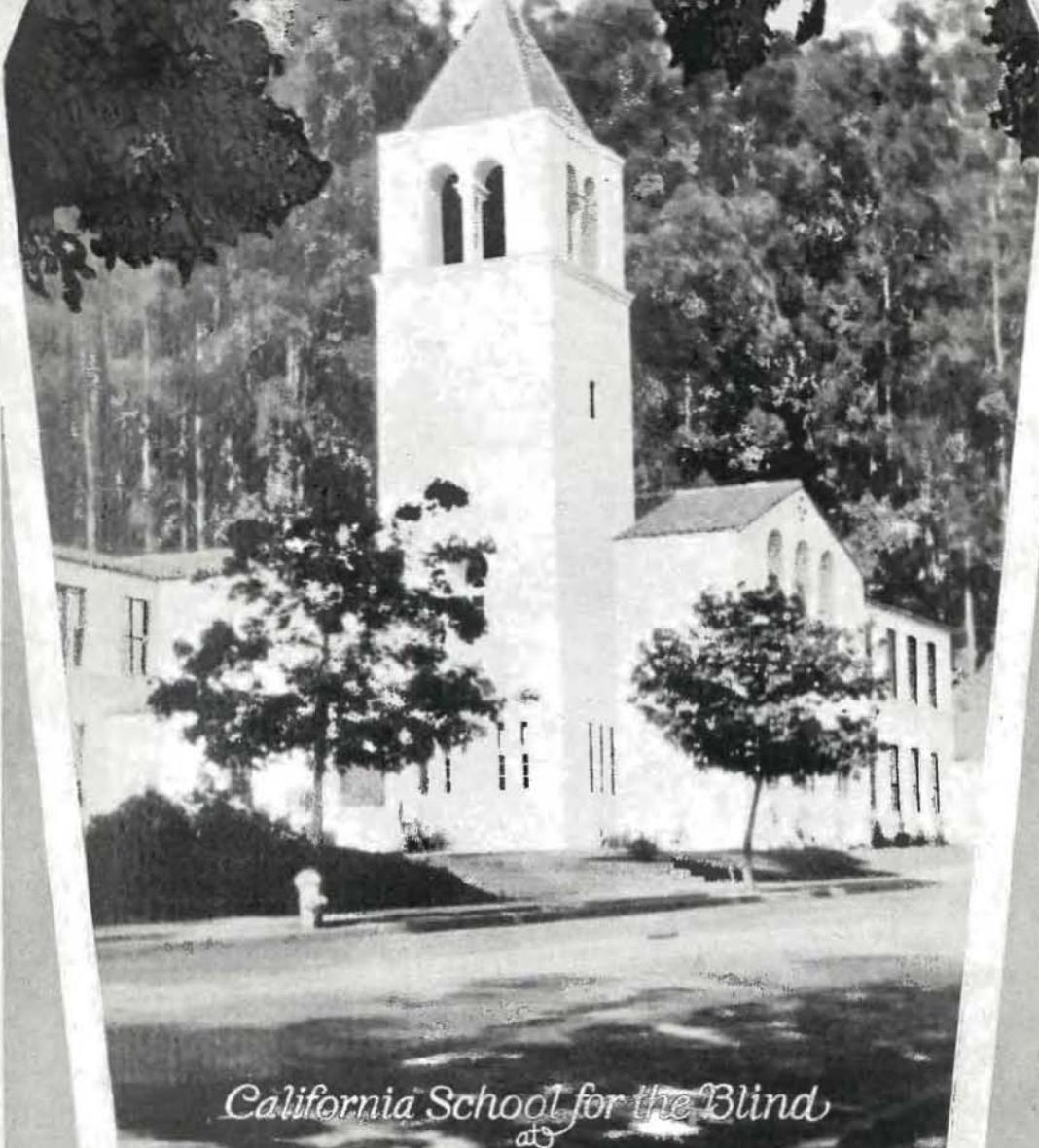


Vol 9 # 10

CALIFORNIA DOCUMENT

CALIFORNIA HIGHWAYS and PUBLIC WORKS



*California School for the Blind
at
Berkeley*



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By A. L. BANKS, Assistant Deputy Director of Public Works

CALLED from the dispirited ranks of unemployment, 3600 men are now mending, dressing and improving the highways of California. They face the winter in a mien of cheerfulness that was sadly lacking a few weeks ago. Better still, nearly 18,000 dependents have welcomed hope and comfort back to their homes. For, be it known, married men have been given every preference. The more children, the greater the consideration. Out of 40 men taken from Sacramento, every one had at least five children; some had seven and eight.

Governor Rolph's highway maintenance program calling for this extra labor will put about \$52 monthly into the pocket of every man in the big crew. The State Department of Public Works, Highway Division, has increased its daily pay roll by \$7,200 in order to meet this one item. Good old California!

Nor is this all. Every phase of highway and construction work has been speeded up. Literally millions of dollars in new contracts have been let the last few weeks. Authorizations are going out for new highways, for new buildings and for every form of State improvement.

Good Cooperation

But—speaking directly of the emergency work of the Public Works Department—the joy apparent among the department attaches in preparing for it was proof of their fine fibre. And the cooperation received from every part of the State made the work of preparation even easier.

The 3600 men called to the highway work were not taken from cities or communities on a basis of population. The district engineers had worked out their itemized programs. These were adjusted to terms of men and money. Work which ordinarily would not have been taken up until next year, was set up for immediate attention. The men were called by quota from points adjacent to the job in hand. In most instances the program

was so arranged as to enable the men to spend their nights at home—to take back to their families their full day's wage.

Old man machinery is out of luck, for the time being. The program for the next few months gives the right of way to hand labor. And it is a wholly legitimate clearance. Under any circumstance or at any time, the work in hand would have been done by hand power. And none of it is "made jobs."

Not Charity Work

Colonel Garrison has been insistent that the labor fit the going program of the division. He said it must be

carefully planned and as carefully supervised. This means that there is no charity in it. The State and its work-needy citizens are working in a reciprocal relationship.

In assembling the men, 145 mayors and about 90 Legion Posts and rural officials were contacted. A personal letter from the Governor went to each. He invited their cooperation, specifying that the men must be (1) bona fide residents of California, (2) married men or those with sole dependents, and (3) known to be acutely in need of employment.

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A. L. BANKS

State Commissions and U. S. Board Get Into Action on Water Problem

INCREASINGLY active and State-wide interest in California's water problem has been evidenced during the past month. Governor Rolph has made several public addresses calling attention to the vital importance of obtaining an economically sound solution of the problem, and of the necessity for doing this with the least possible delay.

Governor Rolph's commission of citizens, known as the California Water Resources Commission, has organized and has held several meetings, two of which were joint meetings with the California Joint Legislative Water Committee. Both bodies are cooperating with each other, and have discussed plans for joint procedure.

The California Joint Legislative Water Committee held a number of public hearings in order that all phases of the problem be given consideration. One of the principal duties of the committee is the preparation of proposed legislation and constitutional amendments. The committee has been earnestly at work on the study of this phase of the problem.

CALLS FOR ACTION

The initial meeting of the commission was held in the office of the Governor in San Francisco, September 17, 1931. In addressing the members upon the duties of the commission, Governor Rolph said:

"The problem that you have before you for solution is the most important and pressing one in California today. * * * Immediate and energetic action is required to correct this unsatisfactory and unnecessary situation. It is no longer a local problem. It is one in which the State itself should take a part. The task that is assigned to you is to evolve a plan of action.

"The duties of your commission as set forth in Senate Concurrent Resolution No. 40 are:

1. To study and report upon the conservation, development and distribution of the water resources of the State, including particularly findings and recommendations as to the economic phases and such proposed legislation, resolutions and constitutional amendments as may be necessary to carry into effect a coordi-

nated plan for the development and distribution of the water resources of the State.

- 2.** To meet with and collaborate with the Joint Legislative Water Resources Committee.
- 3.** To cooperate and confer with the President of the United States and any board, commission, congressional committee or other agency of the United States which may have charge of activities in respect to water conservation, utilization, flood control or navigation.
- 4.** To do any and all things necessary to make a full and complete investigation and report.

"It is my desire that you study and report upon all phases of the problem—engineering, economic, legal, financial and constitutional.

"To the fulfillment of your momentous task I pledge you my whole-hearted and unstinted support."

GOVERNOR AT MEETINGS

The chairman, Matt I. Sullivan, former Chief Justice of the Supreme Court of California presided. Shannon Crandall of Los Angeles was elected vice chairman and State Engineer Edward Hyatt, secretary.

The second meeting of the commission was a joint meeting at the invitation of the Joint Legislative Committee and held in San Francisco on September 28th. On the following day a joint meeting was held at Hotel Oakland, with members of the Honorary Advisory Committees appointed by Governor Rolph to assist the commission present. The Governor attended both meetings, outlined the principal features of the State-wide water problem, and assured the committee and commission of the whole-hearted support of the executive and the State departments.

The Honorary Advisory Committees met after the general meeting in the morning and organized by the selection of chairman, vice chairman and secretary. The former Governors Gillett, Pardee and Richardson were introduced by Governor Rolph and addressed the meeting, assuring those present of their interest in the problem and of their willingness to cooperate and assist in every way.

Both the Joint Legislative Water Committee and the Water Resources Commission were in session on September 30th at San Francisco.

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Waste and Want--Cause and Result



DESTRUCTIVE AND COSTLY waste of California's greatest natural resource. This flood scene of March, 1928, shows a major California stream inundating valuable farm lands through a levee break. The flood peak on this stream was 211,000 cubic feet per second.



THE SAME STREAM in August, 1931. It became totally dry and left 4500 acres of highly improved lands without irrigation water. Storage reservoirs would conserve flood waters for use in areas of dire need and give an added degree of flood protection to local areas.

Marked Decrease in Fire Toll Credited to State Highway Prevention Work

AT A MEETING in San Bernardino on October 10th of the southern counties working with the California Fire Emergency Committee, State Forester M. B. Pratt asserted that the marked decrease in the number of fires this year attributed to carelessness on the part of smokers and campers was mostly due to Department of Public Works and the automobile merchants.

"The splendid press releases from the California Highway Patrol on the number of citations for throwing lighted materials from moving vehicles," said the State forester, "and honorable merits awarded highway patrolmen for putting out fires were educational measures of great value in the fire prevention campaign."

PRESS STORIES HELPED

"The press of the State during the fire season months continually carried news items of the oiling and burning in and along the rights-of-way of the State Highway System by the Division of Highways as a preventive to fire starting and as a fire break for fires starting elsewhere.

FIRST DEFENSE LINE

With over 2000 automobile dealers cautioning patrons against fire, the State Highway System proved itself to be a veritable first line of defense and Colonel Walter E. Garrison, director of Public Works, carried out his part as a member of the California Fire Emergency Committee to the letter with very definite results."

EDUCATIONAL CAMPAIGN

As carelessness in the use of the lighted cigarette and camp fire is mostly attributable to people living in cities and towns, it was announced at the San Bernardino meeting that the California Fire Emergency Committee through the county fire emergency committees would devote the winter months to an educational campaign with the volunteer fire departments of the cities and towns sponsoring the movement.

At a meeting of the Northern California Fireman's Association, a body representing all the towns north of San Francisco and

Sacramento to be held in Arbuckle early in December, a definite fire program will be arranged, aimed directly to reach the city folks using the highways in the forest fire season.

Fire organizations in the southern counties have been active for several years along such a line and forestry officials credit the low fire record maintained in southern California during the fire season just passed to the activity of fire organizations.

CLEANING COUNTY ROADS

With a State appropriation to the Department of Public Works for cleaning debris from the State highways and a Federal appropriation to each national forest for county roads within the national forests, cooperative agencies with the California Fire Emergency Committee are urging a State appropriation for the State forestry department to match county funds provided by law for the removal of debris from county roads outside of national forests.

The fire hazard removal campaign of the Division of Highways for 1931 extended into forty-six counties, covering 1150 miles at an expense of \$80,000. The spraying with oil and burning of roadside vegetation in the spring is followed in the fall and winter by clearing in forest areas. Crews are set to work cutting and burning slash and down timber within the State highway right of way.

During this winter a considerable sum will be expended for this purpose contributing to the relief of the unemployed.

STATES SHOW INCREASE

The mileage of State Highways surfaced during 1930 was 27,464, an increase over the preceding year, and State highway departments expended \$980,000,000 on roads in the year, an increase of 22 per cent over 1929, the bureau of public roads, Department of Agriculture, states.

Total State income for highway purposes during the year was \$1,136,673,437, and only nine states showed a decline in this income, the bureau said. The figures do not include work by counties, townships or other jurisdictions, it is explained.

"Why that net at the railroad crossing?"
"To catch auto parts."

How State Cooperates in Building Highways Through Municipalities

There were included in the present highway budget appropriations totaling \$2,700,000 for the improvement of State highways within the corporate limits of cities. All of these appropriations were set up on a cooperative basis allowing for participation by cities on the basis of agreements made through the State Highway Commission. The State's policy in this matter and details of the procedure for cooperation between State and city are clearly set forth in the following paper read by State Highway Engineer C. H. Purcell before the recent convention of the League of Municipalities at Del Monte.

By C. H. PURCELL, State Highway Engineer

ONE of the functions of a State Highway System is to connect centers of population. The State Highway System of California fulfills this function. The 202 cities of California served or connected by State highways represent 70 per cent of the total State population.

All of these cities are termini for local traffic originating in their immediate vicinity; most of them are the end of the journey for some through traffic. In nearly every case, however, a fairly well defined route through the municipality has been established, or has become such through usage, for traffic proceeding to a further destination. This route might be designated as the route of the State highway through the city.

ADDED THIRTY-SIX MILES

The total length of such routes within corporate limits is about 457 miles. Thirty-six miles of this total were added when the 800 miles of secondary highways were added to the State system this year. This mileage within the cities is about 6 per cent of the total State highway mileage.

Viewed thus, as a total, these figures present quite a different picture than when visioned, as we usually do, as individual units.

The first question which comes to our minds and which, obviously, has occurred to many before: Who has the responsibility of providing the required improvement on these through routes?

In the early days of State highway activity, this responsibility was definitely assigned to the community. But not many years later, when the mileage of improved State roads began to increase, when longer stretches of continuous pavement became more common,



C. H. PURCELL

then the short sections of unpaved or deteriorated pavement through communities which were financially unable to improve their streets, brought this question more forcibly to attention.

Although under authority of existing legislation and the bond acts, some improvement was done by the State within corporate limits of cities, the large mileage of incomplete State highways whose cost exceeded the available

(Continued on page 32)

Good vs. Bad Roads Reflected in Costs Of Operating Autos

PROOF that good roads are a paying investment from the highway user's point of view is shown by an analysis of automobile operation costs on various types of highways according to the American Road Builders' Association.

AVERAGE COST OF 800 CARS

From detailed cost records reported on about 800 automobiles operated in various parts of the United States, figures were prepared taking all factors into consideration, showing the average cost of automobile operation over all types of surfacing to be in cents per mile:

Type of car	COST PER MILE	Cents
Light fours.....		6.02
Medium fours.....		6.42
Heavy fours.....		7.20
Light sixes.....		7.38
Medium sixes.....		8.40
Heavy sixes.....		9.45

Among the various items of operating cost, road condition is shown to have no effect on license, garage, interest and insurance. The increase in cost of maintenance and in depreciation of automobiles as the type of road becomes poorer is in somewhat the same ratio as the increase in gasoline consumption, shown above. In cost of tires and tubes comes the greatest increase, and it is estimated that where \$1 is expended for this item on improved roads of high type the cost is almost triple on roads without improvement, or \$2.90.

The division of cost items on an imaginary "average" automobile, based on annual mileage of 11,000, is shown as follows:

Item of cost	Cents per mile
Gasoline.....	1.31
Oil.....	0.22
Tires and tubes.....	0.64
Maintenance.....	1.72
Depreciation.....	1.39
License.....	0.14
Garage at \$4 per month.....	0.44
Interest at 6 per cent.....	0.36
Insurance (fire, theft, tornado).....	0.21
Total cents per mile.....	6.43

SAVING PER MILE

The saving shown in operation of such average automobile due to road improvement is, where roads without improvement are changed to intermediate type, 1.07 cents per mile, where intermediate type is changed to high type, 0.99 cents per mile, and where unimproved type is changed to high type, 2.06 cents per mile.

The cost tables range from 11 cents per mile, the cost of operation of a "heavy six" over unimproved roads, down to 5.10 cents, the cost of operating a "light four" over high type roads. This gives a conservative figure for the lightest car and the best road conditions obtainable, and for the heaviest car operating on unimproved roads.

No man's opinion is entirely worthless. Even a watch that won't run is right twice a day.

Miss Murray Swings Wicked Hoe, They Say, Up in Sutter County

THE visitor who comes to the executive offices of the Department of Public Works in Sacramento is greeted by a tall, comely, silver-haired woman with a smile. And what a smile!

It warms the cockles of your heart and makes you feel right at home, because sparkling eyes behind the big glasses through which she beams upon you radio an inaudible "Cheerio, my friend, glad to see you."

Miss Myrtle V. Murray is the dispenser of the exotic smile and as a valued member of the State government she has been greeting visitors in the same cordial way for twenty years.

Entering the State's employ as a girl she has seen a long procession of governors and directors come and go—five governors and six directors to be exact.

GOT EARLY START

In 1911 she started as a stenographer in the Highways Department, as it was then named. The staff consisted of the chief, an assistant and two stenographers. Then she went into Governor Johnson's office serving under him and Governor Stephens for eight years returning in 1921 to the newly organized Department of Public Works and became its highly efficient secretary.

In addition to her multifarious duties in that capacity, she is the boss and mother confessor of seven girl stenographers and that's some job in itself. But every girl who ever worked for her loves her, they declare, so that's the kind of a boss Miss Murray is.

KEEPS ALL SECRETS

And she can keep secrets of State just as well as she keeps the girl's secrets. Ask the reporters, they know.

If some week-end you are motoring through Sutter County and passing a large peach and prune ranch observe a tall, lithe woman busily hacking away at the orchard weeds—that's Miss Murray. She and her two sisters own forty-seven acres of bearing peach and prune trees and her one great diversion is to hie away from affairs of State on Saturday afternoons to play the role of the lady with the hoe among her beloved fruit trees.

You wouldn't believe it to look at her but they say she swings one of the wickedest hoes in all Sutter County.

GOVERNORS



SHE'S SEEN THEM ALL COME AND GO SINCE 1911



SECRETS



HER HEAD IS FULL OF SECRETS OF STATE



THERE ARE SMILES that make you happy and here's the real thing, exclusively produced and dispensed by Miss Myrtle V. Murray, secretary of the Department of Public Works. For twenty years she has been welcoming visitors to the executive offices of the department at Sacramento with this cheery smile. Her head just buzzes with secrets of State but she's a veritable genius at guarding them. She's the boss of seven girl stenographers, all of whom love her. And her hobby? You'd never guess it. Nothing less than ranching. She spends nearly every week-end swinging a mean hoe and spade on her fruit ranch.



SHE'S A RANCHER SATURDAY AFTERNOONS SUNDAYS AND HOLIDAYS



SHE'S LOVED BY ALL SHE BOSSES

Nation's Highway Builders in Annual Session Back Employment Measures

The American Association of State Highway Officials is a distinguished organization composed of experienced authorities on highway construction and policies from all the states who gather in convention once a year to discuss such problems. Their conclusions are accepted as the voice of highway officialdom in all State, Federal and Congressional circles. The following report of the recent meeting at Salt Lake is made by one of the California delegation:

By C. C. CARLETON, Chief, Division of Contracts and Rights of Way

THE SEVENTEENTH annual meeting of the American Association of State Highway Officials was held in Salt Lake City, Utah, beginning Monday, September 28th, and closing on Thursday, October 1, 1931.

