

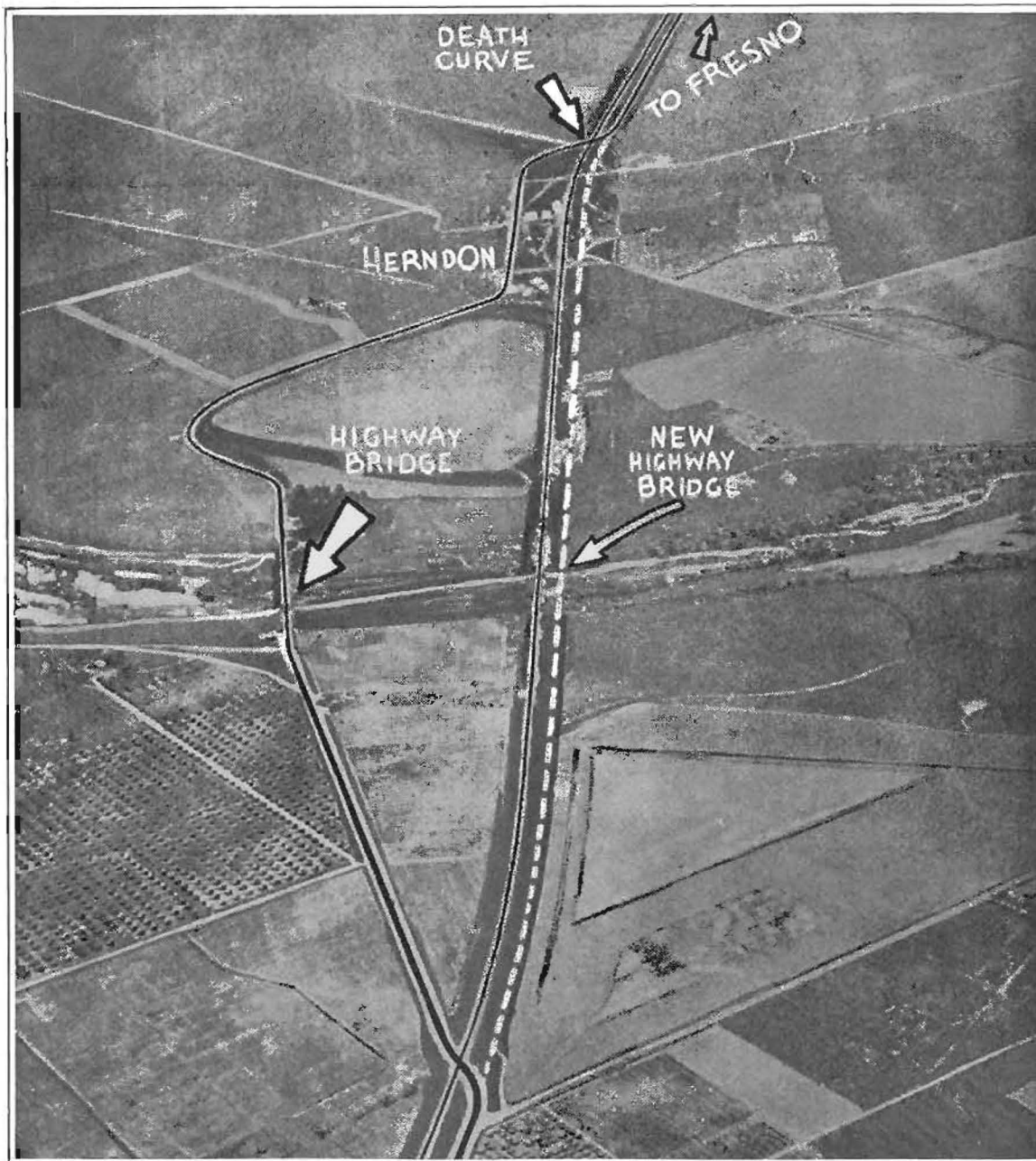
# CALIFORNIA HIGHWAYS

A BULLETIN ISSUED BY THE CALIFORNIA HIGHWAY COMMISSION FOR THE  
INFORMATION OF ITS EMPLOYEES AND THE PUBLIC

Vol. 4

APRIL, 1927

No. 4



**SAFETY IN MODERN HIGHWAY BUILDING**—The above airplane view is illustrative of the safety features the California State Highway Commission is endeavoring to incorporate into future construction. The view shows the proposed rerouting of the state highway near Herndon, Fresno County, the proposed new bridge and the present routing of the highway. The heavy dark line marks the present route, the new routing being indicated by the white line. This eliminates Death Curve and others, two railroad crossings and the ancient Herndon Bridge.

