid asphalt products commonly known as



THOMAS E. STANTON

road oils and cutback asphalts.

An analysis of the 1929 eastern state specifications for materials of this class brings out strikingly the needless and uneconomical lack of uniformity in the specifications in use and suggests forcibly the great desirability of a concerted effort to correct the condition that has developed by the uncoordinated action of the various states.

In the west, which is the mother territory of light oil road construction, a number of conferences have been held during recent years between state highway representatives and the asphalt producers. These conferences have brought about a greater uniformity in specifications and methods of test than exists

in the east. However, there are still a number of points in controversy which can probably be settled through concerted action on the part of all parties interested.

There is no doubt but that conferences of this nature are very beneficial, particularly as they afford an opportunity for the technical staff of our road building bodies to get together and go over mutual problems with the producers of the materials used in construction.

The conference unanimously agreed that:

1. All producers should submit to the states prior to March 1, 1931, samples of their products to meet state specifications in which they, the producers, are interested.
2. The states to, as soon as possible thereafter, test the samples submitted for conformity with their state specifications and also according to the approved scheme of analysis.
3. The states prior to September 1, 1931, to test according to the approved scheme a sufficient number of deliveries of materials meeting their own specifications to cover the range in characteristics likely to occur in each type of material.

Following the conference a meeting was held of the Western Section of the Committee on Materials of the American Association of State Highway Officials, of which the above signed is chairman. This committee meeting was attended by members from the following western states represented at the conference: Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, Utah and Wyoming.

Representatives of the following oil companies were also in attendance: Standard, Union, Shell, Gilmore and Richfield companies of California, Standard Oil Company of Indiana, Utah Oil Refining Company of Salt Lake City, Utah, and White Eagle Oil Company of Casper, Wyoming.

A general discussion was had of the light asphaltic road oil and cutback plant and road mix construction problems of the west.

All present were very much interested in the extensive investigational work which is being carried on in California in this line of work. California as the pioneer in light oil mix road construction is looked to as a sort of father adviser in such matters by most of the western states.

California is kept on its toes, however, by the work which is being done by Arizona, New Mexico, Oregon, Utah, and in fact, all of the western states which are taking a very live interest in the subject.

Parson: "Why do you desire to join the church?"
Rastus: "Pahson, I'se got a job puttin' Mule-Hide on a chicken coop and fencing a watermelon patch, and I needs strenghthenin'."

Irrigation District Activities  Applications for Approval of Dams	<h2 style="margin: 0;">Progress Report of Activities</h2> <p style="margin: 0;">In the</p> <h1 style="margin: 0;">Division of Water Resources</h1> <p style="margin: 0;">AS OF FEBRUARY 1, 1931</p> <p style="margin: 0;">EDWARD HYATT, Chief of Division</p>	Flood Control and Reclamation  Reductions in Re- quests for Water Permits
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IRRIGATION, WATER STORAGE DISTRICTS

Preparations have been completed for assembling and correlating data relating to the activities of California irrigation districts during 1930.

The El Dorado Irrigation District, located in El Dorado County, was visited in connection with the progress of construction work made on the Webber Creek dam. Visits were also made to the El Camino Irrigation District, located in Tehama County, and the Oakdale Irrigation District, located in Stanislaus County, for the purpose of consulting on matters connected with the economic operation of these districts.

The petitions of Nellie Blayney et al., for the exclusion of a total of 1584 acres of land from the Tulare Lake Basin Water Storage District, were denied by the State Engineer.

Contract between the Richvale Irrigation District, Butte County, and the Sutter-Butte Canal Company, for the purchase from the latter of certain water rights and properties, has been approved by the California Bond Certification Commission and consent given to proceed with a bond election in an amount of \$515,000 to furnish funds for consummating the deal.

The commission has also recommended for certification a bond issue of the El Nido Irrigation District, Merced County, in the amount of \$135,000.

DAMS

The activities of the department have been directed during this period not only to studying and inspecting existing dams, with a view to their approval, but also very largely to new construction and repairs.

To date 735 applications for approval of existing dams are on file; 58 applications for approval of plans for the construction or enlargement of dams; and 120 applications for approval of plans for the repair or alteration of dams.

APPLICATIONS RECEIVED FOR APPROVAL OF PLANS FOR SPECIFICATIONS FOR CONSTRUCTION

Dam	County	Owner	Estimated Cost
*Chatsworth	Los Angeles	City of Los Angeles	\$861,228
Santiago Creek	Orange	Serrano and Carpenter Irrig. Districts and the Irvine Company	700,000
Rye Grass Swale	Modoc	W. R. Graves	1,750

The Santiago Creek Dam will be an earth fill structure, 110 feet in height with a storage capacity of 25,000 acre feet.

APPLICATIONS RECEIVED FOR APPROVAL OF PLANS FOR REPAIR OR ALTERATION

Seven such applications as have been received during this period are in response to suggestions relative to work necessary to put dams into shape for approval.

PLANS APPROVED FOR REPAIR OR ALTERATION

Dam	County	Owner
Lower Roberts	Modoc	H. M. Roberts
Porter	Modoc	Pearl F. Porter
Dirge	Alameda	East Bay Municipal Utility District
Lower Howell	Santa Clara	San Jose Water Works
Webb Flat	Modoc	Gerig Bros. et al.

The department is taking final steps toward issuing certificates of approval for a large number of dams under its jurisdiction. Final checks are being made on the spillway capacities, adequacy of design and actual condition of the dams as they exist today. Within a short time certificates on such dams as have met all requirements will be issued.

* Amending application of February 15, 1930.