The California Highway Department was represented by Earl Lee Kelly, chairman, and Harry A. Hopkins, commissioner, of the California Highway Commission; C. H. Purell, State Highway Engineer; T. E. Stanton, Materials and Research Engineer; Fred J. Grumm, Engineer of Surveys and Plans, and the writer.

While the numerous problems affecting State highway finance, construction, maintenance, protection and beautification were duly considered in general and section meetings, the dominant note of the convention was the aiding of employment throughout the country.

Mr. W. C. Markham, executive secretary of the American Association of State Highway Officials, echoed this note when he said in his address: "We have always been taught to measure road improvements by the yard. This year we are asked to reckon them by heart beats."

The opening address of the convention was made by Henry H. Blood, chairman, State Highway Commission of Utah, and retiring president of the American Association of

State Highway Officials. He urged that the present regular appropriations for Federal aid roads, forest roads and highways across the public domain be continued by Congress.

He urged also that the Federal government make as much money available as possible for emergency work. He asked that the new

emergency money be considered a direct appropriation to the states rather than a loan, as was the 1931 emergency appropriation, and declared that the efficiency with which the 1931 emergency appropriation of \$80,000,000 was spent justified more such funds.

He asked that the Federal government consider the advisability of making a portion of the Federal funds available for force account work, to give the highway departments a little more leeway in providing some emergency



Hopkins, Carleton and Grumm at Salt Lake

projects in special instances.

He stated, however, that the contracting system should be maintained for the larger part of the work.

He suggested also that steps be taken to provide as much hand labor as is consistent with good economics, but warned that the highway departments and the Federal government should remember also that there is labor concerned in making road building machinery.

Mr. W. C. Markham, the executive secretary of the association, incorporated in his

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UNDER GOOD CONTROL is the portion of the Shellville Highway between Napa and Shellville where "Check" Meyer operates his Division of Highways courtesy car piloting traffic over the one-way strip beside new surfacing.

In the good old days when a road had to be repaired or reconstructed it was customary to fence it off with a big detour sign and let the motorist shift for himself. Sometimes an alternate rough road was provided for him through trees and fields.

The modern method of the California Public Works Department is different. It is founded on the policy of extending every courtesy to the motoring public. If possible only half of the road is closed at one time. When this policy was first put into effect motorists in trying to pass each other on the narrow strip would occasionally get off on the soft, unfinished portion. Hence the control car.



"CHECK" MEYER and His Control Car

Menace of Drunken Driver Increasing on State Highways

THE INCREASING menace of the drunken driver on the highways of this State is convincingly shown in the latest official report that 1481 motor accidents involving death or injury were caused by drunken drivers or drunken pedestrians during the first seven months of this year.

Of these accidents, 133 resulted in deaths. The other 1348 ranged from serious accidents that left their victims crippled for life, to those of a minor nature.

Of the drivers involved 1293 were listed as having been intoxicated. There were 188 drunken pedestrians involved.

Physical defects either in drivers or pedestrians resulted in eight deaths and injuries to sixty-four individuals during the period.

The observation has been made by patrol officials that in traffic accidents involving a drunken pedestrian the pedestrian himself is usually the victim. Where intoxicated drivers are directing the motor vehicle an innocent person is frequently killed, while the drunken driver may escape injury entirely.

The number of drunken drivers is steadily increasing each month, according to the State records.

On July 1, 1931, a total of 1,476,000 automobiles and motorcycles were registered in Germany. Of this number, 522,943 were passenger cars, 161,072 trucks, and 792,075 motorcycles.

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Good Roads Values Can't Be Expressed in Terms of Money

THE VALUE of good roads can not be expressed in money. Like all other good things, hard surfaced roads have immense collateral values. Collateral advantages and intangible values spring up around every useful enterprise. To this rule there are no exceptions, and good roads form a particularly happy illustration of its truth.

"Good roads answer the need of humanity for one of the three essentials of organized society—food, shelter and transportation, and roads serve all three. Good roads are lines of easy transportation and communication. They relieve the tedium and isolation of the country, and offer the blessings of rural life to the city worker. They form lines for the development of community interest. They foster and create community development; bring educational and recreational values to dwellers in the city and country alike; develop national and State patriotism."—Arthur M. Hyde, Secretary, U. S. Dept. of Agriculture.

BUILDING INCREASES

According to reports received by the Bureau of Labor Statistics of the United States Department of Labor from 338 identical cities having a population of 25,000 or over there was an increase of 13.4 per cent in the estimated cost of buildings for which permits were issued during the month of August, 1931, as compared with the preceding month.

Progress of Governor's \$5,000,000 Construction Program for 1931

By W. K. DANIELS, Deputy Chief, Division of Architecture

ONE OF the paramount public problems of the day being relief for the unemployed, it is quite appropriate at this time to make a brief analysis of what effort and accomplishment the Division of Architecture can show for its small part in unemployed relief by its operation of building construction, a business that employs nearly one hundred different crafts.

Building construction therefore being a major remedy for unemployment, Governor James Rolph, Jr., immediately after taking office on January 5, 1931, sponsored the legislation creating appropriations amounting to \$5,109,600 for State building construction. The several acts of Legislature making the appropriations were declared urgency measures and thereby made the moneys available immediately upon the signed approval of the Governor on January 16, 1931.

By the end of February, or approximately forty-three days later, the Division had a total of twelve projects ready for the taking of bids representing a construction valuation of \$826,200.

By the end of April the Division had an additional total of eighteen projects ready for the taking of bids, representing a construction valuation of \$782,625, making a total of thirty projects having a construction valuation of \$1,608,825 placed on the market of bidding within three and one-half months after funds were available.

Got Prompt Action

This would indicate the action taken by the Division in getting started promptly on the Governor's urgency building construction program.

By the end of August several of the projects had been completed ready for occupancy. Outstanding among these were the Poultry Building and the Live Stock Building constructed at Agricultural Park, Sacramento.

These buildings were not only ready for the poultry, sheep and swine one week before fair time, but had shrubs planted and grass growing around them also.

By the end of this year, 1931, practically all of the Governor's urgency building construction program will have been placed in the field of the building trades with the exception of the appropriation for the new State Hospital in southern California. This project must await a final selection of a proper site, and every effort is being made at this date to accomplish this important undertaking.

One Hundred Going Projects

However, the Governor's so-called five million dollar building construction program was not all the Division had to offer in the way of construction work to relieve unemployment. Many building projects financed by former legislation had just started prior to the first of 1931 and several had not been started, so taken together with the new appropriations they created a very large amount of work under way in the construction field by July 1, 1931, a total approximately of one hundred projects representing a construction valuation of \$5,843,000.

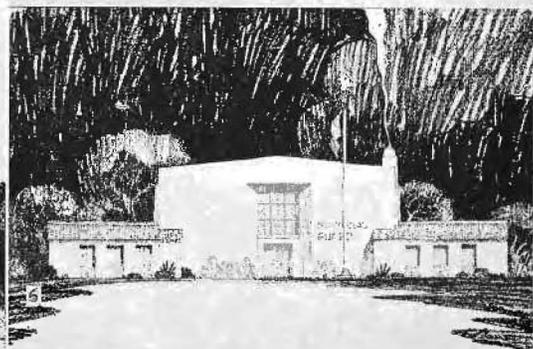
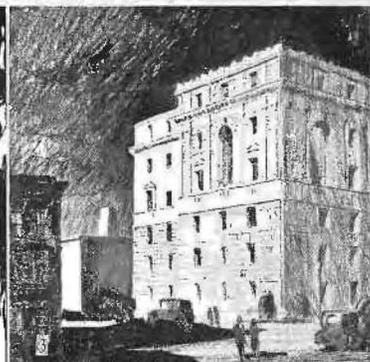
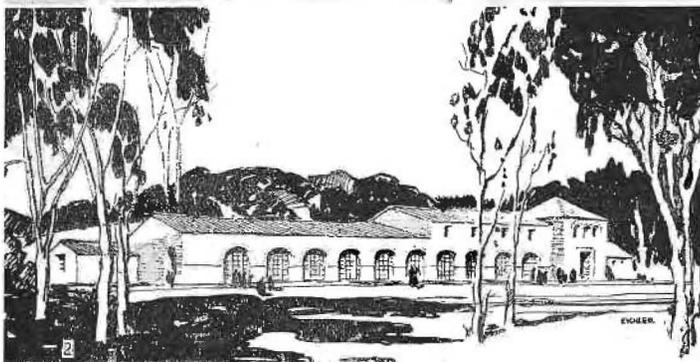
By the first of the coming year the Division will have placed in the field of construction an additional amount of construction work of over \$4,000,000.

It is therefore a fact and an assurance that hundreds of mechanics have been and will be put to work during this year and part of next by the efforts of the State administration along its one line of many endeavors, that of building construction.

This accomplishment is even more apparent when consideration is given to a change of administration and reorganization which created new department heads, new procedures and new policies, which fact made the securing of necessary approvals of procedure a harder problem.



W. K. Daniels



LOTS OF WORK for men of many crafts and trades is represented by these handsome structures, all of which have been put under construction since January 1 by the State Division of Architecture as part of Governor Rolph's \$5,000,000 building plan for 1931. Some have already been finished and all will be by the end of the year. No. 1 is a ward building of the Agnews State Hospital, under construction. No. 2 is the Poultry Building at Agricultural Park, Sacramento, finished. No. 3 is an annex to the State Office Building, Sacramento, under construction. No. 4 is a ward building of Mendocino State Hospital, under construction. No. 5 is a cottage for boys built and finished at Whittier State School. No. 6 is the new National Guard Armory in course of erection at Yuba City.

Consultants Approve Transbay Bridge Plans; Predict Saving Several Millions

By CHARLES E. ANDREW, Bridge Engineer of San Francisco-Oakland Bridge

VERY satisfactory progress is being made on the design work for the San Francisco-Oakland Bay Bridge.

Immediately after funds became available for this work, on August 15th an office was opened at 500 Sansome Street in San Francisco, and the formation of a design organization was started. Excellent office quarters were obtainable at very reasonable cost. Room is provided for a force of about 50 designers and draftsmen, with ample office space for executives and consulting board members.

The wide publicity given to this project has attracted many engineers and, as a consequence, a very large number of applications have been received from men of exceptional ability. Engineers in charge of the work have found it to be a major task to assemble these applications and select the men most fitted for the work in hand. Only those men having experience in structural design, particularly bridge work, can be used.

LOCAL MEN HIRED

Local engineers are being employed as far as possible, with the result to date that out of 33 employees only 4 are from without California, and practically all of the remaining 29 are from the bay cities.

The designing forces will be gradually recruited to a personnel of about 50 or 55 employees, and no trouble will be encountered in obtaining these additional men required

locally. It is the intention of those in charge to adhere to the principle of employing only local engineers for additional positions available.

Work is progressing very rapidly on the studies of final layout for the structure. The Consulting Board, consisting of Mr. Modjeski, Moran & Proctor, Mr. Moisseiff, Professor Derleth, Jr., and Mr. Brunnier, have held their first meeting in consultation with the Chief Engineer, Mr. Purcell, Bridge Engineer Andrew, and Engineer of Design, Mr. Glenn B. Woodruff.

GENERAL PLAN APPROVED

The Consulting Board have approved the general cross-sections of the bridge and required traffic capacity, i.e., a double deck structure with 6 lanes of auto traffic on the upper deck and three lanes for auto trucks and two electric interurban tracks on the lower deck.

They also have approved the general layout of span types as originally proposed, which contemplates the use of a suspension structure between San Francisco and Yerba Buena Island, and a cantilever structure and

TO INSPECT MODELS

GOVERNOR JAMES ROLPH, JR., on Wednesday, November 4, will visit the University of California to inspect the experimental models for the San Francisco-Oakland Bay bridge. He will be accompanied by the mayors of Berkeley, Alameda and San Francisco and his Bridge Authority composed of Lieutenant Governor Merriam, Director of Finance Vandegrift, Director of Public Works Garrison and Chairman Kelly of the California Highway Commission. The official party will also include the Transbay Bridge Citizens Committee headed by E. B. De Golia.

The bridge models have been constructed by Professor George E. Beggs of Princeton University in collaboration with University of California scientists and engineers of the California Department of Public Works under Charles H. Purcell, State Highway Engineer, and Charles E. Andrew, Department Bridge Engineer.



Photo courtesy San Francisco Call-Bulletin

YES, IT'S BRIDGE they're studying, but not the card game. These studious gentlemen comprise the Consulting Engineering Board called together by State Engineer Charles H. Purcell to discuss the controlling factors in the design of the San Francisco-Oakland Bay Bridge. The board is composed of the following men, all eminent in their profession: Standing, from left to right, are Leon Moisseiff, Consulting Structural Engineer; State Engineer Purcell; Charles E. Andrew, State Bridge Engineer, and Daniel E. Moran of Moran and Proctor, Foundation Consultants of New York City. Seated at the table, from left to right, are H. J. Brunner, Consulting Engineer; Ralph Modjeska of New York City, Chairman of the Board, and C. Derleth, Jr., Dean of Engineering, University of California.

fixed spans between the Island and the mainland at Oakland.

Mr. Modjeski, Chairman of the Board of Consulting Engineers, has expressed the opinion that the cost of the bridge will be well within the original estimate made by the department, i. e., \$75,000,000. He believes that the final figure will be several millions less, and may run as low as \$65,000,000 to \$70,000,000.

This opinion from an engineer of worldwide prominence and long experience in the design and construction of the world's largest bridges is very gratifying to the engineers connected with the project, as well as the general public.

Wonderful cooperation is being given to the engineers in charge by the various government and civic bodies. Many important prob-

lems remain to be solved, and the State administration is doing everything in its power to expedite the work and make this great project a reality at the earliest possible moment.

There seem to be no insurmountable difficulties which can not be solved, and the engineers in charge feel certain that by 1937, or probably 1936, the bridge will be open to transbay traffic.

SEEK ACCIDENT CURE

An increase of 26 per cent in motor vehicle accidents for the first six months of this year, compared with a similar period last year, has stimulated the California Committee on Public Safety to seek the cooperation of the State Judicial Council to bring about a more even and rigid imposition of penalties in the courts for traffic violators as a means of promoting public safety. This course was decided upon at the meeting of the executive committee held in San Francisco.

New Cut-off Highway Route to End Dangers of San Juan Bottle Neck

By L. H. GIBSON, District Engineer

AS OUR California travelers have been growing more accustomed to the higher standards of highway construction, the old San Juan grade crossing the Gabilan Range on the Coast route, between Salinas and San Juan Bautista, has been becoming increasingly exasperating to motorists traveling between Los Angeles and San Francisco.

The old San Juan grade was constructed in 1915, and at that time was entirely adequate for the prevailing traffic. Due to the tremendous increase in motor vehicular travel, this grade has been obsolete for several years. Because of the long grades, narrow roadway and sharp curves, it is now a bottle neck on the Coast Highway and the scene of many unfortunate accidents.

Different Location

The elimination of the bottle neck is now being accomplished by construction of a new highway, 16.6 miles long, on an entirely different route. Of this distance, 11.1 miles is well along towards completion, and the contract for the remaining 5.5 miles has been awarded to the Peninsula Paving Company, builders of the first section. Construction of a new bridge across the San Benito River is part of the project.

This new highway route lies partly in Monterey County and partly in San Benito County. The general location is on the coast route (U. S. Route 101), about 100 miles south of San Francisco. The southerly end is two miles north of Salinas and it passes through the villages of Santa Rita, Prunedale and Dumbarton. Its northerly terminus is at its junction with the existing State highway three miles north of the mission town of San Juan Bautista.

Much Lower Elevation

Instead of crossing the Gabilan range of mountains, this cut-off passes over mesas and through a series of valleys in the foothills of that range. There is a saving in distance of 1.2 miles. The highest elevation reached is 550 feet, whereas the pass on the present San Juan grade route is at an elevation of 1050 feet.

Contrasted with the present route over the mountains, where frequent sharp curves allow

only a sight distance of 75 feet, the new highway with its long radius curvature and low gradient will permit motorists to travel at all points at the highest speed permitted by the California laws. The old grade will remain as part of the State highway system.

The new highway construction project follows partly along the route of the old "Camino Real" between Monterey and San Benito counties. It passes through a narrow gorge known as the "Pinecate Rocks" in San Benito County, romantically interesting because in the bandit days of California it was the scene of many stage holdups. Foot-holes in a prominent rock are still evident where bandits scaled it to hold up stages from a point of vantage. Twelve acres additional right of way was obtained at "The Rocks" to preserve for all times the beauties of this romantic spot.

Through Scenic Country

Much of the route is scenically beautiful—of a pastoral character—different than any other section along the coast route, consisting of small fruit and chicken ranches. On the mesas guayule (Mexican rubber plant) and grain are extensively grown.

The new route will be particularly appreciated by truck owners, as to a large extent the old grade has prevented the use of trailers, and because of its grades has greatly increased the cost of truck travel.

The new route is so located that connecting highways will undoubtedly be constructed which will bring the San Francisco Bay district much closer to several cities of Monterey County. By the construction of a highway between four and five miles long between the new road and Castoville, several miles in distance and much time will be saved to travelers between San Francisco and the Monterey Peninsula.

Cut-off to Connect

Monterey County is already building an improved highway connecting the new route with Watsonville, and Watsonville will then be brought within nine miles of the coast highway. This latter cut-off will make possible a pleasureable circle tour starting at San Francisco, Oakland or San Jose, and passing along



TOUGH GOING was encountered by the contractor on this portion of the San Juan grade realignment out of Salinas where the route lay through a mountain swamp. In the above picture is shown machinery working in a heavily watered peat bog. Seemed impossible to ever put a road there, but the bog was scooped out, filled, and today is part of the fine new highway cut-off to be opened early next summer.

the coast from Santa Cruz to Watsonville, and returning via Gilroy and Morgan Hill.

Highest Standard Road

The new highway being constructed to eliminate the San Juan grade is of the highest standard in design. It consists of a graded width of 40 feet in cuts and 38 feet on fills. The Portland cement concrete pavement, 20 feet wide, is being laid in two 10-foot strips. Expansion joints are placed every 60 feet with weakened plane joints at 20-foot intervals. It is reinforced throughout against corner breaking and edge cracking. The 10-foot strips are 7 inches thick in the center and 9 inches at the edges.

Where the roadbed conditions are more unstable, the pavement is thickened to 9 inches in the center and 11 inches at the edges. Several wooden bridges with concrete decks are included in the drainage structures. Smaller drainage structures consist principally of concrete boxes and corrugated iron pipes. The cost of the project completed will be nearly \$1,000,000 and the new road will be opened early next summer.

Building Studies Cover Wide Field

(Continued from page 10)

The passing of the new Wage Scale Act also added a tremendous amount of office work involving labor studies and the securing of proper data and information to establish prevailing minimum wage scales for State projects. The wide field of operations was scattered from Mt. Shasta to San Diego, and all handled out of the Sacramento office. Also a great amount of time was necessarily given to reports, acting in an advisory capacity, surveys, studies and investigations of proposed sites of possible future activities which can not be listed in the construction valuation amounts given.

Nor is this accomplishment the work of any single individual, but the united effort of the organization personnel having a desire to be up and doing at all times. It is a happy privilege to be a small working part in the important machinery of State building construction.

Workers Called From All Over the State

(Continued from page 1)

They were asked to send their quota lists to Colonel Garrison. The response was gratifying. Also it disclosed in sombre reality the extent of unemployment. In one city where 40 men were called for, the mayor replied that he had 2200 worthy citizens on his waiting lists.

Soon on Job

As fast as the lists were received Colonel Garrison caused them to be copied, checked and certified to the district engineers. The district engineers were provided with cards with which to carry Colonel Garrison's notification to the men. In some instances the remoteness of the homes of the men occasioned a few days' delay; but the major part of the force was in motion by the fifteenth instant.

It is doubtful whether there was ever such a widespread and unique assembling of men. Here we read "Crescent City." Then, over the valley and Sierras to Alturas. Take your map and look up Garberville, Pepperwood and Smith River. They are all on the list. Susanville, Dunsmuir, Auburn, Colusa and Marysville! Evidently we are moving south and taking in all the little places between. From Grass Valley over to Gilroy is some jump; but keep at it and take a look at the quotas of Santa Cruz, Livermore, Napa and Redwood City.

From Desert and Valley

We are too far down now to mention Quincy and Portola, San Juan, Paso Robles, King City and larger-sized towns down the south coast line. Getting over into the big valley, look up Delano, Maricopa, Lemoore, Goshen and Taft. They are all there, and with Fresno, Modesto, Merced and like larger cities. Who knows where are Grape Vine, Pixley, Oildale, Bodfish and a score of other little towns with which the engineers are familiar.

For jobs on the desert, San Bernardino heads the whole list with 150 men, due to the fact that some big work is under way in the direction of Arizona. But Brawley, Corona, Needles, Blythe and a dozen other sun-kissed towns are in with quotas. Then there's Saugus, Fallbrook, Palmdale and Lancaster. Bishop comes in strong. San Diego towns appear. Victorville and Coachella have nothing on Bear Valley.

In District No. 10 the call is all the way from Fairfield to Angel's Camp, from Oakdale to Sutter Creek.

Jobs Close to Home

For a post-graduate course in California geography, just study the quota lists worked out by the engineers for the Governor's call. And every quota of men is sent directly to a job that is relatively close to their homes.

The drawing of men from these interior points will also go far to avert further congestion of the unemployed in the more populous centers. It leaves them free to work out their local problems and puts them in a position to benefit more largely by such future measures as may be taken for the alleviation of unemployment.

The Governor, Director and Highway Commissioners are well aware that this program is but one helpful move in meeting the serious problem. The pressure for employment is great and widespread. It is

not possible to always make favorable response, even to applications that are pathetically appealing. The \$1,500,000 made available by the Commission for this particular undertaking fixes the limit to which the employing power can go.

The dollars must be divided by men and the limit is apparent.

Hopeful Signs

But there is a hopeful sign observable in the tone of letters from local officials. They seem to have caught the spirit of the Governor's move and are working on plans of their own along the same lines.

Supplementing the special program, the maintenance engineers have brought their regular working forces up to the maximum allowed by their budgets.

The 3600 men set to work are in addition to the 20,000 already engaged in the constructive service of the State. In his letters to the mayors, the Governor mentions 3800 men as the number to be called into action; and they will be as fast as the quotas are cleared to the engineers.

The responses of the Mayors are in fine spirit, and the promptness with which they sent in their lists materially assisted in launching the work on time.

AMENDED VERSION

Show me a paved road home,
I'm tired and I want to go to bed.
I just drove to town 'bout an hour ago,
In mud clear up to my head.

Wherever I chance to roam
Through sand and mud and loam,
You'll always hear me singing this song,
Build me a paved road home.

THIS DRIVER PLAYS SAFE

Hats are off in the automobile world to George Marketak, a truck driver of Chicago, who has just rounded out 250,000 miles of travel without so much as scratching the fender of his own or any other motor vehicle. His driving rules are: "Never try to beat the traffic. Steady driving will get you farther and faster than spurts. Always expect the other fellow to do the wrong thing. Allow ample room between your own car and that ahead of you. Never drive so fast that you can not stop in the distance you can see ahead. Even when you have the right of way, don't take too much for granted."

Census Taker: "Would you mind telling me if there is any insanity in your family, lady?"
Young Resident Engineer's Wife: "Well, no, not exactly. Only my husband thinks he's boss here at home."

Betty was taking her first ocean voyage, and for the first three days the sea was smooth as glass. On the fourth day out a squall came up and the good ship bounced around like a broncho.
"Mother," finally asked Betty, "what's the matter? Are we on a detour?"

Governor's Letter to the Mayors

Here is the letter expressing the spirit of California sent by Governor Rolph to the mayors throughout the State asking them to cooperate in his program for unemployment relief by sending names of married men out of jobs to the Department of Public Works according to the quotas allotted to their cities.

My Dear Mayor:

As Governor of California, I am deeply concerned over the present unemployment situation and particularly with the need of vigorous relief of our fellow citizens during the coming winter.

California should lead the way and stand out as one State in the Union willing to care for those citizens thrown out of honest employment by the present business depression.

At my request, the Department of Public Works has prepared a program of work for approximately 3800 men to be employed over a period of five months starting October 15th. Each man is to be given three days' work per week in or near the community in which he resides.

The funds available necessarily are limited and the employment planned, all hand work, will be upon maintenance work which otherwise would not have been reached for at least a year.

May I not count on you, as elected representative of the people of your community, to help make this program a success by personally selecting the men who require work, or by appointing a committee to perform that function? From your city ----- men will be employed.

To insure the greatest benefit, both to the State and your city, those employed must be able-bodied men, heads of families, who are citizens of the United States and who have been residents of California for at least one year.

I would appreciate it if you would communicate your acceptance to Walter E. Garrison, Director of Public Works; also enclose names and addresses of the men to be employed.

Thanking you for your interest in this matter, and assuring you of my continued interest in your city's welfare, I am

Very sincerely yours,

(Signed) JAMES ROLPH, JR.,
Governor.

Dangerous Hours for the Children

The most dangerous hours for children in the streets are from approximately 4 o'clock in the afternoon until 7 o'clock in the evening, according to an announcement by the National Safety Council.

Investigation shows that the kiddies straggle home from school, stopping every now and then for a game of tag or leapfrog, and if there is no better place available, they are quite likely to use the street for a playground. Traffic also becomes heavier late in the afternoon, and in winter early darkness comes.

Poor visibility at dusk, numerous cars in the street, and youngsters lingering after school hours, all contribute toward making the late afternoon a perilous time for kiddies in traffic.

Roberts: Has your car a good cooling system?
Woods: I should say so! You ought to see it knock the pedestrians cold!

Chosen to Preserve Beauty of Roadsides

The committee of the Western Association of State Highway Officials which will undertake a study of the conservation of roadside beauty and the securing of adequate rights of way for highways across public lands has been announced as follows:

Frank B. Durkee, General Right of Way Agent in the California Department of Public Works, Sacramento, chairman;

Roy Klein, State Highway Engineer of Oregon, Salem;

T. S. O'Connell, State Highway Engineer of Arizona, Phoenix.

The committee was authorized by a resolution adopted at the annual meeting held in San Francisco on July 10th and 11th. The appointments were made by Z. E. Seveison, State Highway Engineer of Wyoming and president of the Western Association of State Highway Officials.

Progress of Highway Projects on Coast Route Summarized

THE COAST HIGHWAY between Los Alamos and Wigmore has been reconstructed for 3.7 miles with a 36-foot roadbed and a 20-foot Portland cement concrete pavement. Basich Brothers Construction Company was the contractor.

The portion of the coast highway between Gaviota and one mile north of Las Cruces, 2.8 miles in length, has been reconstructed with a 36-foot roadbed and a 20-foot Portland cement concrete pavement. Gist & Bell were the contractors. Within the limits of this project there is being constructed a new reinforced concrete bridge across Gaviota Creek in the narrow portion of the canyon. Paul M. White is the contractor under the supervision of the Bridge Department.

38 Miles Surfaced

On the Cuyama lateral, between the second crossing of the Cuyama River and the Kern County line, a distance of 38 miles, the road has been surfaced with crusher run base and oiled rock surface 18 feet and 20 feet in width. The Lang Transportation Company was the contractor.

On the coast highway, between Wigmore and Zaca, the earth shoulders have been treated with fuel oil by the road mix method. The contractor was the Santa Maria Construction Company.

On the coast highway, between Zaca and Gaviota Pass, the shoulders have been treated with fuel oil by the road mix method. The contractor was the Santa Maria Construction Company.

On the coast highway, between Gaviota Canyon and Tecolote Creek, oiled rock borders are being constructed on each side of the pavement. Gist & Bell are the contractors.

San Luis Obispo County—On the coast highway, between Atascadero and one-half mile south of Santa Margarita, 9.8 miles of road is being reconstructed with a 36-foot roadbed and a 20-foot second-story asphaltic concrete pavement. The contractor is the Hanrahan Company.

Bids are being received for the reconstruction of 5.8 miles of the coast highway between Arroyo Grande and Los Berros Creek with a 36-foot roadbed and a 20-foot reinforced Portland cement concrete pavement. This project will substitute for a very objectionable right-angle turn, a curve of 1800-foot radius, in Arroyo Grande and correct unsatisfactory alignment at other places. This will require new bridges across Arroyo Grande Creek and Berros Creek.

On the coast highway north of Paso Robles, a reinforced concrete bridge across San Marcos Creek is nearing completion. L. C. Clark and C. E. Doughty are the contractors.

At various places sunken concrete pavement is being raised by forcing cement and earth grout through openings drilled in the pavement. A special heavy pump is used for this and the work is apparently very satisfactory.

GIVE HIM A TICKET

"Don't you know your way around this town?" asked the sardonic traffic cop.

"No," answered Mr. Chuggins, "if I knew any way around it, you don't suppose I'd have gotten mixed up in it, do you?"—*Washington Star*.

In Memoriam

NORMAN S. HAMILTON of the engineering staff of District 5, Division of Highways was almost instantly killed September 14th by a heavily laden truck. His loss is deeply felt by his co-workers and friends in District 5 where he was admired for his many sterling qualities.

The deceased was born in 1896 in Westly, California, and after finishing the grades and high school work, completed his education at the University of California in 1921. After graduation, he worked for Butte County Highway Department, before coming into the State's service as draftsman in the District V office in December, 1928. He continued in that capacity until April, 1929, when he was assigned to field work, principally as inspector on various paving jobs in that district, and it was while so employed on the paving project between Santa Margarita and Atascadero, that he met his untimely death.

Mr. Hamilton is survived by his wife, Beatrice Levy Hamilton, and parents, Mr. and Mrs. Charles O. Hamilton of Oroville, to whom the heartfelt sympathy of his co-workers is extended in this time of bereavement.

MISS NELLIE DIAMANT, who had been employed in the District VII office of the Division of Highways since 1912, and who had been cashier for that district for a number of years, died suddenly of pneumonia on October 3d at the Hollywood Hospital.

Miss Diamant's death is sincerely regretted by the many friends she made during her long period of very faithful and efficient service with the California Highway Commission and the State Division of Highways.

As a mark of respect and esteem and to permit her many friends to attend the funeral services, the district office was closed from 10 a.m. to noon on Tuesday, October 6th.

DON'T BLAME TRUCKS

Automobile drivers who blame bus, truck, and taxicab drivers for accidents resulting from driving have another guess coming, according to an investigation of the increase in fatal highway accidents conducted by the manager of the educational department of the National Automobile Chamber of Commerce. These records show that taxicab operators last year reduced their 1929 accident record by 25 per cent, bus drivers reduced theirs by 19 per cent, and truck drivers by 14 per cent. This achievement is contrasted with the record of private motorists who last year increased theirs by 37 per cent.

SANTA CRUZ INCREASE

During the first six months of this year registration of motor vehicles in Santa Cruz County brought the total car ownership for that area to 15,631. There were 14,220 passenger automobiles registered up to June 30, last. The remainder of registered vehicles consisted of trucks, trailers, and motorcycles, according to the California State Automobile Association.



This is the third of a series of articles on the State's water problem published in California Highways and Public Works. The first dealt with the Governor's call to the entire citizenry of the State to unite in efforts to solve the problem. The second described the Sacramento Valley and Sacramento-San Joaquin Delta situation. This article deals with the complications confronting southern California. Other analyses will follow.

THE problem of a complete water supply in Southern California can be met only by importing water from other entirely outside sources. In this, the problem is the same as that which exists in southern San Joaquin Valley but in detail the problem is different and is vastly complicated. On the other hand since so large a portion of the wealth of the State exists in southern California, the matter of financing is not so difficult as that which attends an attempt to bring water to San Joaquin Valley.

The people of southern California while they would like financial assistance, feel competent to cope with the situation on their own resources and do what is necessary and economical to insure a water supply. The favorable vote on the recent bond issue of \$220,000,000 for Metropolitan Water District exemplifies this attitude.

The term "southern California" generally brings to mind Los Angeles but it should bring a picture of the desert in the eastern part of the State and as well the entire coastal area, two areas widely divergent in climate and conditions. Again, the coastal area separates into three well defined divisions each with its particular problem.

TWO DISTINCT AREAS

For discussion of water supply matters southern California is generally thought of as bounded on the north by the Tehachapi Mountains and by the north line of Ventura County. Santa Barbara County while gen-

erally considered in southern California presents a unique and separate problem and in this paper is not considered as it properly is one of the south central coast basins which have specific problems as to water supply.

The desert country divides into two distinct areas. To the north is Mohave Desert and to the south the Colorado Desert. The latter has two separate areas again in which the problem is essentially the same. The climate is the same and the only possible water supply the Colorado River.

The Mohave Desert is distinguished from the Colorado Desert by having slightly more rainfall and a more temperate climate. The local water supply for the entire Mohave Desert is thought to aggregate around 200,000 acre-feet which includes all the streams running off from the north of the San Gabriel and San Bernardino ranges. Even if this could be all utilized it is far from sufficient for the irrigable land and the cost of bringing water to this area is so great that no feasible plan has yet been conceived.

The Palo Verde Valley and Chuckwalla Mesa which two adjacent areas make up one of the major irrigable areas in the Colorado River Desert, comprise approximately 300,000 acres of land. A part of this is now irrigated and the water supply is sufficient for it all, but cost of extending irrigation to the higher lands has so far militated against their development.

The other large area is made up of the almost adjacent Imperial and Coachella

Reclamation of Sewage Promises Success

(Continued from preceding page)

valleys which lie in the great sink of Colorado Basin, all below sea level. The gross area susceptible of irrigation is 1,000,000 acres of which close to 500,000 acres are now irrigated. It was the danger of flood overflows from the Colorado River to Imperial Valley which was one factor in causing the construction of Hoover Dam on Colorado River.

Other items contributing to this were the vexations and difficulties encountered by the present Imperial Irrigation District in taking water from the Colorado River, carrying it through the Republic of Mexico and back into the United States. The Boulder Dam Act embodies a provision for construction of an All-American Canal which would cover the million acres in the two valleys without going into Mexico and at the present time the representatives of the Government and of the two valleys are meeting to formulate a contract for utilization of Colorado River water as controlled by Boulder Dam. If this contract is finally negotiated, construction of the canal will begin when Congress appropriates the money for it.

VENTURA SUPPLY LARGER

In the coastal area Ventura County separates naturally from the area to the south and relatively has a larger supply compared to the habitable and irrigable land than the coastal areas to the south. Next, south and east, there is what is termed South Coastal Basin which takes in the coastal areas of Los Angeles, San Bernardino, Orange and Riverside counties, the total a comparatively compact area in which the irrigated land is contained in a length of 90 miles at its greatest, and a width of 50 miles at its greatest. South of that lies San Diego County with the smallest water supply compared to the irrigable and habitable areas of any of the three coastal areas just mentioned.

The total irrigable and habitable area in the coastal area from Ventura County on the north to the international boundary on the south, is estimated to be 2,000,000 acres which will require 3,000,000 acre-feet of water if present practices in use are continued. The local feasible supplies aggregate 1,200,000 acre-feet which means that if the entire area is irrigated 1,800,000 acre-feet must be brought in from outside.

This amount might, however, be reduced by utilization of sewage which now goes to waste into the ocean. The matter of purification for use in irrigation or even for domestic use is now under experiment and promises to be successful. The cost of such reclamation together with distribution of the water from the outfall sewers at which points it is available, is probably as high per acre-foot as importation of water from outside.

RECLAMATION FEASIBLE

Ventura County requires only a small amount of importation to supply its full needs although if, as

seems possible, importation is cheaper than conservation of an extremely large percentage of its local supplies, water will be imported if it can be obtained, in preference to reclaiming the full local supply. In San Diego County it is probable that about 35 per cent of the entire local supply is now being conserved and that it may be feasible to reclaim 65 per cent or 75 per cent, due to the extremely high charge which may be paid for water in that vicinity. On the other hand it may be cheaper to import water from the Colorado River than to reclaim so large a percentage of local supplies.

To get accurate results in investigational work in the entire coastal belt of southern California is extremely difficult because of the peculiar conditions encountered there. Except for San Diego County, practically 90 per cent of the local supplies are utilized by drawing from underground reservoirs which are recharged by rainfall which falls upon them and by percolation from streams which flow across them. The extraordinary dependence upon underground supplies and the existence of such underground supplies bring complications into the problem and data must be gathered for many years before it is possible to draw definite conclusions as to any particular area although it may be very easy to draw a general conclusion as to the entire area.

DIFFICULT PROBLEM

When the imported supplies are brought in the matter of payment by those benefited will be a difficult problem because any water introduced at one point in South Coastal Basin, for instance, will benefit all interests lying below and nothing can be done to guard against this. This may mean that many people will be benefited without paying a proper amount for such benefit.

In anticipation of the problems which will be encountered, the State has been investigating the South Coastal Basin since 1923 and Ventura County since 1927. It is probable that these investigations will be continued for many years to come because it requires authoritative knowledge continuously gathered to solve the problem and because the matter is so extremely important.

The idea behind the State investigation in Ventura County is that a comprehensive plan for utilization of the water of the county in the county may be laid out and development go ahead on that basis until the limit of feasibility is reached. It happens that the boundaries of Ventura County bound the watersheds from which the water supplies of the county come so that while it is not felt that county boundaries should necessarily have anything to do with the matter, the physical conditions make it convenient to speak about a comprehensive plan for Ventura County.

In the South Coastal Basin, investigations have gone further in detail and intensiveness than in any other area, the State supplying between one-half and one-third of the money being spent on the work for development of the facts as to underground water supplies and possibilities of further utilizing local sources of supply. The work is done under the supervision of the Division of Water Resources.

The State has also investigated a route from Colorado River which would supply water to the

Colorado River Supply in Ten Years

(Continued from preceding page)

entire coastal area of southern California including Ventura County, South Coastal Basin and San Diego County and has surveyed a distribution system for such purposes.

The Metropolitan District and the city of Los Angeles have spent about \$2,000,000 or more in extremely detailed investigation and have selected another route entering the South Coastal Basin, however, at the same point as that chosen by the State. Recently a bond issue of \$220,000,000 was voted by the district for construction of an aqueduct. It is understood that by the terms of the bond issue no specific route was approved by the voters.