FLOOD CONTROL AND RECLAMATION

MAINTENANCE OF SACRAMENTO AND SAN JOAQUIN DRAINAGE DISTRICT

The work of clearing second growth timber in the by-passes has been proceeding with an average of thirty-four men, employed three days per week each. Repairs to the current controlling structure in the upper Tisdale by-pass have been completed. This consisted of driving about 100 feet of sheet pile and timber wall and strengthening and guying portions of the existing timber structure. In the Sutter-Butte by-pass a small barrier in a cross slough has been completed, involving the driving of 22 piles. Routine maintenance work on other portions of the project has been carried on.

FLOOD CONTROL PROJECT MAINTENANCE—BANK PROTECTION

The construction of one tree current retard in cooperation with Reclamation District No. 70 at the Yates place approximately four miles south of Meridian, and the timber mat protection at Girdner Bend for the same district have been completed.

Bank protection work on Andrus Island at the Reardon ranch in cooperation with Reclamation District No. 556 and the Division of Highways has been completed.

Work is now under way on a small job in cooperation with Levee District No. 3 in Glenn County, consisting of placing tree and brush protection.

A similar job in cooperation with F. E. Biggs on the Feather River at Hamilton Bend has been completed.

With the completion of the work for Levee District No. 3 in Glenn County, all bank protection work contemplated for this season has been completed.

SACRAMENTO FLOOD CONTROL PROJECT

Clearing in the Sutter, Butte Slough and Tisdale by-passes in connection with the flood control project construction terminated about January 1st, when the available funds were exhausted.

The deputy in charge of flood control and reclamation attended one meeting of the Reclamation Board and one meeting of the flood control construction committee. Several reports on applications have been rendered to the Reclamation Board.

EMERGENCY FLOOD CONTROL AND RECTIFICATION OF RIVERS

At Twitchell Island the bank has been sloped ready to receive protecting rock, which will be placed this week along a length of 600 feet. This is in cooperation with Reclamation District No. 1601.

SALINAS RIVER

The suit as to the right of the State to excavate a channel from the Salinas River into Elkhorn Slough is now in court and a decision is not expected before March. The dragline excavator has been released, but another machine will be brought in if a favorable decision is obtained. This work is being done for the Division of Fish and Game.

MOKELUMNE RIVER

Work is being continued on the improvement of the flood channel of the Mokelumne River, in collaboration with San Joaquin County and in charge of our foreman. A crew of thirty men is operating, each working four days per week. A choke in the flood channel is being relieved by the construction of a small levee 1000 feet long and the removal of the existing levees on the McCauley estate.

RUSSIAN RIVER JETTY

The unusually heavy winter storms have continued during the past month and have caused additional damage to the jetty and track on the Russian River at Jenner. Five timber bents at the outer end of the jetty have been removed and the track was damaged. The work of repair has proceeded with the fund furnished by the Fish and Game Commission, involving the relocation of the track to a higher position. The track is now in order and delivery of rock to the jetty will commence at once.

FLOOD MEASUREMENTS AND GAGES

Preparations are complete for taking flood measurements in the various channels during the winter and the recording gages operated by this office are functioning. An automatic water stage recorder has been installed in the Cosumnes River at the State highway.

WATER RIGHTS

APPLICATIONS TO APPROPRIATE

The general financial depression during the past year has been reflected in the reduced number of

applications to appropriate. Only 336 applications were received during the year as compared with an annual average of 537 over the preceding ten years. This falling off in applications received has afforded an opportunity to clear up back work and the close of the year found only 493 pending applications as compared with an average of 761 at the close of each of the ten years preceding.

During December, 1930, 18 applications were received, nine canceled and 18 approved; nine permits were revoked and 18 licenses issued.

Preparation of inspection reports covering projects inspected during the past season is progressing. Of the 181 inspections made reports have now been completed covering 89.

The annual reports of permittees covering progress are coming in satisfactorily. Upon the 1313 requests for reports which were mailed 1052 returns have already been made, and upon the 259 requests for reports addressed to licensees 232 returns have so far been made.

In order to obviate in so far as possible the issuance of permits which might conflict with the purposes contemplated in applications filed under the provisions of chapter 286, Statutes of 1927, in support of the general coordinated plan for the development of the State's waters, a map has been completed showing in detail the layout proposed under State filings and a procedure has been developed for checking all other applications received prior to permit against this map for determination of possible conflicts.

ADJUDICATIONS

Shasta River (Siskiyou County)—Case pending in the Superior Court of Siskiyou County:

Whitewater River (San Bernardino and Riverside Counties)—Case pending in the Superior Court of Riverside County awaiting developments in regard to the proposed All-American Canal from Colorado River.

North Cow Creek (Shasta County)—Referee's final report was filed in the Superior Court of Shasta County on December 18, 1930. This case is now awaiting the court's pleasure in placing it on the calendar.

Oak Run Creek (Shasta County)—Case pending in the Superior Court of Shasta County awaiting the entry of a decree in the North Cow Creek case.

Clover Creek (Shasta County)—Case pending in Superior Court of Shasta County awaiting the court's pleasure in placing it on the calendar.

Butte Creek (Siskiyou County)—Case pending in the Superior Court of Siskiyou County awaiting action by the parties involved.

Los Alamos Creek (Santa Barbara County)—Action by referee being deferred awaiting the outcome of the circulation of a stipulation for consent judgment among the parties involved.

Davis Creek (Modoc County)—The report of referee was filed January 10, 1931, in the Superior Court of Modoc County. The court has fixed February 2, 1931, as the date for filing exceptions to the report of referee, and February 23, 1931, as the date for hearing exceptions.

Mill Creek (Modoc County)—The report covering the administration of the tentative schedule of allotments which was authorized for the 1930 season is approximately 40 per cent completed.

Deep Creek (Modoc County)—The report covering the field investigation of water supply and use of water made during the 1930 irrigation season is approximately 90 per cent completed.

Franklin Creek (Modoc County)—The data collected in the field during the 1930 irrigation season

have been assembled and analyzed, and a schedule for trial distribution during the 1931 irrigation season is being prepared.

WATER DISTRIBUTION

The reports on water master service on Clover and Oak Run Creeks (Shasta County) for the 1930 irrigation season have been completed.

Office work in connection with the reports on water master service for the 1930 irrigation season on Davis, Emerson, Mill, Owl and Soldier Creeks (Modoc County), Burney and Hat Creeks (Shasta County), and Lower Shasta River and Little Shasta River (Siskiyou County) has proceeded during the month.

CALIFORNIA COOPERATIVE SNOW SURVEYS

During the past month the work on this project has been confined entirely to the office. As previously reported, all plans have been made, the personnel has been selected, shelter cabins stocked, equipment and forms distributed, etc., in complete readiness for the 1931 surveys.

The office work has comprised compilations and computations necessary to keep all precipitation records to date (these come in regularly once a month from all stations) and to prepare for the correlation of snow survey and precipitation data with run-off when the data from the surveys become available.

Monthly surveys at the "key snow courses" will commence at the latter part of January and the first of the monthly snow survey bulletins will be issued early in February. Similar to last year this bulletin will present all of the snow survey data for the key course surveys and all precipitation data to date as received from all stations.

SACRAMENTO-SAN JOAQUIN WATER SUPERVISOR

Except for the regular salinity observations and tide gage maintenance, the work of the past month has been confined entirely to the office. As previously reported, the regular field work was completed early in November. The office work covers all computations necessary in the preparation of the report for the 1930 season covering all diversions, stream flow, return flow, etc., throughout the Sacramento-San Joaquin territory.

Salinity investigations in the Sacramento-San Joaquin delta and bay regions have been continued through the maintenance of sampling at 31 stations. During the past month the sampling at six stations was discontinued as the salinity at these stations had reached a constant minimum and further observations were not required. Maintenance of eight tide gages has been continued. These are located at Sacramento, Walnut Grove, Georgiana Slough, Sacramento and San Joaquin ends of Three Mile Slough, Mossdale, Antioch, and Collinsville. The following are comparative salinity data for 1929 and 1930:

Station	Salinity in parts of chlorine per 100,000	
	12/30/30	12/30/29
Bullhead Point	980	560
O. and A. Ferry	440	21
Collinsville	125	4
Antioch	45	5
Jersey	7	5
Emmaton	3	2
Webb Pump	7 ¹	10 ¹

¹ December 10th.

WATER RESOURCES

VENTURA COUNTY INVESTIGATION

This investigation continued in a routine way throughout the month. Arrangements were made with the U. S. Geological Survey to aid in placing a better grade of registers at five of the important gaging stations. Preliminary arrangements were made also for a geological examination and drilling of the 12 to 15 reservoir sites in the headwaters of Piru, Sespe and Ventura Rivers and for the survey of such sites as have not yet been surveyed.

MOJAVE RIVER INVESTIGATION

The cooperative work of the division of Agricultural Engineering, Department of Agriculture, on transpiration was begun. This will make possible an estimate of the amount of waste without waiting a number of years for actual records of stream waste.

SOUTH COASTAL BASIN INVESTIGATION

Heretofore due to lack of funds this work has been carried on with only two men in the field but with funds now available the force is being increased immediately to about twelve engineers and geologists.

SANTA CLARA INVESTIGATION

Wells previously measured in connection with this investigation were remeasured during the month and seven new wells were established and read in the vicinity of Palo Alto and Los Altos.

The progress report for the past year was completed and will be available for distribution within a few days.

NAPA VALLEY INVESTIGATION

Measurements for the purpose of determining accretions and percolation were made during the month on both Napa River and Conn Creek, and the reading of wells was completed for the low stage of this season.

PIT RIVER (MODOC AND LASSEN COUNTIES)

Routine field work was continued throughout the month. The progress report for the year ending September 30, 1930, has been completed.

WATER RESOURCES REPORTS

Practically the entire staff of the division formerly engaged on investigations in the Sacramento and San Joaquin Valleys, the salt water barrier and salinity conditions and in portions of southern California, in furtherance of a coordinated plan for the conservation, development and utilization of the water resources of the State, as provided in chapter 832 of the Statutes of 1929, has been concentrated for the past two months upon the preparation of reports covering the results of investigations made by the Division of Water Resources. Every effort is being put forth to complete these reports at the earliest possible date.

MISCELLANEOUS ACTIVITIES

A final check is being made in connection with the investigation of lands riparian to the Sacramento and American rivers. This includes a careful comparison between the riparian areas as determined and the original Spanish Grants, Swamp and Overflow Surveys, and Land Office patents.

Progress on State Highway System

MAJOR PROJECTS COMPLETED, UNDER WAY AND ADVERTISED,
AS OF FEBRUARY 1, 1931—OTHER ACTIVITIES OF DEPARTMENT

C. H. PURCELL, Chief of Division of Highways.

PROGRESS REPORT FOR THE MONTH

The following statement indicates the progress of State highway work for the portion of the current month up to January 22d:

Work placed under contract.....	\$947,400
Contracts pending and advertised.....	\$67,500

\$1,814,900

Work anticipated to be advertised during the coming month.....	\$3,817,400
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CONTRACTS COMPLETED, PROJECTS ACCEPTED

During the past month nearly twenty major contracts have been completed and accepted for the Division of Highways. Included in these contracts were the following:

San Diego-El Centro Highway—Just west of Coyote Wells in Imperial County a new steel and concrete subway has been constructed under the tracks of the San Diego and Arizona Railroad on the new alignment of this lateral, made after the cloudburst in 1926, which completely destroyed the old road.