San Diego City and County have investigated a route coming directly from the proposed All-American Canal for Imperial Valley, crossing through the mountains directly east of San Diego and arriving at the coastal plain at sufficient elevation to water the agricultural land as far north as San Luis Rey River and as far south as the international boundary. At the present time arrangements have been made by the

city and county of San Diego to participate in the construction of the proposed All-American Canal which was previously referred to and thereby securing a portion of its capacity for the conduit in question.

RELIEF IN TEN YEARS

It is apparent therefore that the people of southern California are attacking the problem presented in an aggressive and forcible way and that within ten years at the most, outside supplies will have commenced to arrive in the coastal area. So far only a supply from the Colorado River has been investigated and it is to be doubted whether additional supplies from other sources will be necessary if the entire amount recommended by the Metropolitan District and also the entire amount recommended by the city and county of San Diego is brought in to the area.

The water supply to be imported from Colorado River for southern California ties that area into the great Colorado River problem which has been under discussion for a quarter century back and which is a national problem.

Casualties in Grade Crossing Accidents Cut 10 Per Cent

Money being spent in grade crossing separations in California is an important factor in highway construction work, according to a recent report of the State Railroad Commission.

There are now approximately 550 grade separations of various kinds in the State, including overhead and subway crossings of highways. The report also shows, however, 12,000 grade crossings in the State, as related to more than 2,000,000 motor vehicles in use, some 17,000 miles of main and branch line railways, some 6000 miles of State highways, and many miles of county and city roads.

More than \$3,200,000 was expended in grade separation work in 1929, the report shows. Of this total, the railroads contributed approximately \$1,400,000, the cities \$900,000, about \$480,000 was spent by the counties, and approximately \$450,000 by the State.

As a direct result of this protective work, Railroad Commission figures show a decrease of 6 per cent in grade crossing accidents in California, and a 10 per cent reduction in casualties, during 1930 over 1929. This record is remarkable, it is pointed out, in

view of the increase of approximately 20 per cent in the number of traffic accidents of all kinds occurring on the highways of the State during 1930.

Additional protective devices ordered by the Railroad Commission, greater care on the part of motorists at crossings, and general educational work of motoring organizations and other public bodies are other reasons to which the accident decrease at grade crossings may be attributed, it is said.

MORE CALIFORNIA CARS

California is one of the eight states out of 36 reported showing an increase in passenger car registration during the first six months of this year as compared with a similar period in 1930, it is announced by the California State Automobile Association. California's total registration of passenger cars reached 1,855,236.

Other states sharing in this indicated return of better business conditions include Connecticut, Florida, Maine, Maryland, Massachusetts, New Jersey, and Rhode Island.

When Noah sailed the waters blue,
He had his troubles, same as you;
For 40 days he drove the ark,
Before he found a place to park.

—Jackson Citizen-Patriot.

"Didn't you claim when you sold me this car that you'd replace anything that broke or was missing?"
"Yes, sir. What is it?"
"Well I want four front teeth and a collar bone."
—Boston Transcript.

Building a Highway Brings This Town a Business Boom

“WILLIAMS is in the midst of a temporary prosperity that is of a volume equal to that of many years. The chief cause is the widening and leveling of the ten-mile stretch of the Tahoe and Pacific highway between Williams and Maxwell.”

That was the cheery statement of C. E. King, progressive farmer and stockman of the Williams vicinity, according to an article in a recent issue of the *Woodland Democrat*. King was in Woodland looking after business interests.

“The highway improvement,” said King, “cost about \$30,000 a mile, or around \$300,000. The construction camp is just outside of Williams, but sufficiently near to create a small boom in town during the evenings. Williams perhaps is not only the busiest place in Colusa County at present, but the busiest, to the square inch, in this section of the State.”

IMMEDIATE RELIEF

Sometimes one is led to believe that Federal relief measures, intended for winter, will get to work about midsummer. That is, earmuffs and overcoats may be bought in August.

California moves quickly in common sense way, to ease up on unemployment. The State Highway Commission has appropriated \$1,500,000 to be used to employ a force of between 3500 and 4000 men on highway maintenance work in practically every county.

It is planned to work the men three days a week for a period of five months. Cooperation of the mayors of all cities will be sought in putting the men to work.

Married men with families will be given preference and the work will be performed in the immediate locality where the men reside.

It is the purpose to distribute this work so that every section of California will share in its benefits. Practically all of the \$1,500,000 will go for wages.—*Banning Herald*.

Is “engine” a masculine or feminine word? Depends on whether or not it mrs.

Jack: “Why did you quit calling on Eleanor?”

Fred: “Too many traffic signals.”

Jack: “Iluh?”

Fred: “Her father caught me kissing her and yelled ‘stop’ and then yelled ‘go,’ and her mother hung up a ‘no parking sign.’”

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
JOHN W. HOWE.....Editor

Address communications to California Highways and Public Works, P. O. Box 1163, Sacramento, California.

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OCTOBER, 1931

No. 10

INVEST IN ROADS

Better roads should be the watchword of all residents of northern California. Highway improvements should be uppermost particularly in the minds of the people of the coast area. With the possible exception of the dairy farms the tourists are bringing more money into this part of the State than any other one source of revenue. The better the roads the more tourists will come. There should be no memory of rough highways in the minds of travelers who have visited our county and returned again to their homes.

The roads of the coast section also should be improved as rapidly as possible because all-weather roads are necessary to the welfare and prosperity of the farmers who live there. The rains will begin coming in a few more weeks. If conditions this winter are as they always have been the rains will make some of the coast section roads absolutely impassable. This should not be.

Good roads are always a good investment. If the cost of better roads is properly distributed and the people who use them most can be made to pay their share of the cost and upkeep then everybody is benefited and nobody is hurt.

The people of the coast district should from this time on be “good road-minded.” But they should not burden themselves with improvements unless an equitable arrangement is made whereby the cost is distributed proportionately among all people who are benefited.—*Santa Rosa Republican*.

AUTOS IN SWEDEN

Sweden had more than 145,000 automobiles at the beginning of 1931, according to the government statistical bureau. In addition there are nearly 57,000 motorcycles. Especially in Stockholm the number of motor cars has grown rapidly. The capital now has more than 20,000 automobiles.

Gallant Rescue of Drowning Bather by Water Division Hero

DURING the recent period in which engineers connected with the stream flow measurement staff of the Division of Water Resources, Department of Public Works, were active, a group of persons were swimming in the Sacramento River above the I Street bridge. These bathers were near the point where two men were employed in recording at periods through the night tidal cycle measurements and river flow readings.

Duncan F. McCallum, junior hydraulic engineer, and William Cross, filling the shift from midnight to 8 a.m. had taken measurements and were recording their notes at 2 a.m. when they became aware of some excitement among members of the swimming party.

On hearing cries for help, both men ran along the shore searching the river with their flashlights. At last, they located a person struggling in the water at some distance from the shore. McCallum immediately plunged into the stream fully clothed, reaching a man who was just about to sink for the third time, and after a considerable struggle succeeded in bringing him to shore.

Then McCallum, assisted by Cross, proceeded with first aid measures to resuscitate the man who was in critical condition and after prolonged effort managed to revive him. When the man was able to speak he told the two engineers that a woman, Verna Pearl Brown had gone down into the water with him and was undoubtedly drowning.

In the meantime a small boat had put out from Wilbro Beach and after a short search the body of the woman was discovered floating in the water. The body was brought ashore and first aid efforts were made to resuscitate her. An emergency call was placed to secure a pulmotor from the Sacramento Fire Department. McCallum and Cross alternated in resuscitation work until about 7 a.m. when the pulmotor arrived from Sacramento but all efforts failed to revive her.

During the alternate spells of first aid work the men continued with the measurements of flow in the river until relieved by the oncoming shift about 8 a.m. McCallum stated modestly that had an alarm been given within sufficient time, it would have been possible to have also saved the woman.

The name of the man successfully rescued is David Schmidt of Sacramento.



DUNCAN F. McCALLUM, junior engineer, Division of Water Resources who plunged into Sacramento River at 2 a.m. and saved the life of a man sinking for the last time.

Highway Engineers to Convene Next Month

C. H. Purcell, State Highway Engineer, announces a meeting of the district engineers and heads of departments of the Division of Highways to be held in Sacramento on November 12 and 13. This is an annual gathering for the purpose of discussing problems of mutual benefit, possible changes in highway standards, the effect of new legislation, and other problems.

Subjects have been assigned to individuals who will prepare papers to be read and then followed by general discussion.

These meetings in the past have resulted in an appreciable amount of benefit and better understanding between headquarters' staff employees and district employees.

Several matters of special importance are expected to be taken up at this meeting.

State Employees of Sacramento Go Over The Top in Community Chest Drive

FIRST in the field and 100 per cent over the top was the record made by the State employees of Sacramento in the Community Chest campaign by each contributing one-quarter of a day's pay per month.

That was the report Governor Rolph was able to make in behalf of his official family, at the end of eight working days to the Chest workers at the luncheon on State Employees' Day, October 22d. The announcement was greeted with prolonged cheering.

"I am prouder than I can say," declared the Governor, "that my own household, the State employees in Sacramento, have responded so promptly and so generously to this most worthy cause."

The appointment by Governor Rolph of James I. Herz, Deputy Director of the State Department of Public Works as his Community Chest Colonel for State departments, was the pre-campaign signal for action by the employees.

A meeting of the Departmental Council of Sacramento Chapter of the State Employees' Association was called immediately and invited Deputy Director Herz and Community Chest officials to address them. In the executive session that followed it was decided to organize at once a subscription campaign among the various department groups to raise an allotted quota of \$31,000, compared with \$9,000 subscribed last year.

THREE TIMES MORE

It was figured that to raise this total—a sum more than three times greater than last year—a subscription amounting to one-quarter of a day's pay per month would be needed from each of the 2100 State employees in the Sacramento district.

With this goal in view and with the advice and encouragement of Mr. Herz a complete Community Chest solicitation organization was formed within the State Employees' Association headed by Spencer Burroughs, president of the Sacramento Chapter and attorney in the Water Resources Division of the Department of Public Works.

The general committee appointed was composed of executives of the Department.

CAMPAIGN COMMITTEE

T. E. Stanton, Highways Materials and Research Engineer and president of the California State Employees' Association, was made chairman of the speakers' bureau, with Fred J. Grumm, engineer of Surveys and Plans, as vice chairman; P. R. Green, chief draftsman, District II, Division of Highways, as secretary; E. R. Higgins, chief accountant, Department of Public Works, treasurer, and L. V. Campbell, office engineer, Division of Highways, chairman of the interdepartmental committee.

The committee membership also included a chairman from each of the nineteen groups of employees, comprising the State departments located in Sacramento.

A schedule of group meetings was promptly arranged at which the objective to be reached by a quarter of a day's pay per month was explained and the amount of the subscription left entirely up to the conscience and financial situation of each individual.

NEED REALIZED

From the outset there was evidenced in every group a general feeling that this year an extra effort ought to be made to supply the Chest with more funds and that every one should go the limit in giving.

The result of this spirit was quickly shown by the returns that came rolling in as group after group reported through their chairman. The departmental drive was begun on October 12th to be continued two weeks. On the first day 437 employees contributed \$8,742. On the second day 442 employees gave \$6,946.20. The third day produced \$6,765.87 and the fourth \$3,214.75 from 281 givers.

At the end of the first week, Colonel Herz was able to report that the total subscriptions had leaped to the generous figure of \$22,454.07. This sum represented 72 per cent of the entire quota and was contributed by 1013 persons.

At the Community Chest noon gathering, October 20th, Colonel Herz proudly announced that the pledges had increased nearly \$3,000 since the preceding day and had reached a total of \$25,668.

U.S. Engineers Study Great Valley Plan

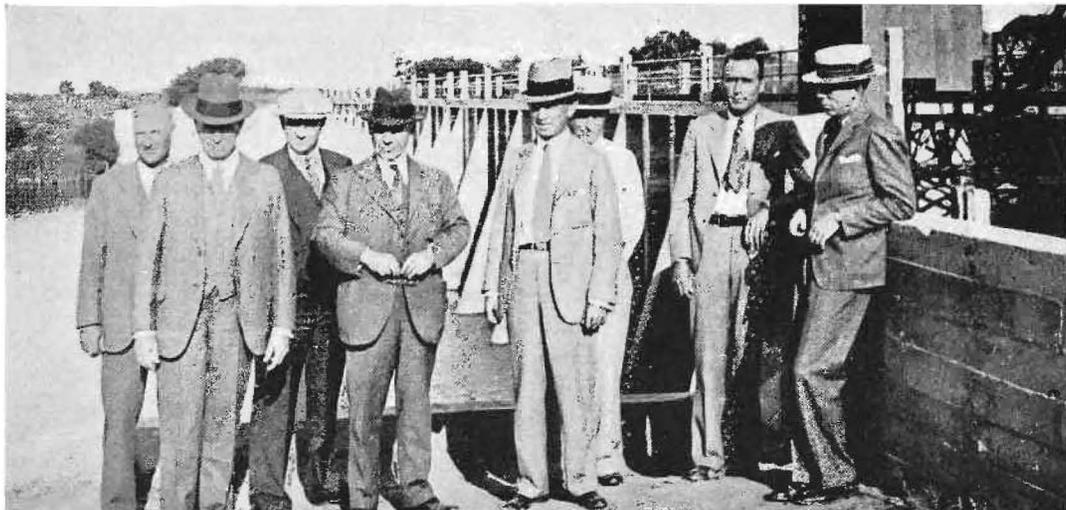
(Continued from page 2)

That the United States Government is interested in solving California's most acute problem, conservation of water, was exhibited in September when members of the United States Board of Engineers for Rivers and Harbors visited California for the particular purpose of obtaining first-hand information on the Great Valley project of the State Water Plan and familiarizing themselves with its principal features.

Four members of this important board, Brigadier General Herbert Deakyne, Colonel Edward H. Schulz,

water problem. The entire Board of Engineers was greatly interested in the project, being familiar with it through the reports, and expressed their appreciation of the opportunity to personally inspect the entire project.

The local problems of water shortage were presented to the United States Board of Engineers at a luncheon meeting given at Fresno under the auspices of the Fresno Chamber of Commerce, at a breakfast given by the Stockton Chamber of Commerce and at



WITH THE ARMY ON SURVEY. This picture of the U. S. Army group that made a three-day tour studying the Great Valley project of the State Water Plan was taken at Mendota weir on the San Joaquin River. Left to right, they are Lieut. Colonel Thomas M. Robins, district engineer, Pacific Division; Brigadier General Herbert Deakyne, Captain Albert B. Jones, Colonel Edward H. Shulz and Lieut. Colonel Warren T. Hannum, members of the United States Board of Engineers for Rivers and Harbors who came from Washington; Major J. R. D. Matheson, California Debris Commission; C. I. Grimm, War Department District Engineer, and Captain W. A. Wood, district office of War Department.

Lieutenant Colonel Warren T. Hannum and Captain Albert B. Jones, made a three day inspection trip extending from Bakersfield in the southern San Joaquin Valley to Redding at the northern end of the Sacramento Valley. Lieutenant Colonel Thomas M. Robins, division engineer of the South Pacific Division, Major J. R. D. Matheson, member California Debris Commission, Captain W. A. Wood and Mr. C. I. Grimm, principal engineer, District Office of the War Department, accompanied the party.

STUDY GREAT VALLEY PLAN

The War Department has been making an extensive investigation of the Great Valley project and has rendered a partial report to Congress. A final report will probably be submitted about the first of the coming year. The recommendation of the United States Board of Engineers will have an important bearing on Federal participation in the project. General Deakyne was formerly stationed in San Francisco as division engineer and is familiar with California's

a dinner in Sacramento given under the auspices of the Sacramento Chamber of Commerce.

Governor James Rolph, Jr., attended the Sacramento meeting and, in an address to the Board of Engineers, stressed the acuteness of the water problem and the importance of a sound solution of it to the State and the Federal Government, and of the importance of Federal assistance.

MADE RIVER TRIPS

The Board of Engineers, leaving Bakersfield on their inspection trip September 15, 1931, closely paralleled the location of the proposed San Joaquin River-Kern County Canal, inspected the highly developed agricultural areas that have been abandoned through lack of sufficient water and examined the dam site at Friant. From Fresno they came up the west side of San Joaquin Valley, stopping at Mendota Weir, and at the pumping system of the West Stanislaus Irrigation District. The irrigated lands on the west side of San

(Continued on page 30)

Pay Envelopes Vital to Households

(Continued from page 8)

annual report many facts and figures which may be of interest to California highway enthusiasts. Pointed excerpts from his address follow:

"The Federal government is capitalizing the information as to how many people have a livelihood because of increased Federal appropriations for highways, and the states have—many of them for the first time—found that not only the state departments but the contractors have a great army of workers on the roads whose pay envelopes are a vital matter to many a household."

Maine Holds Record

"On the first day of July there was one person employed on state highway work for every 369 people in the nation. (Editorial note: In California, one in every 734.)

"The largest number in any state at that time was one out of every 70 persons in the State of Maine. This has no reckoning of persons employed in road work by townships, counties, or cities, neither does it have anything to do with persons who are employed exclusively in preparing materials to be used in road construction. Likewise, this has no reference to people employed by the Federal government in road work, whether departmental in forests, Indian reservations, public domain or national parks."

"In addition to all this, the fact should not be overlooked that there are many industries scattered throughout the county which would have been closed down if it had not been for the demands made upon them to furnish materials for this road building program."

Surface Mileage Increase

"During the past calendar year the states have increased their surfaced mileage on the state systems by 25,997 miles, but while they were doing that the Legislature added 6300 more miles to the systems, and this had nothing to do with the wholesale job accomplished in North Carolina or the new idea township undertaking in the placid home of William Penn."

"In adding to the surfaced mileage during the past year the types of roads were as follows: gravel 5014, bituminous macadam 1076, bituminous concrete 1065, concrete 9462, and all other types 9380. We started this year with a state system of 321,723 miles; 29 per cent in pavement, a gain of 3 per cent over last year; gravel 31 per cent, a gain of 2 per cent over last year; sand clay and other types 12 per cent, a gain of 3 per cent over last year.

"This leaves 28 per cent still earth roads, or a net gain in surfaced mileage of but 8 per cent. However, this remaining 28 per cent of earth roads is 38 per cent graded to standard and supplied with proper small drainage structures."

Largest in History

"The total income for State Highway Department activities for the last calendar year was \$1,136,673,437. This is the largest income in the history of road building and does not include cash balances of \$286,490,000 distributed among all of the states except one.

"The receipts came from the following sources: 25.9 per cent from motor license fees, 36 per cent from gasoline taxes, 19.5 per cent from bonds, 5.3 per cent from local authorities, 0.9 per cent from state tax levy, 2.8 per cent from direct appropriations, 1.6 per cent miscellaneous, and Federal funds 8 per cent.

"The substantial increase of funds over the previous year came from all sources, and therefore while the Federal funds increased from \$77,572,691 to \$96,462,836 the percentage of Federal funds to the total was slightly less than in 1929."

Price No Measure

"A good road is needed over which to transport a load of wheat or cotton or cattle. The price the merchandise brings is not a measure of the need for the highway. The past year's experience shows that an increased road program not only takes the depression out of the highway, but it is the base course for many a hearthstone. Every part of our governmental structure has its share of responsibility in meeting the issue. The state highway departments are equipped for an increased task."

Samuel Eckels, Chief Engineer, Pennsylvania Department of Highways, in his address on the subject "The Addition of Roads to the State Highway System" described the manner of adding roads to the state highway system of Pennsylvania. He declared in favor of adding roads to state highway systems rather than providing state money for local subdivisions to expend on highways through the local authorities.

The last Pennsylvania Legislature passed legislation providing for the State of Pennsylvania to take over 20,000 miles of township highways for construction and maintenance at the expense of the state. This mileage, combined with the existing state mileage, gives the Pennsylvania Department of Highways a total state system of over 33,000 miles.

Vast Bridge Projects

Dr. D. B. Steinman of New York City, in an illustrated address, pictured the amazing strides made in bridge construction in fifty years. His address was of particular interest to the California delegates in view of the vast bridge projects now being undertaken in this State in constructing the two gigantic structures across San Francisco Bay—one between San Francisco and Oakland via Goat Island, and the other spanning the Golden Gate.

Charles H. Ross, attorney for the North Carolina state highway system, in his address declared that the development of farm-to-market roads is a "national need" for the proper coordination of railroad and motor vehicle transportation.

The last Legislature of North Carolina in a revolutionary piece of legislation turned over to the state highway officials the supervision and control of all county highways, including location, maintenance, and construction. County highway officials were abolished and the local tax theretofore raised for the support of county highway officials does not obtain.

Carolina Sets Precedent

This change in highway control adds 45,000 miles of county roads to be taken over together with all

Important Resolutions Adopted

The report of the American State Highway Officials Committee on Resolutions, of which committee Earl Lee Kelly, Chairman of the California Highway Commission, was a member, was adopted. These resolutions represent the resultant of the combined thought of the convention on a number of highway problems. Among the resolutions of particular interest to western states was one recommending that congressional authorizations for Federal aid highway building be continued for the fiscal years 1934 and 1935 at the rate of \$125,000,000 per year, the "same as provided for the last two fiscal years."

The convention also urged, in a resolution, that the limitation per mile on Federal participation in Federal aid highway construction be eliminated, and that "the Secretary of Agriculture be authorized to approve projects at 50 per cent of the cost of construction." Other resolutions passed were as follows:

"Whereas, The United States numbered routes as heretofore designated by this association, most of which are adequately marked, cover practically all of the main interstate highways in a manner that serves interstate travel satisfactorily to the traveling public; and

"Whereas, There are many associations being formed more or less selfishly and in most cases for profit endeavoring to promote other highways and designating them by names, which highways cross several states and follow for the most part designated U. S. numbered routes, none of which proposed highways will offer any help to the tourist for interstate travel, but only add to confusion by such designation; therefore, be it

"Resolved, That the American Association of State Highway Officials oppose the attempts to designate by names the present orderly system of highways and the naming of proposed highways following the same general lines as designated highways, and that the secretary of this association be directed to so inform each state highway department of the action of this

association taken at this seventeenth annual meeting."

"Whereas, The appropriation of Federal funds of \$3,000,000 for the construction of Federal lands highways across portions of the unreserved Federal lands in the public lands states is for one year only; and

"Whereas, Such appropriation is not sufficient to complete the interstate trunk highways across such areas; now, therefore, be it

"Resolved, By the American Association of State Highway Officials, that further appropriations, at an adequate rate, be provided until the purpose of such appropriations is accomplished."

"Whereas, The progress of construction on the forest highway system is not keeping pace with the progress being made on the Federal aid highways systems because of inadequate funds; now, therefore, be it

"Resolved, By the American Association of State Highway Officials, that annual authorizations for forest highways for the years 1934 and 1935 be continued at not less than the present rate."

county prisoners, prison camps, county road equipment, etc., by the state highway authorities.

Mr. Ross said, in part: "On July 1st of this year, by virtue of an act of the General Assembly of North Carolina of 1931, the control and responsibility for the maintenance and construction of all the public roads in North Carolina except the streets of cities and towns, was vested in the State Highway Commission, to be financed exclusively by motor vehicle and gasoline taxes. From and after that date it

became unlawful for any county or a subdivision thereof to levy any tax or to incur any indebtedness for the purpose of constructing or maintaining any public road or bridge.

"The complete centralization in the hands of one agency of all the public roads of the state is, I believe, without parallel in the legislative history of any of the states of the American Union.

"I submit, therefore, that North Carolina's adventure into the field of local roads points the way to a national need."

Cheers for the Boys on the Job

Members of Big Meadows Road Crew Help Repair Car of Camper Bound For City

Colonel Walter Garrison,
Director of Public Works,
Sacramento, California.

Dear sir:

Wish to express my appreciation for the good work accomplished by your men located near Big Meadows in assisting me in repairing my automobile which had evidently been tampered with during the night while camped at Big Meadows.

Had it not been for your men (namely Messrs. J. H. Gates, Superintendent Geo. McIvor, Wm. McBirney, Thomas Morales and Robt. Warner), I would have been in dire circumstances as it was very necessary I reach Stockton at an appointed time.

I can not speak too highly for the assistance rendered by these men and it is my desire to thank them as well as yourself for what has been done for me. It has been my pleasure to come in contact with real men.

Sincerely,

HARRY BATES,
Stockton, California.

* * *

Mr. Walter E. Garrison,
Director of Public Works,
Sacramento, California.

Dear friend:

We, the undersigned Board of Supervisors of Amador County, most heartily commend you and Mr. R. E. Pierce of Division 10 for the wonderful highway that you have just completed from Amador City to Martell.

It is a pleasure to travel this highway, we assure you, after traveling the old road so many years, which was so dangerous, and eliminating the steep grades.

We also want to thank you and Mr. Tom Dennis of the Maintenance Department for the wonderful surface that you have put on the highway from the Sacramento County line to Drytown.

We assure you that we voice the feelings of the people of Amador County and all who travel these highways, as we have heard so many favorable comments on the wonderful work your department has given our county.

If we can be of any assistance to you or your staff at any time, do not fail to call upon us.

Again thanking you and your staff, we remain,

Yours very truly,

D. V. RAMAZZOTTO, chairman,
JOHN ORR,
ARTHUR CLIFTON,
FRANK DEVCENENJI,
V. S. GARBARINI,
Board of Supervisors of Amador
County.

Road Foreman Works Through Rainy Night Rescuing Mired Cars On Mountain Road

Mr. E. Q. Sullivan, District Engineer,
Division of Highways,
San Bernardino, California.

Dear sir:

While on our way up to Lake Arrowhead on or about the night of September 1st, upon leaving San Bernardino, an extremely heavy rain started falling—by the time we reached Waterman Canyon, the electrical and rainstorm was terrific.

At a place called "Cholo Point" the road was completely inundated with mud, water, and rocks, and every car going in either direction immediately stalled.

After being hopelessly mired for some time, a man; one J. D. Moore appeared, who quickly distributed red lanterns about the wash in, and proceeded to obtain a large tractor which after infinite labor in a heavy downpour of rain was finally started and warmed up.

Mr. Moore then got busy, and despite personal discomforts and a thorough wetting; cheerfully and efficiently pulled a dozen or more cars to solid ground, where they might proceed after being stalled for some three hours.

We thought Moore should be rewarded with something more substantial than "thanks"—but he simply evaded by saying: "It's all in the day's work."

It would greatly please us if you would at some time convenient to yourself, personally express our appreciation and gratitude to this man, Mr. Moore, for his help on that night.

Yours truly,

THOS. H. BLOOMINGDALE,
Monterey Park, California.

* * *

State Highway Engineer,
Associated Realty Building,
Los Angeles, California.

Dear Sir:

I am taking this opportunity to express the appreciation of the Escondido people for the very good and very much needed work that has been done on the Inland Highway, near Escondido, by your road superintendent, Mr. Martin.

Some very bad bumps in the pavement have been taken out, and the shoulders smoothed, and the sides of the road cleared of weeds, so that it makes a very different highway. * * *

I've had a great many people stop in the Chamber of Commerce and comment on the work which has been done since your crew has been down here, so felt you would appreciate having the information.

Yours very truly,

MRS. PANSY P. CLAGGETT,
Secretary Escondido Chamber of Commerce,
Escondido, Calif.

Redwood Empire Association in Annual Meeting Plans Campaign for 1932

THAT highway development and the present crying need for relief of the unemployment situation go hand in hand, was the sense of an address by Colonel Walter E. Garrison, director of the State Department of Public Works, that was one of the highlights of the eleventh annual convention of the Redwood Empire Association at Sonoma Mission Inn last Thursday, Friday, Saturday and Sunday.

Colonel Garrison's address was delivered at the eleventh annual banquet of the Association Saturday evening where he and Earl Lee Kelly of Redding, chairman of the California Highway Commission, were among the principal speakers.

Chairman Kelly went to the convention as the personal representative of Governor James Rolph, Jr., who, because of a previous engagement, was unable to attend.

REPRESENTATIVE GROUP

Dr. Joseph M. Toner, Director of the California State Department of Institutions, was toastmaster at the banquet and a representative group of State officials were at the speakers' table, including Wallace Ware of Santa Rosa, State Civil Service Commissioner; State Highway Engineer C. H. Purcell; Highway Commissioner Timothy A. Reardon of San Francisco; Eric Cullenward, Chief of the Bureau of Publications and Documents, and Chief E. Raymond Cato, Division of Enforcement, Motor Vehicle Department.

Federal officials at the table were Dr. L. I. Hewes, Deputy Chief Engineer, United States Bureau of Public Roads, and his assistant, Levant Brown.

The convention, itself, was the biggest and best attended in the association's history, the unanimity all important matters considered at the many business sessions and meetings on Friday and Saturday, revealing in a striking manner the confidence and trust placed by the nine empire counties in the single leadership of the Redwood Empire Association.

At the annual meeting Saturday afternoon Harry Lutgens of San Rafael, newspaper publisher, one of the senior members of the

executive board of the Redwood Empire Association, Golden Gate Bridge director and leader in north bay county affairs, was unanimously elected president to succeed Edward Morris, of Willits.

TRIBUTE TO MORRIS

Mr. Morris, who had served as the association's chief executive for four successive years, was paid a glowing tribute upon his retirement. At Saturday night's banquet the officers and directors presented him with a handsome silver watch, suitably engraved with an expression of their appreciation and esteem. The presentation was made by Elliot M. Epstein, attorney for the association, who outlined the unselfish and fruitful efforts of Mr. Morris in behalf of the Redwood Empire Association.

22 MILES RECOMMENDED

Of wide general interest was the decision arrived at by the Shoreline Highway Association, in session Saturday morning with Newton P. Howe, of Point Arena, presiding, to recommend the incorporation of 22 miles of the Redwood Empire Shoreline Highway between Navarro and Fort Bragg into the State Secondary Highway System.

This recommendation was transmitted to the Nine Counties Highways Committee which met immediately following the Shoreline Highway Association and was later approved by the association. It will be taken up with the State Department of Public Works for inclusion in the 1933 biennium budget.

Other important highway matters recommended by the Nine Counties Committee and approved by the association included the relocation of the Redwood Highway between Waldo and Sausalito and through Sausalito to the present ferry terminals to break the so-called Sausalito "bottle neck"; realignment of the Redwood Highway through San Rafael, Petaluma and Santa Rosa to eliminate curves and speed up traffic; highway improvements in Del Norte County, including from Wilson Creek to The Bluffs, Crescent City south on the beach and reconstruction of Route 71, Coast Highway from Crescent City to the Oregon line.

U. S. Bureau Chief Discusses Federal Aid Allotments

(Continued from page 27)

Thomas H. MacDonald, Chief, U. S. Bureau of Public Roads, of Washington, D. C., delivered an address on the topic: "Relation of Highway Building and Utilization." It may not be amiss at this point to digress to mention a complimentary reference made to Mr. MacDonald at one of the banquets by United States Senator Reed Smoot, indicating the influence of Mr. MacDonald as head of the Federal Bureau of Public Roads on highway legislation at the national capitol.

Senator Smoot's tribute to Mr. MacDonald, which was an oral addendum to a written speech, struck the most popular chord of all, judged by the applause.

"Thank God," said Senator Smoot, "we have one man in the governmental service who, when he asks for an appropriation, has a reason and states it so clearly and with proof so convincing that there is little chance to refuse."

Space permits the inclusion of only salient paragraphs of Mr. MacDonald's address:

Federal Aid Employment

"The July employment on the state and Federal aid road programs of 386,000 men directly means a total of employment equivalent to 1,158,000 people. May, June, July and August held reasonably near this amount of employment."

In discussing Federal aid and the emergency appropriation of \$80,000,000 made by Congress last December, he said:

"In five months the \$80,000,000 advance fund, together with \$160,000,000 regular Federal aid and state funds, totaling \$240,000,000 had been put to work on wholly new work to provide employment in all the states.

"The states also continued construction and maintenance programs from state funds, and there are numerous uncompleted Federal aid projects carried over from the preceding year."

Federal Aid Program

On the 1st of July, 1931, the total going Federal aid program, including emergency and state funds, amounted to a total cost of about \$447,500,000, of which the total Federal share was \$275,250,000."

In discussing the actual employment furnished, Mr. MacDonald stated:

"Starting with a total of 148,600 employed on the state and Federal highway programs in January, 1931, there was a rapid increase as weather conditions permitted. In May the total passed 300,000, for July it was 386,659, and the August preliminary figure was 384,000. In July, 164,691 were employed on Federal and Federal aid projects, 112,681 on state and state aid construction, and 109,287 on maintenance. Figures for county and local work are not available.

More Mileage Needed

"Certain characteristics of the highway work for the last two years are worthy of note. Increased employment has been provided when most needed. Expansion of road building is sound, since adequate highways have not been overproduced and many miles more are needed.

Army Engineers Make Three Day Tour on Water Inspection

(Continued from page 25)

Joaquin Valley and the "grass lands" were viewed en route.

From Stockton a trip through the delta to Rio Vista was made on the United States Engineer Corps launch inspecting river and levee conditions in the delta and examining the construction under way on the Stockton Ship Canal. After leaving Rio Vista the party motored along the Sacramento River viewing flood control and navigation conditions, and inspecting weirs, by-passes and levees of the flood control system.

On the following day, examination was made of the flood control project north of Sacramento, continuing to Red Bluff where the Iron Canyon and Table Mountain dam sites were visited and examined. The Kennett dam site was also examined and the site and foundation conditions inspected.

Colonel Walter E. Garrison, Director of Public Works, State Engineer Edward Hyatt, Deputy State Engineers A. D. Edmonston and R. L. Jones, G. H. Jones, Raymond Matthew and T. B. Waddell of the Division of Water Resources, and Assemblyman Chester M. Kline, member of the Joint Legislative Water Resources Committee, were present on all or part of the trip and presented to the United States Board of Engineers the conditions of water shortage existing in the Great Valley and described features of the State Water Plan.

Public Prosperity Linked to Highways

The history of civilization is in large measure a story of the development of transportation. The story of public prosperity is linked with the public highway. So far as land communication is concerned, the fundamental agency, throughout this story, has been the public highway. For a period brief as history goes, it declined into merely local importance. The stage coach and public truckman gave place almost completely to the steam railroad. But during the past twenty years, the motor vehicle has brought back these carriers and has so expanded and intensified highway transportation as to make it, at least in certain fields, a formidable and often successful rival of the railway train. What another twenty years may bring in the development of the airways one dare not predict. But it is safe to say that the public highway will remain a prime necessity to a world increasingly dependent upon quick and economical transportation—a prime necessity, that is, to public prosperity.—*Mississippi Highways.*



Important amendments to the California irrigation district laws passed by the last Legislature and approved by Governor Rolph relative to the issuance and payment of bonds are described and explained in the official September report of the Division of Water Resources under State Engineer Edward Hyatt. Other activities of the division concerning water storage, conservation and irrigation, inspections, dam applications, flood control and maintenance are recounted in the report as follows:

Some 37 amendments to the California irrigation district laws were passed by the 1930-1931 Legislature and approved by Governor Rolph. Among the most important were those connected with the procedure for the issuance and payment of bonds. Under the law as now in effect any bond issue may be made to mature either serially or all at one time, and the maximum period for redemption has been extended to 50 years. Revenues for bond payments may be based in whole or in part on proceeds derived from contracts for the sale of water and/or electricity or from any other sources other than assessments, and such revenues when so allocated can not be used for any other purpose.

Irrigation districts may purchase with surplus funds any bonds not yet due, without advertising for bids. Provision is made for the direct exchange of district bonds for canals, irrigation works or other property. Some changes are also made in the procedure for assessment. Districts are permitted to collect a stand-by charge for service whether water is used or not. Assessments for depreciation are authorized. Authority is also given the directors to accept a partial redemption of land sold for delinquent assessments.

REVISING BULLETIN

The Division of Water Resources is engaged in a revision of Bulletin 18, "California Irrigation District Laws," which bulletin will embrace the California District Securities Act of 1931; also the California Irrigation District Act (and related laws), the Water Storage District Act, the Conservation District Act of 1923, the Conservation District Act of 1929, the Water District Act, and the County Water District Act, all as amended to 1931. These acts provide different forms of public organizations for the conservation of water by community effort.

Bulletin 21-B, a report on California irrigation districts for the year 1930, has been released. This is the third bulletin of this character issued by the State since 1928, and is published for the purpose of bringing up to January 1, 1931, authentic historical and statistical data on California irrigation districts, and

recording such other information as was obtained on irrigation district activities in 1930. There are 17 major reservoirs in use by irrigation districts, with capacities ranging from 2000 to 286,000 acre-feet, and with a total combined capacity of 1,210,000 acre-feet. Water stored in 1930 amounted to 695,060 acre-feet, or about 57 per cent of the combined capacities of the reservoirs. Diversions reported were 6,109,237 acre-feet by gravity, and 644,205 acre-feet pumped from streams and 339,841 from wells. The total water diverted in 1930 was 7,093,283 acre-feet of which 74.7 per cent was reported as distributed for irrigation and domestic use. The total cropped area reported was 2,168,713 acres of which 1,789,887 acres were irrigated. Thirty-four thousand acres more than for the previous year were irrigated. The districts contain a total estimated population of 324,000.

FIELD VISITS

Field visits for the purpose of conference or investigation of matters in their interest were made to the following districts: Walnut, Palmdale and Littlerock Creek irrigation districts, Los Angeles County; Newport Heights and Newport Mesa irrigation districts, Orange County; Bard Irrigation District, Imperial County; Beaumont Irrigation District, Riverside County; Alpaugh, Alta, Terra Bella, Vandalia and Lindsay-Strathmore irrigation districts, Tulare County; Fresno, Foothill, Tranquillity, James, Stinson, Riverdale, Consolidated and Laguna irrigation districts, Fresno County; Merced and El Nido irrigation districts, Merced County; Turlock Irrigation District, Stanislaus County; Hollister Irrigation District, San Benito County; East Contra Costa Irrigation District, Contra Costa County; Fair Oaks, Carmichael and Citrus Heights irrigation districts, Sacramento County.

DAMS

To date 774 applications have been received for approval of dams built prior to August 14, 1929; 84 applications for approval of plans for construction or enlargement and 180 applications for approval of repairs.

Applications for Approval of Plans for Construction of Dams.

Dam	Owner	County
Bigelow Lake	Tuolumne County	Tuolumne
Buck Lake	Tuolumne County	Tuolumne
Emigrant Lake	Tuolumne County	Tuolumne
Emigrant Meadows	Tuolumne County	Tuolumne
Long Lake	Tuolumne County	Tuolumne
Pulp Mill Diversion	Pacific Gas and Electric Co.	Placer
Iron Gate	California-Oregon Power Co.	Siskiyou
Irvine Conservation	The Irvine Company	Orange

The Iron Gate dam to be built by the California-Oregon Power Company will be located on the Klam-

\$2,700,000 for Through City Routes

(Continued from page 5)

revenues, limited the amount of such work. It was not until 1925 that definite legislation was provided for improvement of routes through cities at State expense. This, however, applied only to municipalities of less than 2500 population.