Coast Route—An improvement on the Coast Route is noted by the construction of a new bridge across Nojoqui Creek, in Santa Barbara County. This new structure is built on a new alignment of the highway at this point and replaces the old narrow structure built many years ago by the county on an alignment which was dangerous to present high speed traffic.

Valley Route—The widening and paving of the eight miles between Fowler Switch Canal and Fancher Creek on the Valley Route just south of Fresno has been completed. The improvement cost \$283,200 and was carried through the town of Fowler.

Bayshore Highway—Progress on the Bayshore Highway, in San Mateo County, is seen with the completion of the final stage of construction on the five miles between South San Francisco and Burlingame. A 40-ft. Portland cement concrete pavement was laid on the graded roadbed which was completed about two years ago, extending from the grade separation under the S. P. tracks in South San Francisco to Broadway in Burlingame where it connects with the recently completed pavement between Burlingame and San Mateo. Pavement is now being poured on the portion of the route through South San Francisco. The present project was constructed at a cost of \$436,400.

Tiburon Work—An improvement of interest to motorists of the bay area is the reconstruction of the

State highway from the ferry slip at Tiburon to the Belvedere railroad crossing in Marin County.

McDonald-to-the-Sea Highway—In Mendocino County three short sections of the State highway, which extends from the Redwood Highway at McDonald, just north of Cloverdale, to the coast at Navarro Head, have been graded and surfaced with untreated crushed rock on improved alignment and grades.

Victory Highway—Another unit in the reconstruction of the trans-Sierra highway which leads from Central California to Reno via Auburn and Truckee, is added by the completion of the overhead grade separation at Yuba Pass in Nevada County. The new structure will eliminate the use of the present dangerous grade crossing near Crystal Lake.

Feather River Bridge—A project of widespread interest which has been completed and accepted during the past period, is the 500 foot bridge across the Feather River and the Western Pacific R. R. tracks, about 4½ miles east of Oroville in Butte County. This bridge is a unit in the construction of the new all year Oroville to Quincy lateral which will follow the Feather River Canyon.

Shasta Canyon Bridge—The second of five bridges to be constructed on the new alignment of the Pacific Highway between Yreka and the Klamath River, in Siskiyou County, has been completed at a point 5½ miles north of Yreka. Construction on the remaining three bridges and the grading of the roadway is being pushed forward and all work should be completed on this section by the beginning of summer.

Trinity River Bridge—A large steel bridge has been erected on the Eureka-Redding lateral across the South Fork of the Trinity River about two miles west of Salyer in Humboldt County.

LIST OF HIGHWAY BIDS AND AWARDS

For month of January

IMPERIAL COUNTY—Bet. Trifolium Canal and Kane Springs, grading and surfacing with asphalt concrete 6.3 miles. Dist. VIII, Rt. 26, Sec. B., Clark and Henery Const. Co., San Francisco, \$159,523; Steele Finley, Santa Ana, \$143,845; Busch Brothers, Torrance, \$158,285; R. E. Hazard Const. Co., San Diego, \$151,638; Daley Corporation, San Diego, \$181,926; Southern Calif. Road Co., Los Angeles, \$162,613; Contract awarded to Griffith Company, Los Angeles, \$142,323.

LOS ANGELES COUNTY—Widening Topango Creek Bridge, eight 27-foot timber spans and Las Flores Creek bridge, two 26-foot concrete spans and

surfacing approaches. Dist. VII, Rt. 60, Sec. B. & A., Oberg Brothers, Los Angeles, \$33,341; Paul M. White, Santa Monica, \$31,524; Sidney Smith, Los Angeles, \$33,796; Frank A. Weller, San Diego, \$28,916. Contract awarded to Owl Truck Company, Los Angeles, \$27,369.

ARCHITECTURAL AWARDS

For month of January, 1931

AGNEWS STATE HOSPITAL—Physician's Cottage, contract awarded to The Minton Company of Palo Alto for \$7,335. Contract for elevator work awarded to Spencer Elevator Company of San Francisco for \$3,326.

ATTORNEY GENERAL'S OFFICE, State Building, San Francisco—Alterations and additions, awarded to Vogt and Davidson of San Francisco for \$4,480.

CALIFORNIA SCHOOL FOR DEAF, Berkeley—Boys' and Girls' Dormitory Building, and Kitchen and Commissary Building; contract for general work awarded to Monson Bros. of San Francisco, \$172,740. Contract for Heating and Ventilating Work awarded to Geo. A. Schuster of Oakland for \$35,791. Contract for electrical work to George Woolf of Oakland for \$8,192.

VETERANS HOME, Yountville—Installation of water tube boiler awarded to Walter S. Leland of Oakland, \$12,000.

WATER APPLICATIONS AND PERMITS

Applications for permits to appropriate water filed with the Department of Public Works Division of Water Resources during the month of January, 1931.

KERN AND VENTURA COUNTIES—Application 6857. Florence Louise Cuddy, Lebec, Kern County, California, for 100,000 g.p.d. from three unnamed springs tributary to San Joaquin Valley, to be diverted in Sec. 32, T. 9 N., R. 20 W., S. B. B. and M. and Sec. 10, T. 8 N., R. 20 W., S. B. B. and M., for domestic purposes. Estimated cost \$3,000.

MODOC COUNTY—Application 6858. T. A. Somma, c/o J. T. Sharp, Attorney, Alturas, California, for 0.02 c.f.s. from an unnamed spring tributary to Pit River, to be diverted in Sec. 9, T. 41 N., R. 9 E., M. D. B. and M., for domestic purposes.