FOR THROUGH ROUTES

Primary function of the State highways is to provide for statewide or through traffic. Since such traffic uses routes through incorporated cities, the State Highway Department recognized that providing the proper service to this traffic extended the State's responsibility into the municipality. Accordingly there was included in the present highway budget for the 83d and 84th fiscal year biennium, liberal appropriations for improvement within municipalities of through routes.

The total of these appropriations is \$2,700,000. Some of this appropriation was budgeted in definite amounts to projects within cities for which agreements had been reached when the budget was prepared in December, 1930. The remaining amounts were based on estimates of tentatively suggested projects.

COOPERATIVE BASIS

All of these appropriation were set up on a cooperative basis, since both the municipality and the State are called on to assume responsibility. Traffic can be divided into two classes: Local and through. Local traffic is that class which operates on city streets with the purpose of transacting business with establishments fronting thereon. Provision for its accommodation is unquestionably the obligation of the local authority. Through traffic, or that class which is passing through the locality to another destination, should be cared for by the State.

On these fundamental principles is based the policy adopted by the State Division of Highways for cooperative participation in the improvement of routes through cities connecting State highway routes.

The authority and responsibility of the State Highway Commission concerning work within municipalities is definitely set forth in chapter 807 of the 1931 statutes, as follows:

HERE'S THE LAW

"Whenever the natural course of a State highway or State highway system runs or passes into

or through any municipality or contiguous municipalities the California Highway Commission shall have authority to complete such State highway or State highway system as a continuous highway or system and connect the portions of such highway or system on either side of such municipality and shall have authority to determine the location of such connecting portion either through or around the municipality as the commission may determine will be of the greatest benefit to traffic upon such State highway.

For the purpose of so completing any State highway or State highway system, the California Highway Commission shall have authority to acquire the necessary rights of way either within or without the corporate limits of a municipality by purchase, condemnation, or donation and to construct or improve such connecting portion to the same width and to the same standard as the State highway on either side of such municipality and the expense of any said acquisition, construction, or improvement may be paid out of any funds appropriated or available for the acquisition of rights of way, construction or improvement of said State highway or portion of the State highway system.

The legislative body of any municipality upon request of the California Highway Commission shall have authority to acquire any land or right of way by purchase, condemnation or donation needed for State highway purposes and lying within such municipality and the title to any said land or right of way may be taken in the name of the State or municipality and said municipality may also aid in the construction or improvement of any State highway therein by contributing any part of the expense thereof to the California Highway Commission out of any municipal funds available for the construction or improvement of streets within said municipality."

HERE'S THE PRACTICE

The policy adopted conforms to the provisions of the enactment. It is as follows:

"Upon the request of the city authority by proper resolution, the California Highway Commission will determine the location of a routing connecting the highways on either side of such municipality to form a continuous highway or highway system as will be of the greatest benefit to traffic upon such State highway; will adopt and take over such routing; will construct or improve such connecting portion to the same width or to the same standard as the State highway on either side of such municipality, paying for such improvement with State funds appropriated or available for such purpose.

On State highways which are main traffic routes, the municipality will be required to furnish to the State a right of way 80' in width, free of encumbrances and obstructions, and usable only for road or highway purposes. Sidewalk space, if desired, is to be provided by the municipality in addition and outside of the 80' right of way. The intent and purpose of this provision is that ultimate

Primary Needs all Revenues up to 1940

(Continued from preceding page)

development of the highway may be carried to a 76' width between curbs.

On State highways of less importance and carrying a limited volume of traffic, a modification of the above requirement may be made to the extent that sidewalk space may encroach on the 80' right of way but only to the extent that a 56' ultimate width of roadway is provided.

Where it is clearly evident that State or through traffic is sufficiently benefited or benefited in greater proportion than will be local traffic, the State may consider sharing in the cost or in the removal of obstructions of the 80' right of way.

Construction of curbs and sidewalks and the improvement by paving or surfacing of the remaining width of roadway between curbs not improved by the State will be an obligation of the municipality and should be defrayed from municipal funds available for such purpose. Installation, removal, or renewal of water, sewer, gas, and such other facilities under municipal jurisdiction shall be done at the expense of the municipality.

Upon completion of the improvement of the routing, the city is to resume jurisdiction and take back the improved routing and maintain the same."

TOTALS VAST SUM

On the basis of the provision in the new enactment that the State construct and improve the connecting route within the city to the same width and standard as the State highway on either side of the municipality, the total amount of State construction cost on the 457 miles of city thoroughfares, not including right of way or major structures, can be roughly approximated at from \$20,000,000 to \$25,000,000.

Over what period of time appropriations by the State must be continued to defray this total is difficult, at this time, to determine.

Our estimates of revenues and cost of bringing the State highway system to satisfactory standard for a ten-year period, as reported to the 1931 session of the Legislature, show that all revenues now accruing to the State for highway purposes, up to 1940, are necessary to bring the primary highways to adequate standard and that secondary highways will require a longer period for sufficient revenue to accumulate for their completion.

MODIFIES TIME PERIOD

The volume of traffic adjacent to and within the cities on State highway routings and consequent necessity for providing adequate service, established such projects as rather important ones in the State highway program. Comparisons of the relative importance of

such city projects and those on the State highway system will determine in a measure, their inclusion and place on the program and require a modification of the time period indicated above.

A misapprehension of the total amount of money available for expenditure on the State highway system may have been created by an incorrect understanding of the reports of the Board of Equalization estimates of assessment on gasoline, and the amount of revenues accruing to the State for State highway purposes. The present biennium setup, known as the 83d and 84th fiscal year biennium, extending from July 1, 1931, to June 30, 1933, may serve as an example of how this revenue is applied.

It is estimated that the total revenues for the two-year period for State highway purposes will amount to approximately \$63,322,500. This total is made up of the State's share of the original 2 cents gas tax, motor vehicle license fees, and motor bus franchise fees, amounting to \$31,522,500 for the two-year period; the 1 cent gas tax for construction purposes, amounting to \$23,400,000 and Federal aid estimated at \$8,400,000.

This last amount must first be earned by completion of construction projects before it is paid to the State. The amount available for allocation to actual construction and reconstruction projects out of this total, is \$39,362,744, or 62.17 per cent. Maintenance of the highways must be provided, which requires 21.38 per cent of the total revenue.

The law provides for a joint highway district fund, which amounts to 10 per cent of and is deducted from the revenue available for construction of secondary highways. Right of way makes up a considerable item. Preliminary engineering, construction engineering, and administration must also be provided for from this grand total of available revenues before construction projects can be budgeted. The basis on which the revenues are divided for various purposes, such as reconstruction, primary construction, secondary construction, are determined by law.

Prospective Maid: I'd like to work for you, ma'm, but you've only got a two-car garage. Where'd I put my car?

Mistress: Oh, well, you'd never do at all. We're in the habit of employing only servants who have their private chauffeurs.

Vital Statistics on Dam Construction

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 September, 1931.

INYO COUNTY—Big Pine Creek Reservoir Nos. 1 and 6-19. City of Los Angeles, Los Angeles, owner; rock, 4 feet above streambed with a storage capacity of 27 acre-feet, situated on Big Pine Creek tributary to Owens River in Sec. 33, T. 9 S., R. 32 E., M. D. B. and M., for storage purposes, for power and irrigation use.

LOS ANGELES COUNTY—Lovejoy Dam No. 783. Alexander Stewart, Palmdale, owner; concrete, 21 feet above streambed with a storage capacity of 40 acre-feet, located in Sec. 15, T. 6 N., R. 9 W., S. E. B. and M., for storage purposes, for irrigation use.

SAN MATEO COUNTY—Lake Elizabeth Dam No. 607-3. Humphrey Estates, Inc., Pescadero, owner; earth and rock dam, 20 feet above streambed with a storage capacity of 157 acre-feet, situated on unnamed ravine tributary to Cascade Creek in Sec. 20, T. 9 S., R. 4 W., M. D. B. and M., for storage purposes, for irrigation use.

NEVADA COUNTY—Pontoon Dam No. 61-15. Nevada Irrigation District, Grass Valley, owner; timber, 21 feet above streambed with a storage capacity of 140 acre-feet, situated on Canyon Creek tributary to South Yuba River in Sec. 13, T. 18 N., R. 12 E., M. D. B. and M., for storage purposes, for various uses.

Applications for approval of plans and specifications for construction or enlargement of dams.

TUOLUMNE COUNTY—Emigrant Lake Dam No. 550-3. Tuolumne County, Sonora, owner; gravity, 7 feet above streambed with a storage capacity of 1491 acre-feet, situated on North Fork of Cherry Creek tributary to Tuolumne River in Sec. 30, T. 4 N., R. 21 E., M. D. B. and M., for storage purposes, for fish conservation use. Estimated cost \$600, fees paid \$20.

TUOLUMNE COUNTY—Upper Emigrant Lake Dam No. 550-4. Tuolumne County, Sonora, owner; gravity, 8 feet above streambed with a storage capacity of 160 acre-feet, situated on North Fork of Cherry Creek tributary to Tuolumne River in Sec. 11, T. 4 N., R. 21 E., M. D. B. and M., for storage purposes, for fish conservation use. Estimated cost \$300, fees paid \$20.

TUOLUMNE COUNTY—Long Lake Dam No. 550-5. Tuolumne County, Sonora, owner; gravity, 8 feet above streambed with a storage capacity of 520 acre-feet, situated on West Fork of Cherry Creek tributary to Tuolumne River, for storage purposes, for fish conservation use. Estimated cost \$600, fees paid \$20.

ORANGE COUNTY—Irvine Conservation Dam No. 793-3. Irvine Company, Tustin, owner; earth, 23.5 feet above streambed with a storage capacity of 16,846 acre-feet, situated on stream tributary to Newport Bay, located in Lot 442, Block 57, Irvine's Subdivision. Estimated cost \$155,000, fees paid \$1,275. For storage purposes, for irrigation use.

LOS ANGELES COUNTY—Bouquet Canyon Dam No. 6-31. City of Los Angeles, Los Angeles, owner; earth, 200 feet above streambed with a storage capacity of 36,200 acre-feet, situated on Bouquet Creek tributary to Santa Clara River in Sec. 29, T. 6 N., R. 14 W., S. E. B. and M., for storage purposes, for municipal use. Estimated cost \$3,607,586, fees paid \$7,507.59.

LASSEN COUNTY—Loosley Pool Dam No. 258. F. H. Vestal, Pittville, owner; flashboard, 4 feet above streambed with a storage capacity of 500 acre-feet, situated on Pit River tributary to Sacramento in Sec. 18, T. 37 N., R. 6 E., M. D. B. and M., for diversion purposes, for irrigation use. Estimated cost \$300.

Applications for approval of plans and specifications for repair or alteration of dams.

NAPA COUNTY—Lake Camille Dam No. 1-5. Napa State Hospital, Imola, owner; earth, situated on unnamed creek tributary to Tulocay Creek and Napa River in Sec. 13, T. 5 N., R. 4 W., M. D. B. and M.

NAPA COUNTY—Fire Dam No. 1-7. Napa State Hospital, Imola, owner; earth, situated on unnamed creek tributary to Napa River in Sec. 13, T. 5 N., R. 4 W., M. D. B. and M.

NAPA COUNTY—Napa Middle Reservoir No. 1-8. Napa State Hospital, Imola, owner; earth, situated on unnamed creek tributary to Tulocay Creek and Napa River in Sec. 13, T. 5 N., R. 4 W., M. D. B. and M.

NAPA COUNTY—Napa Upper Reservoir No. 1-9. Napa State Hospital, Imola, owner; earth, situated on unnamed creek tributary to Tulocay Creek and Napa River in Sec. 13, T. 5 N., R. 4 W., M. D. B. and M.

SACRAMENTO COUNTY—Martin Dam No. 451. Hutchison et al, Slough House, owner; gravity, situated on Cosumnes River tributary to San Joaquin River in Sec. 35, T. 8 N., R. 8 E., M. D. B. and M.

SANTA CRUZ COUNTY—San Vicente Dam No. 632-2. Coast Dairies and Land Company, Davenport, owner; gravity, situated on San Vicente Creek in Ranchos San Vicente and Arroyo de la Laguna.

LASSEN COUNTY—Buckhorn Dam No. 238. James L. Humphrey, Reno, owner; earth, situated on Painter Creek in Sec. 31, T. 36 N., R. 17 E., M. D. B. and M.

SOLANO COUNTY—Lake Chabot Dam No. 441. Vallejo Water Company, Oakland, owner; earth, situated on Blue Rock Spring tributary to Sulphur Springs, 1½ miles north of Vallejo.

NEVADA COUNTY—Pontoon Dam No. 61-15. Nevada Irrigation District, Grass Valley, owner; timber, 21 feet above streambed with a storage capacity of 140 acre-feet, situated on Canyon Creek tributary to South Yuba in Sec. 13, T. 18 N., R. 12 E., M. D. B. and M.

EL DORADO COUNTY—Fallen Leaf Lake Dam No. 461. Anita M. Baldwin, Los Angeles, owner; concrete, situated on Taylor Creek tributary to Lake Tahoe in Sec. 1, T. 12 N., R. 17 E., M. D. B. and M.

SAN MATEO COUNTY—Burlingame Dam No. 611. California Water Service Company, San Francisco, owner; earth, situated on unnamed stream tributary to San Francisco Bay.

BUTTE COUNTY—Concow Dam No. 67. Thermalito and Table Mountain Irrigation Districts, Oroville, owner; arch, situated on Concow Creek tributary to West Branch Feather River in Sec. 15, T. 22 N., R. 5 E., M. D. B. and M.

MODOC COUNTY—Lauer Dam No. 128-2. Frank McArthur, Alturas, owner; earth dam, situated on unnamed drainage tributary to North Fork Pit River in Sec. 15, T. 44 N., R. 13 E., M. D. B. and M.

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 September, 1931.

LOS ANGELES COUNTY—Verdugo Wash No. 32-4. Los Angeles County Flood Control District, Los Angeles, owner; earth, 32 feet above streambed with a storage capacity of 108 acre-feet, situated on Verdugo Creek tributary to Los Angeles River in Rancho San Rafael, for debris storage purposes.

PLACER COUNTY—Pulp Mill Dam No. 97-106. Pacific Gas and Electric Company, San Francisco, owner; arch, 20 feet above streambed with a storage capacity of 1 acre-feet, situated on Canyon Creek tributary to North Fork American River in Sec. 36, T. 16 N., R. 10 E., M. D. B. and M., for diversion purposes, for power and irrigation use.

LOS ANGELES COUNTY—North Side Water Company Dam No. 782. North Side Water Company, Walnut, owner; earth dam, 8 feet above streambed with a storage capacity of 12 acre-feet, situated on South Fork San Jose Creek tributary to San Gabriel River in Rancho San Jose, for storage purposes, for irrigation use.

SAN DIEGO COUNTY—Monte Vista Dam No. 845. Sefton Investment Company, San Diego, owner; earth dam, 35 feet above streambed with a storage capacity

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September 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 September, 1931.

TRINITY COUNTY—Application 7067. Buckeye Placer Mines, Inc., c/o N. W. Curson, president, Carrville, for 15 c.f.s. and 500 ac. ft. per annum from Little Boulder Creek tributary to Coffee Creek, thence Trinity River to be diverted in Sec. 15, T. 37 N., R. 8 W., M. D. B. and M., for mining purposes. Estimated cost \$12,500.

SISKIYOU COUNTY—Application 7068. L. E. Hallford, Happy Camp, for 3 c.f.s. from Phillips Gulch tributary to Oak Flat Creek, thence Klamath River to be diverted in Sec. 30, T. 16 N., R. 7 E., H. B. and M., for mining purposes. Estimated cost \$2,000.

LAKE COUNTY—Application 7069. E. P. Smith, Lakeport, for 0.2 c.f.s. and 5 ac. ft. per annum from an unnamed stream tributary to Clear Lake (through Clover Creek and Middle Creek) to be diverted in Sec. 15, T. 15 N., R. 9 W., M. D. B. and M., for irrigation and domestic purposes. (39 acres.) Estimated cost \$1,000.

EL DORADO COUNTY—Application 7070. George E. De Golia, 5960 Contra Costa Road, Oakland, for 200 gallons per day from unnamed stream tributary to South Fork of American River to be diverted in Sec. 24, T. 11 N., R. 16 E., M. D. B. and M., for domestic purposes.

STANISLAUS COUNTY—Application 7071. Joe V. Cardoza, c/o Nathan B. McVay, atty., California Bldg., Modesto, for 1.0 c.f.s. from Stanislaus River tributary to San Joaquin River to be diverted in Sec. 29, T. 2 S., R. 8 E., M. D. B. and M., for irrigation purposes. (80 acres.) Estimated cost \$1,500.

NEVADA COUNTY—Application 7072. Relief Hill Mining Co., c/o Fletcher Hamilton, agent, North Bloomfield, for 100 c.f.s., 25 c.f.s. from each source, from (1) Rob Roy, (2) Deadman, (3) Roscoe and (4) Logan Canyons tributary to (1) and (2) Poormans', (3) and (4) South Fork of Yuba River to be diverted in Sec. (1) 25, (2) 26, (3) and (4) 34, T. 18 N., R. 10 E., M. D. B. and M., for mining and domestic purposes.

SAN BERNARDINO COUNTY—Application 7073. Arlington Mining Corporation, 740 South Broadway, Los Angeles, for 0.5 c.f.s. from Arrastre Creek tributary to Mojave Desert to be diverted in Sec. 27, T. 3 N., R. 2 E., M. D. B. and M., for mining and domestic purposes. Estimated cost \$25,000.

EL DORADO COUNTY—Application 7074. J. H. Blamey, 2417 22d St., Sacramento, for 200 gallons per day from Cody Creek tributary to Strawberry Creek, thence South Fork of American River to be diverted in Sec. 19, T. 11 N., R. 17 E., M. D. B. and M., for domestic purposes. Estimated cost \$75.

TRINITY COUNTY—Application 7075. Lee Nafzgar, Del Loma, for 6 c.f.s. from Langs Creek tributary to Trinity River to be diverted in Sec. 31, T. 5 N., R. 8 E., H. B. and M., for mining and domestic purposes. Estimated cost \$5,000.

NEVADA COUNTY—Application 7076. Edward Bickel, P. O. Box 881, Nevada City, for 15 c.f.s. from Little Greenhorn Creek tributary to Greenhorn Creek, thence Bear River to be diverted in Sec. 4, T. 16 N., R. 10 E., M. D. B. and M., for mining and domestic purposes.

EL DORADO COUNTY—Application 7077. R. G. Sproul and S. B. Freeborn, c/o S. B. Freeborn, Davis, for 800 g.p.d. from unnamed stream tributary to Upper Echo Lake to be diverted in Sec. 34, T. 12 N., R. 17 E., M. D. B. and M., for domestic purposes.

TEHAMA COUNTY—Application 7078. Thomas J. Pellow, 409 45th St., Oakland, for 0.037 c.f.s. from unnamed stream tributary to North Fork of Elder Creek, thence Elder Creek and Sacramento River to be diverted in Sec. 34, T. 24 N., R. 7 W., M. D. B. and M., for irrigation and domestic purposes. (1 acre.) Estimated cost \$300.

VENTURA COUNTY—Application 7079. Harry D. Howell and Eujenia J. Howell, c/o Clarke and Bowler, attys., 1216 Title Guarantee Bldg., Los Angeles, for 1/2 miners inch (0.0125 c.f.s.) from unnamed spring

tributary to Sisar Creek, thence Santa Paula Creek and Santa Clara River to be diverted in Sec. 31, T. 5 N., R. 21 W., S. B. B. and M., for domestic purposes. Estimated cost \$300.

EL DORADO COUNTY—Application 7080. B. W. Stone, 161 Ellis St., San Francisco, for total of 500 c.f.s. and 125,000 ac. ft. per annum from (1) Rubicon River, (2) Pilot Creek, (3) Gerie Creek, (4) Loon Lake, (5) Buck Island Lake, (6) Rock Bound Lake, (7) Little South Fork of Rubicon River tributary to American River Drainage to be diverted in Sec. 9, T. 13 N., R. 16 E.; Sec. 11, T. 12 N., R. 12 E.; Sec. 24, T. 13 N., R. 13 E.; Secs. 1, 31 and 34, T. 14 N., R. 14 E.; Sec. 4, T. 13 N., R. 15 E.; Sec. 2, T. 13 N., R. 14 E., M. D. B. and M., for municipal purposes.

PLACER COUNTY—Application 7081. Butte Mining Co., c/o Jas. P. Sweeney, atty., 68 Post St., San Francisco, for 30 c.f.s. from West Branch of El Dorado Creek tributary to North Fork of Middle Fork of American River to be diverted in Sec. 26, T. 15 N., R. 11 E., M. D. B. and M., for mining purposes. Estimated cost \$30,000.

PLUMAS COUNTY—Application 7082. R. A. Snyder, F. Anderson and A. Mattson, c/o Wm. Watson, C. E. Quincy, for 3 c.f.s. from South Fork of Poormans Creek tributary to Hopkins and Nelson Creeks to be diverted in Sec. 3, T. 22 N., R. 10 E., M. D. B. and M., for mining purposes. Estimated cost \$250.

TULARE COUNTY—Application 7083. The Regents of the University of California, a corp., c/o Calkins, Hagar, Hall and Linforth, attys., Crocker Bldg., San Francisco, for 1.6 c.f.s. from two small forks of Esham Creek tributary to Esham Creek, thence Kaweah River to be diverted in Sec. 16, T. 14 S., R. 23 E., M. D. B. and M., for domestic and recreational purposes. Estimated cost \$1,100.

SISKIYOU COUNTY—Application 7084. Marshall M. Crawford, Happy Camp, for 12.5 c.f.s. from China Creek tributary to Klamath River to be diverted in Sec. 9, T. 16 N., R. 8 E., H. B. and M., for irrigation and domestic purposes. Estimated cost \$1,500. (251 acres.)

SUTTER COUNTY—Application 7085. Fred H. Heiken, as county treasurer of Sutter County and trustee of the Bond Fund of Reclamation District 1590, Robbins, for 6.35 c.f.s. from West Dredger Cut of Sutter By-Pass tributary to Sacramento River to be diverted in Sec. 11, T. 13 N., R. 2 E., M. D. B. and M., for irrigation purposes. (254.135 acres.) Estimated cost \$3,500.

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

SANTA CRUZ COUNTY—Permit 3775, Application 2897. C. H. Widemann, San Francisco, Sept. 4, 1931, for 1.78 c.f.s. from Scott Creek in Sec. 19, T. 10 S., R. 3 W., M. D. M., for irrigation and domestic purposes on 463 acres.

SANTA CRUZ COUNTY—Permit 3776, Application 2898. C. F. Widemann, San Francisco, Sept. 4, 1931, for 0.6 c.f.s. from Scott Creek in Sec. 9, T. 10 S., R. 3 W., M. D. M., for irrigation and domestic purposes on 75 acres.

SANTA CRUZ COUNTY—Permit 3777, Application 2899. C. H. Widemann, San Francisco, Sept. 4, 1931, for 2.69 c.f.s. from Scott Creek in Sec. 18, T. 10 S., R. 3 W., M. D. M., for irrigation and domestic purposes on 215 acres.

SANTA CRUZ COUNTY—Permit 3778, Application 2900. C. H. Widemann, San Francisco, Sept. 4, 1931, for 0.31 c.f.s. from Scott Creek in Sec. 18, T. 10 S., R. 3 W., M. D. M., for irrigation and domestic purposes on 25 acres.

NEVADA COUNTY—Permit 3779, Application 6852. John K. Williams, Nevada City, Sept. 10, 1931, for 2.9 c.f.s. from Windup Canyon in Sec. 5, T. 13 N., R. 16 E., M. D. M., for mining purposes. Estimated cost \$150.

TUOLUMNE COUNTY—Permit 3780, Application 6929. F. W. and Stella G. Ross, Stockton, Sept. 12, 1931, for 0.08 c.f.s. from four unnamed springs and an

Applications and Permits Granted

(Continued from preceding page)

unnamed stream in Sec. 35, T. 1 S., R. 16 E., M. D. M., for irrigation and domestic purposes on 15 acres. Estimated cost \$100.

TULARE COUNTY—Permit 3781, Application 6980. Frank O. Sheldon, Porterville, Sept. 14, 1931, for 200 gallons per day from a spring in Sec. 35, T. 20 S., R. 31 E., M. D. M., for domestic use on Lot 9 of McIntyre Recreational Area, Sequoia National Forest. Estimated cost \$35.

SAN DIEGO COUNTY—Permit 3782, Application 6779. Talmadge Losee, Julian, Sept. 15, 1931, for 1.5 c.f.s. from 6 springs and wells in Secs. 7 and 18, T. 14 S., R. 7 E., S. B. M., for irrigation and domestic on 120 acres. Estimated cost \$6000.

KERN COUNTY—Permit 3783, Application 6973. Clinton E. Albertson, Inyokern, Sept. 18, 1931, for 500 gallons per day from a well in Sec. 26, T. 27 S., R. 40 E., M. D. M., for mining use in Sec. 22. Estimated cost \$200.

LAKE COUNTY—Permit 3784, Application 6904. C. G. Haycock, 2674 27th St., Sacramento, Sept. 18, 1931, for 0.5 c.f.s. from Middle Creek in Sec. 31, T. 16 N., R. 9 W., M. D. M., for irrigation of 40.46 acres in Sec. 31.

TRINITY COUNTY—Permit 3785, Application 6775. Louis A. Maire, Denny, Sept. 19, 1931, for 3 c.f.s. from an unnamed stream in Sec. 8, T. 6 N., R. 7 E., H. M., for mining and domestic purposes in Sec. 8. Estimated cost \$2,000.

VENTURA COUNTY—Permit 3786, Application 6909. Hubbard S. Williams, Santa Paula, Sept. 21, 1931, for 1 c.f.s. from an unnamed spring in Sec. 18, T. 4 N., R. 20 W., S. B. M., for mining and domestic purposes in Sec. 18. Estimated cost \$1,000.

KERN AND VENTURA COUNTIES—Permit 3787, Application 6939. Florence Louise Cuddy, Lebec, Sept. 21, 1931, for 100,000 gallons per day from 4 unnamed springs tributary to Cuddy Canyon, to San Joaquin Valley in Sec. 28, T. 9 N., R. 20 W.; Sec. 3, T. 8 N., R. 20 W.; Sec. 10, T. 8 N., R. 20 W., S. B. M., for domestic and recreational purposes. Estimated cost \$3,000.

CONTRA COSTA COUNTY—Permit 3788, Application 6617. John Fleuti, Moraga, Sept. 22, 1931, for 5000 gallons per day from Grizzly Creek in Sec. 15, T. 1 S., R. 2 W., M. D. M., for domestic purposes for 33 homes in Sec. 10. Estimated cost \$1,000.

SONOMA COUNTY—Permit 3789, Application 7006. Hacienda Inc., Hilton, Sept. 22, 1931, for 0.347 c.f.s. from two unnamed streams and Russian River in Sec. 26, T. 8 N., R. 10 W., M. D. and M., for domestic and irrigation purposes on 19 acres in Sec. 26.

TULARE COUNTY—Permit 3790, Application 6981. N. N. Redford, A. M. Griggs, R. Y. Roper, Exeter, Sept. 26, 1931, for 600 gallons per day from Monarch Creek tributary to East Fork of Kaweah River in Sec. 15, T. 17 S., R. 31 E., M. D. M., for domestic purposes.

DEL NORTE COUNTY—Permit 3791, Application 6947. Frank Johnston, Crescent City, Sept. 26, 1931, for 2.00 c.f.s. from Spite Creek, tributary to Middle Fork of Smith River in Sec. 17, T. 17 N., R. 3 E., H. M., for mining and domestic purposes.

FRESNO COUNTY—Permit 3792, Application 7022. County of Fresno, Fresno, Sept. 28, 1931, for 0.111 c.f.s. from San Joaquin River in Sec. 32, T. 9 S., R. 23 E., M. D. M., for domestic purposes at sanitorium. Estimated cost \$14,000.

Highway Bids and Awards for September

SAN BENITO COUNTY—Between southerly boundary and Pajaro River, about 5.5 miles to be graded and paved with Portland cement concrete. Dist. V, Rt. 2, Sec. B, Hanrahan Company, San Francisco, \$295,810; Morrison-Knudsen Co., Boise, Idaho, \$291,785; Isbell Construction Co., Carson City, Nevada, \$339,219; Guy F. Atkinson Co., San Francisco, \$320,318; Frederickson & Watson Construction Co., and Fredrickson Bros., Oakland, \$282,687; Granite Construction Co., Ltd., Watsonville, \$295,202; Healy-Tibbitts Construction Co., San Francisco, \$290,332. Contract awarded to Peninsula Paving Co., San Francisco, \$264,964.

HUMBOLDT COUNTY—Between Redwood Creek and Willow Creek, about 8.9 miles to be surfaced with untreated crushed gravel or stone. Dist. I, Rt. 20, Sec. C, Smith Bros. Co., Eureka, \$54,922; Healy-Tibbitts Construction Co., San Francisco, \$55,947; California Construction Co., San Francisco, \$52,584; Hemstreet & Bell, Marysville, \$52,337; D. McDonald, Sacramento, \$55,665; A. Milne, Portland, Oregon, \$48,727; E. B. Bishop, Sacramento, \$48,324. Contract awarded to Triangle Rock & Gravel Co., San Bernardino, \$34,251.

ORANGE COUNTY—Between Fullerton and westerly boundary, about 4.3 miles to be graded with Portland cement concrete and asphaltic cement concrete. Dist. VII, Rt. 2, Sec. F, Griffith Co., Los Angeles, \$112,008; George R. Curtis Paving Co., Los Angeles, \$124,061; R. J. Blanco, Manhattan Beach, \$118,262; Steele Finley, Santa Ana, \$120,969; Hall-Johnson Co., Alhambra, \$132,866. Contract awarded to Oswald Bros., Los Angeles, \$111,494.

SAN JOAQUIN COUNTY—Between westerly boundary and a point near Banta, 8.8 miles asphalt concrete surface to be planned. Dist. X, Rt. 5, Sec. A, Monte C. Abrams, Los Angeles, \$11,018; Standard Road Planing

Co., Los Angeles, \$5,348. Contract awarded to Asphalt Pavement Planing Co., Oakland, \$4,331.

ARCHITECTURAL AWARDS

For Month of September

List of projects handled by the Division of Architecture for which contracts were awarded by Colonel Walter E. Garrison, Director of Public Works, during the month of September, 1931.

Sonoma State Home, Eldridge—Ward building and addition to school building; buildings to be one story, reinforced concrete, clay tile roof. Contract for general work to Wm. Spivock, San Francisco, \$74,333; for plumbing to J. A. Fazio, Oakland, \$6,166; for electrical to Decker Electrical Construction, San Francisco, \$2,704; for heating to Frederick W. Snook, San Francisco, \$8,640.

"Mary," said Mrs. Newrich to the new maid, "you may take the dog out and give him some air."

"Yes Ma'am," acquiesced Mary. "And please, Ma'am, where will I find the nearest service station?"—*Wall Street Journal*.

A slow-pay customer sent the following note to his garage mechanic: "Please send car; if O. K., will send check."

The mechanic, however, was not doing any business on such risky terms, so he wrote back: "Send check, if O. K., will send car."

"Give Family Man Job" Is Plea

Colonel Walter E. Garrison, director of the Department of Public Works is enlisting the cooperation of the contractors of the State in carrying out Governor Rolph's intensive program for speedily putting more

men to work on State projects, especially married men with families. Since the first of the month, with every award of a contract Colonel Garrison is sending the following personal letter to the successful bidder:

Gentlemen:

In awarding the enclosed contract to you, it is respectfully requested that you give serious consideration to an objective of the present administration in its endeavor to help in relief measures for the unemployed, especially the married man with a family.

The local community is very much interested in this contract, both from the standpoint of a necessary improvement and for the possible help it may afford its local citizens in obtaining work, thereby relieving them of possible charitable assistance and also as a means of forwarding local business. It is believed that local citizens could be effectively employed on this work, especially in the unskilled labor classification, and I am certain that by applying to the Board of Supervisors or local city officials they will be able to submit a number of worthy cases for your interview and consideration of their fitness for the work.

Your support in this direction would be very much appreciated by Governor Rolph and myself.

Yours very truly,
WALTER E. GARRISON,
 Director.

Maintenance Crew on Fire Line all Night

The effective work done by maintenance crews of the Division of Highways in preventing and extinguishing forest fires has been acknowledged from many different sources. Another instance is reported in the following letter:

Mr. Jno. H. Skeggs,
 District Engineer,
 San Francisco, Cal.

Dear Sir:

Replying to your letter of October 7th (File 404.19) relative to a forest fire near Big Basin.

A fire near the boundary of the park on the China Basin road was discovered on the afternoon of October 3d. Our maintenance crew foreman, R. H. Dickie, and three men responded to a call for

help, reporting at 5 p.m. and continuing through the night until 11 a.m. Sunday when they were relieved. They again reported at 10 a.m. on October 5th continuing until 2 p.m., at which time the blaze was under complete control.

The fire burned over an area of several acres and actually entered the park at its northeast boundary. I learned that the maintenance crew was among the first on the ground, and am informed by park officials and others that their prompt action in reporting for duty and their efforts through the night was largely responsible for bringing the fire under an early control.

Yours very truly,

J. W. ADAMS, Supt.

Host: It's beginning to rain; you'd better stop for dinner.

Motoring Visitor: Oh, thanks very much, but it's not bad enough for that.

Dedication of Russian River Bridge At Jenner Proves Gala Occasion

CLOSE to 10,000 enthusiasts, representing every one of the nine Redwood Empire counties attended the opening and formal dedication of the new Russian River bridge, on the Redwood Empire's Shoreline Highway, at Jenner, Sonoma County, Sunday, October 4th.

The affair, which was sponsored jointly by the Redwood Empire Association, officers and directors of the Shoreline Joint Highway District, the Coast Chamber of Commerce, the Shoreline Highway Association, Associated Chambers of Commerce of Sonoma County, and the various chambers of commerce of Marin, Mendocino, Humboldt, Del Norte, Napa, Lake and San Francisco counties, marked the passage of a new milestone in Redwood Empire highway affairs.

V. J. CANEPA OFFICIATES

Supervisor Victor J. Canepa, of San Francisco, president of the Shoreline Highway Bridge District, which constructed the magnificent new span with State aid by the Department of Public Works, acted as chairman of the day and the list of speakers included notables, not only of the Redwood Empire, but of the Federal, State, county and city governments, and of municipalities in other portions of northern California.

A feature of the day was the attendance at the celebration of T. M. Jenner of Seattle, grandson of the late Dr. E. K. Jenner who settled at the site of the community now known as Jenner in 1854, and from whom it took its name.

At the bridge dedication Governor James Rolph, Jr., was represented by Dr. J. M. Toner, director of the Department of Institutions of the State of California.

REARDON PRESENTS IT

The bridge was presented to the motoring public of California by State Highway Commissioner Timothy A. Reardon, of San Francisco, and was christened with a bottle of Sonoma County mineral water by Miss June Osborne of the Coast Chamber of Commerce.

Outstanding leaders who participated in the bridge dedication included: Edward Morris, president of the Redwood Empire Associa-

tion; Newton P. Howe, president of the Shoreline Highway Association; Harry G. Ridgway, vice president of the Redwood Empire Association and president of Marvelous Marin, Inc., Supervisor Fred Suhr, of San Francisco, president of the Shoreline Intercounty Highway District; Supervisors C. J. Gardiner, Marin; Fred Lowell, Sonoma; Charles Perkins, Mendocino; and B. F. Flint, Humboldt, directors of the Shoreline Intercounty Highway District, and George Sanborn, the district's secretary.

THRONG OF NOTABLES

Others present were Supervisor Ed Enzenauer, chairman, Board of Supervisors Sonoma County; J. B. Piatt, chief engineer of the district; T. C. McCoy, representing the division engineer; Dan Lafferty, president of the California State Automobile Association; M. F. Looseley, president of the Coast Chamber of Commerce; State Senators Herbert F. Slater, of Santa Rosa and Arthur M. Breed, of Alameda County; Assemblyman Hubert B. Scudder of Sonoma County; Supervisor William Deysher, of Marin County, chairman of the board and president of the Redwood Empire Supervisors Unit; E. L. Finley, president of the Newspaper Publishers' Unit of the Redwood Empire Association and Stanley H. Jones, president of the Chamber of Commerce Unit of the Redwood Empire Association.

At the conclusion of the speaking program and after Miss Shoreline Highway christened the bridge, a cardboard replica of the old original two-car ferry which served the traveling public for 60 odd years, was towed down the river, burned and blown up in spectacular manner, signifying the passing of the ferry and the opening of the new modern bridge.

Charles P. Nolan, who came to California in 1865, and assisted in furnishing the material for the first ferry at Markham, which this bridge supplants, was introduced from the speakers' stand. Mr. Nolan is one of the last of the old-time settlers of Sonoma County.

"Have you a skeleton in your closet?"
"No, it's out in the garage. I forgot to lock the doors last night and somebody took everything except two wheels and the frame."



THREE ROUSING CHEERS went up as the beautiful new bridge at the mouth of the Russian River near Jenner was dedicated and thrown open to traffic on Sunday, October 4th, ending another bottleneck on the Redwood Empire's Shoreline Highway. For sixty years a dinky ferryboat of two-car capacity has been the only means of crossing the river at that point. The new bridge as shown in the upper picture is a graceful span of steel and concrete. A portion of the large crowd numbering ten thousand or more that attended the dedication ceremonies is shown in the center while below is Supervisor Victor Canepa of San Francisco, president of Shoreline Joint Highway District No. 16, and Miss June Osborne of the Coast Chamber of Commerce, who christened the bridge with a bottle of Sonoma County mineral water. A pasteboard replica of the old ferryboat was towed out into the river, blown up and burned as the dedication ceremony ended.



New Plan Relieves Courts in Minor Light Violations

Motorists stopped on the highways hereafter by officers for minor violations of the headlight laws will be relieved from appearing in court, provided they have the proper adjustments made.

The arrangement, designed to relieve the court so that more time may be given to really serious violations of the motor laws, will be made possible by the issuance of "warning cards" to the offending motorist upon which the light adjustment required is noted.