EL DORADO COUNTY—Application 6859. Magnus Jensen, Camino, California, for 0.025 c.f.s. from Fill Canyon tributary to Little Iowa Canyon, Big Iowa Canyon, S. Fork American River, to be diverted in Sec. 33, T. 11 N., R. 12 E., M. D. B. and M., for irrigation and domestic purposes (3 acres). Estimated cost \$200.

INYO COUNTY—Application 5860. W. C. Parcher, Bishop, California, for 2.5 c.f.s. from Green Creek tributary to Bishop Creek and Owen's River, to be diverted in Sec. 2, T. 9 S., R. 31 E., M. D. B. and M., for power purposes, 1.6 h.p. Estimated cost \$250.

INYO COUNTY—Application 5861. W. C. Parcher, Bishop, California, for 0.047 c.f.s. from Green Creek tributary to Bishop Creek and Owen's River, to be diverted in Sec. 2, T. 9 S., R. 31 E., M. D. B. and M., for domestic purposes. Estimated cost \$265.

NEVADA COUNTY—Application 6862. John K. Williams, Nevada City, California, for 2.0 c.f.s. from Windup Canyon tributary to Greenhorn Creek, thence Bear River, to be diverted in Sec. 5, T. 15 N., R. 10 E., M. D. B. and M., for mining purposes. Estimated cost \$150.

LAKE COUNTY—Application 5862. Leavitt Mead McQuestion, c/o Division of Pomology, University Farm, Davis, California, for 0.31 c.f.s. from Clover Creek tributary to Middle Creek, to be diverted in Sec. 6, T. 15 N., R. 9 W., M. D. B. and M., for irrigation purposes on 25 acres. Estimated cost \$250.

SAN DIEGO COUNTY—Application 6864. Coleman M. Gray, c/o George H. Stone, Attorney, San Diego Trust & Savings Bldg., San Diego, California, for 0.06 c.f.s. from Castro Creek tributary to San Luis Rey River, to be diverted in Sec. 18, T. 9 S., R. 1 W., S. B. B. and M., for irrigation purposes on 6 acres. Estimated cost \$1870.

ALAMEDA COUNTY—Application 6865. Sisters of the Sacred Names of Jesus and Mary, a corporation, c/o Hatfield, Wood & Kilkenny, Attorneys, Chancery Building, San Francisco, California, for 0.1 c.f.s. from Laurel Spring and Sulphur Spring tributary to Agua Caliente Creek, to be diverted in Sec. 8, T. 5 S., R. 1 E., M. D. B. and M., and Sec. 18, T. 5 S., R. 1 E., M. D. B. and M., for domestic purposes. Estimated cost \$8,000.

ALAMEDA COUNTY—Application 6865. Sisters of the Sacred Names of Jesus and Mary, a corporation, c/o Hatfield, Wood & Kilkenny, Attorneys, Chancery Building, San Francisco, California, for 0.2 c.f.s. and 43 ac. ft. per annum, from Laurel Creek and Arroyo Agua Caliente Creek tributary to San Francisco Bay, to be diverted in Sec. 7, T. 5 S., R. 1 E., M. D. B. and M., and Sec. 18, T. 5 S., R. 1 E., M. D. B. and M., for irrigation and domestic (stockwater) purposes on 58 acres and 200 head of livestock. Estimated cost \$525.

RIVERSIDE COUNTY—Application 6867. F. W. Sheffield and Chas. Harnack, c/o F. W. Sheffield, Redlands, California, for 3.0 c.f.s. from Falls Creek to be diverted in Sec. 33, T. 3 S., R. 3 E., S. B. B. and M., for irrigation and domestic purposes on 150 acres. Estimated cost \$3200.

INYO COUNTY—Application 6868. Harry J. Halliday, Bishop, California, for 0.0035 c.f.s. or approximately 2260 gallons per day from small unnamed stream tributary to Bishop Creek and Owen's River, to be diverted in Sec. 2, T. 9 S., R. 31 E., M. D. B. and M., for domestic and recreational purposes. Estimated cost \$135.

SISKIYOU COUNTY—Application 6869. Elliott Creek Mines, Inc., c/o W. L. Cobb, Pres., Box 668, Roseburg, Oregon, for 26 c.f.s. from Elliott Creek tributary to Applegate River, to be diverted in Sec. 19, T. 48 N., R. 10 W., M. D. B. and M., for power purposes (131.5 h.p.).

NEVADA COUNTY—Application 6870. Charles Thompson, c/o John F. Hoffman, Agent, Box 397, Grass Valley, California, for 56 c.f.s. from (a) Steep-hollow Creek and (b) South Fork of Little Greenhorn Creek tributary to Bear River, to be diverted in (a) Sec. 32, T. 17 N., R. 11 E., M. D. B. and M., and (b) Sec. 16, T. 16 N., R. 10 E., M. D. B. and M., for mining and domestic purposes. Estimated cost \$50.

TRINITY COUNTY—Application 6871. Stanley G. Shepard and associates, Denny, Trinity County, California, for 30 c.f.s. from Slide Creek (and Emigrant Creek at its mouth) tributary to New Creek, to be diverted in Sec. 19, T. 8 N., R. 8 E., H. B. and M., for mining purposes.

PLUMAS COUNTY—Application 6872. Max Paul Boehme, 809 Kearny Street, San Francisco, California, for 1.0 c.f.s. from Mill Creek tributary to East Branch of the N. Fork of Feather River, to be diverted in Sec. 27, T. 25 N., R. 8 E., M. D. B. and M., for irrigation and domestic purposes on six acres.