Check Up Provided

These cards inform the motorist that he must have the adjustment made within a given number of days at an official headlight station. After the adjustment is made the authorized adjuster signs the card and it is mailed to the squad headquarters of the patrol from which the arresting officer is working.

If the card is not received within a reasonable length of time, the officer swears to a complaint and arrests the motorist. He then will be required not only to have the adjustment made to his lights, but to appear in court and, possibly, to pay a fine.

A careful "follow up" check of each case will be made by means of information taken down on a stub of the officer's book when the motorist is cited.

Relieves the Courts

Inspector Will R. Sharkey, Jr., head of the Bureau of Lights of the California Highway Patrol, who worked out the system, said it would have the effect of ridding the highways of defective, illegal and glaring lights without congesting the courts with such cases.

On light raids conducted by the patrol as many as 200 persons have been cited in a single evening by one squad, Sharkey explained. To throw this number of cases into a justice's court at one time means congestion and confusion.

"Besides it is poor practice to require a motorist to appear in court for a minor light violation which may have been caused through accident or inadvertence when the result sought can be accomplished by having the trouble attended to," Sharkey added.

"I want a very careful chauffeur—one who doesn't take the slightest risks," warned the would-be employer. "I'm your man, sir," answered the applicant. "Can I have my salary in advance?"—*Brooklyn Eagle*.

The Engineer

WHO is the man designs our pumps with judgment, skill and care?

Who is the man that builds 'em and keeps them in repair?

Who has to shut them down because the valve seats disappear

The bearing-wearing, gearing-tearing mechanical engineer.

WHO buys his juice for half a cent and wants to charge a dime?

Who, when we've signed the contract, can't deliver half the time?

Who thinks the loss of twenty-six per cent is nothing queer?

The volt-inducing, load-reducing electrical engineer.

WHO takes a transit out to find a sewer line to tap?

Who then with care extreme locates the junction on the map?

Who is it goes to dig it up and finds it nowhere near?

The mud-bespattered, torn and tattered civil engineer.

WHO thinks without his product we should all be in a lurch?

Who has a heathen idol which he designates research?

Who tints the creeks, perfumes the air, and makes the landscape drear?

The stink-evolving, grease-dissolving chemical engineer.

WHO is the man that will draw a plan for everything you desire

From a transatlantic liner to a hairpin made of wire,

With "ifs" and "ands," "howevers" and "buts" who makes his meaning clear?

The work-disdaining, fee-retaining consulting engineer.

WHO builds the road for fifty years that disappears in two,

Then changes his identity, so no one's left to sue?

Who covers all the traveled roads with filthy, oily smear?

The bump-providing, rough-on-riding highway engineer.

WHO takes the pleasure out of life and makes existence hell?

Who'll fire a real good-looking one because she can not spell?

Who substitutes a dictaphone for a coral tinted car?

The penny-chasing, dollar-wasting efficiency engineer.

—Author unknown.

Printed in *Professional Engineer*, Courtesy
Purdue Engineer.

!!! What Ho, The Fox !!!



Thrill of the Chase at Bidders' Matinee

One of the colorful events of the week in the routine of the Department of Public Works is the bidders' matinee held every Wednesday in the large board room on the third floor.

Two o'clock is the hour set for the important business of opening bids submitted on proposed work. Long before the hour, however, the room is filled with some seventy or more contractors, material men, bond company agents and others interested in the results of the bidding contest. They sit there chatting, chaffing, smoking, apparently a care-free bunch but each one is secretly wondering if there's a "fox" in their midst.

At the department executives' table sits G. T. McCoy, principal assistant engineer, flanked by J. G. Standley, staff engineer; William Boeh, assistant office engineer, and George T. Gunston, assistant secretary of the Highway Division and disbursing officer.

HUNT IS ON

When Mr. McCoy announces the bids are about to be opened, a deep silence suddenly pervades the room. Mr. Gunston takes a



THEY'RE "FOX HUNTING," these contractors, material dealers and others and eager for the chase. The scene is the regular afternoon meeting at the opening of awards in the Department of Public Works. The department executives in the lower picture who officiate on such occasions are (left to right) G. T. Gunston, assistant secretary and disbursing officer, Highway Division; J. G. Standley, staff engineer; G. T. McCoy, principal assistant engineer, and William Bock, assistant office engineer.

large sealed envelope from a pile in front of him containing the bids, opens it, extracts the bid, and a fat cashier's or certified check representing a liberal ten per cent of the bidder's

(Continued on page 44)

River Bank Protection Completed

(Continued from page 31)

ath River in Siskiyou County. It will be a concrete arch 165 feet in height with a storage capacity of 59,000 acre-feet, to cost approximately \$1,500,000. This dam will be part of the California-Oregon Power Company's system and there will be a power house in connection with the dam.

Applications for Approval of Plans for Repairs or Alterations.

Dam	Owner	County
Buckhorn	James L. Humphrey	Lassen
Buckhorn Lake	Pacific Gas and Electric Co.	Shasta
Lake Madigan	City of Vallejo	Solano
Lake Camille	Napa State Hospital	Napa
Fire Dam	Napa State Hospital	Napa
Napa Middle Reservoir	Napa State Hospital	Napa
Napa Upper Reservoir	Napa State Hospital	Napa
Martin	Hutchison et al	Sacramento
San Vicente Creek	Coast Dairies and Land Co.	Santa Cruz
Lake Chahot	Vallejo Water Company	Solano

Plans Approved for Construction.

Dam	Owner	County
Verdugo Wash	L. A. Co. Flood Control Dist.	Los Angeles

Plans Approved for Repairs or Alterations.

Dam	Owner	County
Florence Lake	Southern California Edison Co.	Fresno
Diversion	North Fork Ditch Company	Placer and Sacramento
Kincaid	Pacific Gas and Electric Co.	Tuolumne
Buckhorn	James L. Humphrey	Lassen
Buckhorn Lake	Pacific Gas and Electric Co.	Shasta
Martin	Hutchison et al	Sacramento

FLOOD CONTROL AND RECLAMATION

Maintenance of Sacramento Flood Control Project.

Routine maintenance work has been continued, including repairs to structures and irrigation of willows planted for bank protection. Repairs on several bridges have been commenced.

A small crew under the river foreman has been engaged in clearing and stumping a ten-acre tract in the Sacramento By-Pass.

BANK PROTECTION

Advice has been received from the California Debris Commission of the decision of the chief of engineers relative to the extent of bank protection to be undertaken by the Federal Government under existing law. That decision is expressed as follows: " * * * the Engineer Department will not without specific legislative authorization undertake the revetment of the banks of the Sacramento and its tributaries except for the protection of the weirs forming a part of the flood control project."

The result of this decision will be that, without further action by Congress, the Federal Government will do no bank protection work in the Sacramento or its tributaries above the mouth of Cache Slough. Necessary bank protection work must therefore be undertaken by the State in cooperation with local districts, with funds provided for flood control project maintenance.

During the past year the California Debris Commission has completed bank protection work on the Sacramento River between the mouth of Cache Slough and Sacramento costing approximately \$84,000. Continuation of this work has been stopped by the decision of the chief of engineers. As this change of policy has only been recently announced, no work has yet been set up under the new arrangement.

The construction of 229 feet of railroad trestle to extend the jetty being done under contract by the Healy Tibbetts Construction Company, has been practically completed. Repairs to the shovel in the quarry and the railroad have been completed and the placing of rock in the jetty will commence at once.

WATER RIGHTS

Applications to Appropriate.

During the month of August 42 applications were received for the appropriation of water, 20 applications were denied and 15 were approved; three permits were revoked and one license was issued.

Adjudications.

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). A hearing on the exceptions to the division's report as referee has been set by the Superior Court for October 5, 1931.

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.

Los Alamos Creek (Santa Barbara County). Division's report as referee has been submitted to the Superior Court and a decree is expected in the near future.

Davis Creek (Modoc County). A tentative decree has been circulated among counsel and is now under consideration by the Superior Court.

Mill Creek (Modoc County). All but one of the water users have signed a stipulation for consent judgment.

Deep Creek (Modoc County). Distribution of the waters of Deep Creek was continued throughout the month in accordance with the trial schedule of allotments which was adopted for the 1931 season.

Franklin Creek (Modoc County). Administration of the schedule of allotments for trial distribution during the 1931 irrigation season was continued throughout the month.

SACRAMENTO-SAN JOAQUIN WATER SUPERVISOR

During the past month the regular field work has continued, comprising measurements of all diversions, stream flow, and return water throughout the Sacramento-San Joaquin territory.

Flow of Sacramento Stream Increased

(Continued from preceding page)

Since the first of September, irrigation diversions have rapidly decreased and due to this and the drainage of the rice fields, the flow of the Sacramento River at Sacramento was increased to better than 2000 second-feet on September 10. No new salinity stations have been required but all regular stations, about sixty in number, have been maintained. In addition, many special samples have been taken at the request of various delta water users. The regular salinity bulletins have been sent out at about four-day intervals until recently. With the increasing river flow and reduction in irrigation draft, the interval between bulletins has been increased. Due to the increased flow at Sacramento, the salinity in the Upper Sacramento Delta has rapidly decreased but it has continued to increase at practically all of the San Joaquin Delta stations. There has been practically no increase in the flow to the delta of the San Joaquin River.

The special investigation has continued in the delta and up-river areas to determine the facts needed to establish the damage resulting from the present season's water shortage.

The accompanying tabulations of river discharge and salinity show a comparison between the measurements in August and September of this season and the records in September, 1924.

RIVER DISCHARGE

Station	Discharge in Second-feet		
	1931	1924	
	August	September	September
Sacramento River at Red Bluff.....	8/10—2600	9/10—2780	9/10—2900
Sacramento River at Butte City.....	8/11—1130	9/9—1760	9/9—2160
Sacramento River at Colusa.....	8/11—992	9/9—1620	9/9—2170
Sacramento River at Knights			
Landing.....	8/10—597	9/8—1440	9/8—2040
Sacramento River at Verona.....	8/12—798	9/10—2260	9/10—
Sacramento River at Sacramento.....	8/12—550	9/10—2270	9/10—2180
Feather River at Nicolaus.....	8/12—46	9/9—333	9/9—42
American River at H Street			
Bridge.....	8/13—38	9/10—103	9/10—31
San Joaquin River near Ver-			
nalis.....	8/10—260	9/11—271	9/11—416
Combined flow of Sacramento			
River at Sacramento and			
San Joaquin River near			
Vernalis.....	8/12—810	9/10—2540	9/10—2590

SALINITY-SACRAMENTO-SAN JOAQUIN DELTA

	8/10/31	9/10/31	9/10/24
	Parts of Chlorine per 100,000		
O and A Ferry.....	1320	1360	1225
Collinsville.....	1190	1180	1035
Emmaton.....	900	860	696
Three Mile Slough Bridge.....	760	840	566
Rio Vista Bridge.....	700	640	402
Isleton.....	510	440	30
Howard Ferry.....	400	37	10
Walnut Grove.....	200	10	8
Hood Ferry.....	8	7	8
Antioch.....	1050	1100	1065
Jersey.....	700	800	604
Webb Pump.....	520	620	326
Central Landing.....	370	250	164
Middle River P. O.....	130	250	142
Clifton Court Ferry.....	56	100	60
Williams Bridge.....	52	80	---

The water master service on the Feather River was continued through the first ten days of September. At the end of that time the irrigation demands had greatly diminished and the stream flow had increased

both from this cause and due to the fact that a considerable increase in reservoir releases had been made to satisfy power requirements. Further water master service was therefore no longer required. The lower Feather River water users have reported their crops were successfully irrigated and have expressed appreciation of the manner in which the present season's serious situation has been handled.

CALIFORNIA COOPERATIVE SNOW SURVEYS

Office work during the past month has included routine compilations, the preparation of sketch maps for snow courses in the Walker, South Kings and South American River basins.

In the field, a six-day reconnaissance trip was made in the South Kings River Basin and new snow survey courses were established at Copper Creek Summit, elevation 10,200 between the south and middle forks; Junction Meadows, elevation 8500 on Bubbs Creek; and Bullfrog Lake, elevation 10,700 two miles west of Kearsarge Pass. Negotiations are in progress for cooperation with the Forest Service for the construction of necessary shelter cabins and the survey of the new route to include these courses.

Jeff Davis Peak shelter cabin in the Mokelumne River Basin was completed during the month and accepted.

The snow course at Lake Lucille in the American River Basin was inspected, brushed out, resigned and sketched.

FEDERAL COOPERATION—STREAM GAGING

In connection with the Federal-State cooperation for stream gaging, a trip was made to the Lake Bowman area and agreement was reached between the State, the U. S. Geological Survey and the Nevada Irrigation District as to certain construction work needed at the Milton Bowman outlet station and as to the future maintenance of the four stations in the Bowman area.

VENTURA COUNTY INVESTIGATION

Drilling of the Devil Canyon dam site was completed and the showing as to foundation is not satisfactory although it is not to be inferred that the site is condemned. Drilling was started with a Calyx drill at the Blue Gulch site and the driller is still in the wash gravel of the river bed. Drilling the Spring Creek site is progressing with a Diamond drill and core is quite satisfactory. Two holes have been put down and a third has been started. Other work on underground water in Ventura County investigation has proceeded in a routine way.

South Coastal Basin Investigation.

Work of determining capacity of underground basins and working up old records of rainfall and water table fluctuation is progressing satisfactorily.

Plans Approved in September for Dam Changes or Repairs

(Continued from page 34)

of 10.8 acre-feet, situated on unnamed creek, tributary to Sweetwater River in Sec. 31, T. 15 S., R. 1 E., S. E. B. and M., for storage purposes, for domestic and irrigation use.

SUTTER COUNTY—Wadsworth Dam No. 1-15. Sacramento and San Joaquin Drainage District, Sacramento, owner; flashboard, 17½ feet above streambed with a storage capacity of 162 acre-feet, situated on Wadsworth Canal, tributary to Sacramento River in Sec. 15, T. 15 N., R. 2 E., M. D. B. and M., for storage purposes, for underground 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 September, 1931.

LASSEN COUNTY—Buckhorn Dam No. 238. James L. Humphrey, Reno, owner; earth dam, situated on Painter Creek in Sec. 31, T. 36 N., R. 17 E., M. D. B. and M.

SHASTA COUNTY—Buckhorn Lake Dam No. 97-86. Pacific Gas and Electric Company, San Francisco, owner; earth, located in Sec. 19, T. 33 N., R. 2 E., M. D. B. and M.

SACRAMENTO COUNTY—Martin Dam No. 451. Hutchison et al, Slough House, owner; gravity, situated on Cosumnes River tributary to San Joaquin River in Sec. 35, T. 8 N., R. 8 E., M. D. B. and M.

NAPA COUNTY—Lake Camille Dam No. 1-5. Napa State Hospital, Imola, owner; earth, situated on unnamed creek tributary to Tulocay Creek and Napa River in Sec. 13, T. 5 N., R. 4 W., M. D. B. and M.

NAPA COUNTY—Fire Dam No. 1-7. Napa State Hospital, Imola, owner; earth, situated on unnamed creek tributary to Tulocay Creek and Napa River in Sec. 13, T. 5 N., R. 4 W., M. D. B. and M.

NAPA COUNTY—Napa Middle Reservoir No. 1-3. Napa State Hospital, Imola, owner; earth, situated on unnamed creek tributary to Tulocay Creek and Napa River in Sec. 13, T. 5 N., R. 4 W., M. D. B. and M.

NAPA COUNTY—Napa Upper Reservoir No. 1-9. Napa State Hospital, Imola, owner; earth, situated on unnamed creek tributary to Tulocay Creek in Napa Reservoir, located in Sec. 13, T. 5 N., R. 4 W., M. D. B. and M.

SOLANO COUNTY—Lake Madigan Dam No. 14-2. City of Vallejo, Vallejo, owner; earth, situated on Wild Horse Creek tributary to Green Valley Creek in Sec. 9, T. 5 N., R. 3 W., M. D. B. and M.

LASSEN COUNTY—Long Canyon Dam No. 244. John M. Hagata, Susanville, owner; earth fill, situated on Long Canyon in Sec. 7, T. 31 N., R. 13 E., M. D. B. and M.

SANTA CRUZ COUNTY—San Vicente Creek Dam No. 632-2. Coast Dairies and Land Company, Davenport, owner; gravity, situated on San Vicente Creek in Rancho San Vicente and Arroyo de la Laguna.

MONTEREY COUNTY—Black Rock Dam No. 643. Monterey Stock and Game Association, Monterey, owner; earth, situated on Black Rock Creek tributary to Carmel River in Sec. 22, T. 17 S., R. 2 E., M. D. B. and M.

SOLANO COUNTY—Lake Chabot Dam No. 441. Vallejo Water Company, Oakland, owner; earth, situated on Blue Rock Spring, tributary to Sulphur Springs, ½ mile north of Vallejo.

NEVADA COUNTY—Pontoon Dam No. 61-15. Nevada Irrigation District, Grass Valley, owner; timber, 21 feet above streambed with a storage capacity of 140 + acre-feet, situated on Canyon Creek tributary to South Yuba River in Sec. 13, T. 18 N., R. 12 E., M. D. B. and M.

EL DORADO COUNTY—Fallen Leaf Lake Dam No. 461. Anita M. Baldwin, Los Angeles, owner; concrete, situated on Taylor Creek tributary to Lake Tahoe in Sec. 1, T. 12 N., R. 17 E., M. D. B. and M.

MODOC COUNTY—Courtwright Dam No. 155. R. Anchoroguy, Red Bluff, owner; earth dam, situated on Happy Camp Creek in Sec. 22, T. 42 N., R. 7 E., M. D. B. and M.

THE HIGHWAY

There's a long gray ribbon, with straight
white lines,
Which the Master Merchant unfurled
For pity of crowds and town-sick folk
With hands that tired and hearts that broke;
And it reaches the end of the world!

So He stands and smiles, that Mighty Man,
Unfurling His ribbon rolls;
And the ribbon coils go up and down
Through blossomy fields and village and town
For rest of our weary souls.

The red says "Stop!" but green says "Go!"
And the hills and fields are green;
So let's away, my lad! my lass!
The trees all beckon, and the young, young
grass
Calls "What a long time you have been!"

—Eleanor Preston Watkins.

Printed in the Women's City Club Magazine

"What Ho, the Fox" At Bidders' Matinee

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figure. He announces the title of the job, the name of the bidder and the size of the check and passes the sheet to Mr. Standley who reads aloud the item prices and total figure of the bid.

The reading is followed with rapt attention while busy pencils jot down item prices and totals on blank forms for comparison with their own bids.

So the silent quest for the "fox" goes on till the last bid is read and the lowest bidder revealed. He is the man who has outfoxed them all in coralling the contract.

FOX IN THE OPEN

Instantly the silence is broken by a loud buzz of conversation and bustling about as rival bidders argue and bond house agents and material men besiege the "fox" for business.

Some rivals congratulate him, others commiserate with him declaring he'll "lose his socks" on the job. Thus the "fox" is caught in the open and the hunt is over.

With 150 to 200 going contracts constantly being accepted and new ones awarded, this scene is repeated at the California Department of Public Works nearly every week in the year with possibly one or two exceptions.

"Can I help you start that car? I know a lot about that make."

"Well, whisper it. There are ladies present."

STATE OF CALIFORNIA
Department of Public Works

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Port of San Diego—Edwin P. Sample