HUMBOLDT COUNTY—Application 6873. Thomas Nelson McDaniel, 312 Byington Building, Reno, Nevada, for 150 c.f.s. from Willow Creek tributary to Trinity River, to be diverted in Sec. 16, T. 6 N., R. 4 E., H. B. and M., for mining and domestic purposes.

PLUMAS COUNTY—Application 6874. Oscar T. Schumacher, Quincy, California, for 1.0 c.f.s. from unnamed spring tributary to Dixon Creek, thence Nelson Creek, thence Middle Fork Feather River, to be diverted in Sec. 33, T. 23 N., R. 10 E., M. D. B. and M., for mining and domestic purposes. Estimated cost \$350.

SAN DIEGO COUNTY—Application 6875. Crowell D. Eddy and Florence I. Eddy, c/o Crowell D. Eddy, 1132 20th Street, National City, California, for 0.25 c.f.s. from Spring in unnamed stream tributary to Sweetwater River, to be diverted in Sec. 31, T. 15 S., R. 2 E., S. B. B. and M., for irrigation and domestic purposes on 20 acres. Estimated cost \$500.

EL DORADO COUNTY—Application 6876. Mrs. Bertha Stover, c/o A. E. Carlette, 1279 Temple Street, Los Angeles, California, for 1/3 miner's inch c.f.s. from

School House Spring tributary to Mosquito Creek, thence S. Fork American River, to be diverted in Sec. 15, T. 11 N., R. 11 E., M. D. B. and M., for irrigation and domestic purposes on 8 acres. Estimated cost \$75.

SAN JOAQUIN COUNTY—Application 6877. J. L. Blossom and F. M. Lamb, c/o Ohm & Rabb, 109 E. Weber Avenue, Stockton, California, for 15.15 c.f.s. from North Canal tributary to Middle River Branch of San Joaquin River, to be diverted in Sec. 35, T. 1 N., R. 4 E., M. D. B. and M., for irrigation purposes on 1212.6 acres. Estimated cost \$14,000.

DEL NORTE COUNTY—Application 6878. Walter G. Muncy, P.O. Box 378, Crescent City, California, for 2000 gallons per day from Kelly's Gulch tributary to Smith River, to be diverted in Sec. 27, T. 17 N., R. 2 E., H. B. and M., for irrigation and domestic purposes on two acres.

MONO COUNTY—Application 6879. Edith Raymer, Bishop, California, for 0.005 c.f.s. or approximately 3250 g.p.d. from Convict Creek tributary to Owen's River, to be diverted in Sec. 14, T. 4 S., R. 28 E., M. D. B. and M., for domestic purposes. Estimated cost \$500.

TULARE COUNTY—Application 6880. J. H. Garner, Box 666, Springville, California, for 1.0 c.f.s. from Bear Creek tributary to Tule River to be diverted in Sec. 3, T. 20 S., R. 30 E., M. D. B. and M., for irrigation and domestic purposes on 34 acres. Estimated cost \$500.

ORANGE COUNTY—Application 6881. Mrs. C. C. Cravath, Box 43, Laguna Beach, California, for 360 gallons per day from spring tributary to North Fork San Juan Creek, to be diverted in Sec. 33, T. 6 S., R. 6 W., S. E. B. and M., for domestic purposes.

LOS ANGELES COUNTY—Application 6882. Clarence A. and Wm. Harvey Cruzan, c/o Clarence A. Cruzan, 915 E. 105th Street, Los Angeles, California, for 2.0 c.f.s. (1.0 c.f.s. from each of two springs) from (1) Warm Spring and (2) Whiskey Spring tributary to Mint Canyon, thence Santa Clara River, to be diverted in (1) Sec. 4, T. 5 N., R. 14 W., S. E. B. and M., and (2) Sec. 17, T. 5 N., R. 14 W., S. E. B. and M., for mining purposes. Estimated cost \$5000.

Permits to appropriate water issued by the Department of Public Works, Division of Water Resources, during January, 1931.

YUBA COUNTY—Permit 3643, Application 6412. Issued to Maurice E. Lawton, Strawberry Valley, Calif., January 12, 1931, for 0.054 cubic foot per second from Slickner Spring in Section 20, T. 20 N., R. 8 E., M. D. M., for power purposes. Estimated cost \$600.

INYO COUNTY—Permit 3644, Application 2787. Issued to The Southern Sierras Power Company, Riverside, California, January 13, 1931, for 2999 acre feet per annum from Middle and North Forks Bishop Creek in Sections 8 and 6, T. 9 S., R. 31 E., and Sections 35 and 25, T. 8 S., R. 30 E., M. D. B. and M., for power purposes. Estimated cost \$60,000.

INYO COUNTY—Permit 3645, Application 4549. Issued to The Southern Sierras Power Company, Riverside, Calif., January 13, 1931, for 2090 acre feet per annum from Green Lake Creek in Section 11, T. 9 S., R. 31 E., M. D. M., for power purposes. Estimated cost \$10,000.

INYO COUNTY—Permit 3646, Application 2788. Issued to Nevada-California Power Company, Riverside, Calif., January 13, 1931, for 2999 acre feet per annum from Middle and North Forks of Bishop Creek in Sections 8 and 6, T. 9 S., R. 31 E., M. D. M., for power purposes. Estimated cost \$60,000.

MENDOCINO COUNTY—Permit 3647, Application 6805. Issued to L. A. Howie, Redwood Valley, Calif., January 27, 1931, for 0.16 cubic foot per second from Redwood Valley Creek in Section 32, T. 17 N., R. 12 W., M. D. M., for irrigation and domestic purposes on 12.9 acres. Estimated cost \$500.

MONTEREY COUNTY—Permit 3648, Application 6725. Issued to Samuel R. and C. C. Avila, King City, Calif., January 14, 1931, for 0.19 cubic foot per second from Carrizo spring in Section 29, T. 21 S., R. 5 E., M. D. M., for irrigation and domestic purposes on 15 acres. Estimated cost \$2500.

MENDOCINO COUNTY—Permit 3649, Application 6805. Issued to L. A. Howie, Redwood Valley, January 27, 1931, for 0.16 cubic foot per second from Redwood Valley Creek in Section 32, T. 17 N., R. 12 W., M. D. M., for irrigation and domestic purposes on 12.9 acres. Estimated cost \$500.

MARIPOSA COUNTY—Permit 3650, Application 6762. Issued to John J. Fiske, Coulterville, Calif.,

January 27, 1931, for 0.011 cubic foot per second from an unnamed spring in Section 26, T. 2 S., R. 17 E., M. D. M., for irrigation and domestic purposes on 4 acres. Estimated cost \$100.

VENTURA COUNTY—Permit 3651, Application 6589. Issued to Julius Olender, Fresno, Calif., January 31, 1931, for 0.039 cubic foot per second from unnamed spring, in Section 25, T. 7 N., R. 19 W., S. R. B. and M., for mining purposes. Estimated cost \$100.

SAN JOAQUIN, STANISLAUS AND CALAVERAS COUNTIES—Permit 3652, Application 6522. Issued to Linden Irrigation District, Stockton, Calif., January 31, 1931, for 40,000 acre feet per annum and 154 cubic feet per second from Calaveras River in Section 5, T. 2 N., R. 9 E., M. D. M., for irrigation and domestic purposes on 12,330 acres. Estimated cost \$105,000.

DAM APPLICATIONS AND APPROVALS

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 January, 1931.

LASSEN COUNTY—Avilla Dam No. 253. Antone Avilla, Red Bluff, owner; lumber and rock, 9½ feet above streambed with a storage capacity of 440 acre feet, situated on Pit River tributary to Sacramento River in Sec. 1, T. 37 N., R. 7 E., M. D. B. and M., for diversion purposes for irrigation use.

MODOC COUNTY—Willow Creek Flat Dam No. 121-4. Sixby Hoffman Cattle Co., Ltd., Alturas, owner; earth fill, 10 feet above streambed, situated on Willow Creek tributary to Clear Lake in Sec. 11, T. 46 N., R. 11 E., M. D. B. and M., for storage purposes for irrigation use.

MODOC COUNTY—Lookout Dam No. 164. Lookout Dam Company, Lookout, owner; 10 feet above streambed with a storage capacity of 200 acre feet, situated on Pit River tributary to Sacramento River, for diversion purposes for irrigation and stock use.

LASSEN COUNTY—Thompson Dam No. 257. S. J. Thompson, Bieber, owner, earth and timber dam, 8 feet above streambed with a storage capacity of 15 acre feet, situated on Pit River tributary to Sacramento River in Sec. 11, T. 37 N., R. 7 E., M. D. B. and M., for diversion purposes for irrigation use.

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 January, 1931.

MODOC COUNTY—Rye Grass Swale Dam No. 150. W. B. Graves, Alturas, owner; earth, 30 feet above streambed with a storage capacity of 2000 acre feet situated on Rye Grass Swale tributary to Pit River in Sec. 25, T. 41 N., R. 11 E., M. D. B. and M., for storage purposes for irrigation use. Estimated cost \$1750, fee paid \$20.

RIVERSIDE COUNTY—Bailiff Dam No. 324. R. E. Bailiff, Cabazon, owner; rock fill, 28 feet above streambed with a storage capacity of 5 acre feet, situated on a creek tributary to Whitewater River in Sec. 18, T. 3 S., R. 2 E., S. B. M., for storage purposes for domestic and irrigation use. Estimated cost \$4500. Fee paid \$20.

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 January, 1931.

MODOC COUNTY—Rye Grass Swale Dam No. 150. W. B. Graves, Alturas, owner; earth dam, situated on Rye Grass Swale tributary to Pit River in Sec. 25, T. 41 N., R. 11 E., M. D. B. and M.

MONTEREY COUNTY—Black Rock Dam No. 643. Monterey Stock and Game Association, Monterey, owner; earth dam, situated on Black Rock Creek tributary to Carmel River in Sec. 32, T. 17 S., R. 2 E., M. D. B. and M.

LOS ANGELES COUNTY—Lower Franklin Dam No. 6-14. City of Los Angeles, Los Angeles, owner; earth, located in Sec. 12, T. 1 S., R. 15 W., S. B. M.

LOS ANGELES COUNTY—Porter Estate Dam No. 775. B. F. Porter Estate, San Francisco, owner; earth dam located in Sec. 9, T. 2 N., R. 16 W., S. B. M.

MODOC COUNTY—Toreson Dam No. 153. F. W. Caldwell and Mrs. J. V. Caldwell, Canby, owners; earth dam, situated on Tom's Creek tributary to Pit River in Sec. 16, T. 41 N., R. 10 E., M. D. B. and M.

NEVADA AND PLACER COUNTIES—Bear River Dam No. 97-11. Pacific Gas & Electric Co., San Francisco, owner; gravity, situated on Bear River tributary to Yuba River in Sec. 22, T. 15 N., R. 9 E., M. D. B. and M.

MONO COUNTY—Upper Twin Lake Dam No. 531. G. B. Day Estate and Plymouth Land and Livestock Company, Wellington, Nevada, owners; rockfill, situated on Robinson Creek tributary to East Walker River in Sec. 5, T. 3 N., R. 24 E., M. D. B. and M.

MONO COUNTY—Lower Twin Lake Dam No. 531-2. Hunewill Land and Livestock Company; Day Estate and F. W. Simpson, Wellington, Nevada, owners; rockfill, situated on Robinson Creek tributary to East Walker River in Sec. 33, T. 4 N., R. 24 E., M. D. M.

MONO COUNTY—Dexter Creek Dam No. 532. Wm. Symons, Laws, California owner; earthfill situated on Dexter Creek.

PLANS APPROVED

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 January, 1931.

ORANGE COUNTY—Santiago Creek Dam No. 75. Serrano and Carpenter Irrigation Districts and The Irvine Company, Orange, owners; earth, 110 feet above streambed with a storage capacity of 25,000 acre feet, situated on Santiago Creek tributary to Santa Ana River in N. W. corner Blk. 70, Rancho Lomas de Santiago, for storage purposes for irrigation use.

Plans for the repair or alteration of dams approved by the State Department of Public Works, Division of Water Resources, during the month of January, 1931.

MODOC COUNTY—Webb Flat Dam No. 160. Gerig Bros. et al, Bieber, owners; earth, situated on Webb Flat tributary to Egg Lake in Sec. 5, T. 41 N., R. 7 E., M. D. B. and M.

CONTRA COSTA COUNTY—Antioch Dam No. 3. Town of Antioch, Antioch, owner; earth, situated on unnamed creek tributary to San Joaquin River in Sec. 36, T. 2 N., R. 1 E., M. D. B. and M.

NEVADA COUNTY—Culbertson Dam No. 97-17. Pacific Gas and Electric Company, San Francisco, owner; earth, situated on Texas Creek tributary to South Yuba River in Sec. 15, T. 18 N., R. 12 E., M. D. B. and M.

NEVADA COUNTY—Lower Feeley Dam No. 97-35. Pacific Gas and Electric Company, San Francisco, owner; earth, situated on Fall Creek tributary to South Yuba in Sec. 29, T. 18 N., R. 12 E., M. D. B. and M.

NEVADA COUNTY—Middle Lindsay Dam No. 97-41. Pacific Gas and Electric Company, San Francisco, owner; earth, situated on Texas Creek tributary to South Yuba River in Sec. 21, T. 18 N., R. 12 E., M. D. B. and M.

NEVADA COUNTY—Upper Feeley Dam No. 97-45. Pacific Gas and Electric Company, San Francisco, owner; earth, situated on Fall Creek tributary to South Yuba River in Sec. 28, T. 18 N., R. 12 E., M. D. B. and M.

DEER ARE CAUSE OF WRECK IN HIGHWAY

(From the *Roseville Press*)

J. A. Lundy of Y street, Sacramento, saved the lives of three deer on the state highway near Weimar Sunday afternoon, but caused a traffic tieup, bruised heads, broken bumpers and bent fenders. Lundy stopped suddenly on the highway when traveling about 35 miles per hour. The cars following him from the snowline did not have an opportunity to stop in time.

The three deer crossed the highway and climbed the bank, disappearing in the darkness.

HIGHWAY BEAUTIFICATION AIMS ARE ANNOUNCED

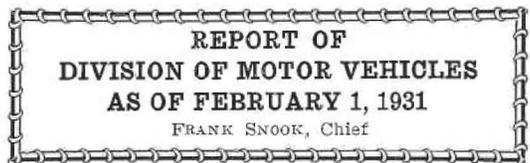
The committee on beautification of highways, San Joaquin Valley Tourist and Travel Association, at the annual meeting of the association held during January in Bakersfield reported the following recommendations, which were unanimously adopted:

Elimination of objectionable road signs on scenic highways.

Due to the fact that exotic plants are not permitted introduction into the national parks, the beautification of these areas must be along the line of protection of natural growth and in cleaning up debris in those areas.

That shade trees be planted along all state highways in the Valley to provide shade and beauty.

Conservation of wild flowers by discouraging the picking of all varieties along the roadsides, through education and legislation.



PATROL MAY UTILIZE RADIO

For the past two months, quite an extensive research study has been made with a view of establishing the radio as a means of communication for the California Highway Patrol. A transmitting set was established at Mather Field, Sacramento, through which it was capable of contacting men in the patrol as far south as El Centro, to whom orders were given. The station was simultaneously heard in the northern part of the State, New York City, and other distant points. It was conclusively demonstrated by these tests that it is quite feasible to send short wave signals by radio to all parts of the State from a single station. I believe this means of communicating with the men, when perfected, will prove very beneficial and much cheaper for the State than other methods that have been proposed. Today approximately forty-two cities in the United States have radio employed in police service.

(For 1930 motor vehicle registration figures, see page 22 of this issue.)

HIGHWAY WORKER IS HIT BY AVALANCHE

The following news article is from the *San Bernardino Sun*:

A. J. Taylor, employee of the State Highway Department, who was injured in a landslide near Strawberry flats, was reported slightly improved at the Ramona hospital last night.

Taylor suffered several broken ribs, injuries to his right arm and cuts and bruises about the body when a landslide caused a rope to break which he had tied around his body while working on the side of the mountain highway, causing him to drop into a canyon below.

Dr. Ross C. Martin, his attending physician, said last night that Mr. Taylor appeared slightly improved although his injuries are serious.

"I am sorry," said the dentist, "but you can not have an appointment with me this afternoon. I have eighteen cavities to fill." And he picked up his golf-bag and went out.—*Juggler*.

STATE OF CALIFORNIA
Department of Public Works

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Port of San Jose—Not appointed

Port of San Diego—Edwin F. Sample

STATE HIGHWAYS IN CALIFORNIA SHOWING THE PRIMARY AND SECONDARY ROAD SYSTEMS AND THE DIVISION OF THE STATE UNDER THE BREED BILL.



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