# CALIFORNIA HIGHWAYS

## "CALIFORNIA HIGHWAYS"

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

OVER four thousand copies of California Highways are issued each month for distribution among the different State Highway Commission departments, including engineering, construction, survey and plans, maintenance, equipment, research, bridge and accounting, to municipal and county officials, including all supervisors, all newspapers throughout the state, highway contractors and road builders, highway associations and their officials, road and highway journals, many of which request reprints of its engineering articles, and to all persons, public officials and agencies who may request to be put on the mailing list. The Bulletin also goes to fourteen different foreign countries.

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

The highways of California draw practically all of her people into close touch with the state department as all use the highways, there being more than an average of one motor vehicle to every family. It is the duty of this organ to publish the results of the work of the state's great highway building department for the benefit of all who use the highways and to broadcast it to road building agencies of other states that they may profit by California's work.

Vol. 4. APRIL, 1927. No. 4

## CALIFORNIA HIGHWAY DEPARTMENT

C. C. YOUNG, Governor.

### CALIFORNIA HIGHWAY COMMISSION

RALPH W. BULL, Chairman, Eureka  
J. P. BAUMGARTNER, Commissioner, Santa Ana  
M. B. HARRIS, Commissioner, Fresno

R. M. MORTON, State Highway Engineer, Sacramento

HARRY A. ENCELL, Attorney, San Francisco  
E. FORREST MITCHELL, Secretary

### HEADQUARTERS STAFF, SACRAMENTO

T. E. STANTON, Assistant State Highway Engineer  
L. V. CAMPBELL, Office Engineer

FRED J. GRUMM, Engineer of Surveys and Plans	Bridge Engineer
C. S. POPE, Construction Engineer	R. H. STALNAKER, Equipment Engineer
T. H. DENNIS, Acting Maintenance Engineer	C. L. McKESSON, Materials and Research Engineer

WILLIAM SCHLEIP, Principal Accountant  
BEN H. MILLIKEN, Superintendent of Prison Road Camps

### DIVISION ENGINEERS

T. A. BEDFORD, Division I, Willits  
H. S. COMLY, Division II, Redding  
F. W. HASELWOOD, Division III, Sacramento  
J. H. SKEGGS, Division IV, San Francisco  
L. H. GIBSON, Division V, San Luis Obispo  
E. E. WALLACE (Acting), Division VI, Fresno  
S. V. CORTELYOU, Division VII, Los Angeles  
E. Q. SULLIVAN, Division VIII, San Bernardino  
F. G. SOMNER, Division IX, Bishop  
R. E. PIERCE (Acting), Division X, Sacramento

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

### NORTH LIKES GOVERNOR YOUNG'S HIGHWAY ATTITUDE.

THE announcement made by Governor Young before the annual convention of the county supervisors of the state in Sacramento, regarding his position on the highway question, should make him friends among all right-thinking people of the state.

Different localities too often become a trifle selfish in their desire for better conditions, and this is especially true when it comes to highway building. The governor, however, is right when he says that all state highways that connect with highways in neighboring states be completed first, and that all new highway programs which will call for laying out new highways must be held in abeyance until these connecting highways are completed.—Dunsmuir News.

### COMMENDS COMMISSION FOR SAFETY PROGRAM.

THE people of Placer County will learn with pleasure that the California Highway Commission has decided to go ahead and eliminate the dangerous railroad crossings between Auburn and Colfax on the Victory highway.

The attitude of the present commission and the administration as a whole is favorable to the elimination of just such a menace as exists on this route. There are others in the state of a similar nature and they will receive the early consideration of the commission.—Auburn Journal.

### COMMISSION SAVING TREES.

The Gerber Star reports that a crew of men under the direction of the California Highway Commission transplanted shade trees along the highway between Proberta and Red Bluff in preparation for the widening of the roadbed from 20 to 30 feet. The trees varied from 10 to 18 feet in height.

The California State Highway Commission realizes the value of shade trees along the highways.

### TABLE OF CONTENTS.

Budget For Two Years' Highway Work.....	page 3
Herndon Bridge in Service Since 1903.....	page 4
Romance of Transportation in California.....	page 6
Historic Priests Grade Now Modern Highway....	page 8
Heavy Snows Still Block Sierra Highway....	page 9
What the Divisions are Doing.....	pages 14 and 15

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

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

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

## BUDGET FOR TWO YEARS' HIGHWAY WORK

ON April 14th Governor C. C. Young signed the general budget bill for all state revenues and expenditures for the two-year period beginning July 1, 1927, and ending June 30, 1929, the total amount being \$193,770,465.09.

For the first time in the history of the state a detailed set-up of the revenues and expenditures of the California Highway Commission has been made a part of the budget data which was submitted for the consideration of the legislature. The setting forth of the detailed and explicit program to be carried during the biennium, including the listing of all work with its estimated cost, should have the effect of economical and efficient operation of the highway department.

Following are the figures regarding the highway work as taken from the budget:

### REVENUES.

#### For Maintenance and Reconstruction.

Estimated Balance June 30, 1927.....	\$15,600
Motor Vehicle Fees.....	8,009,400
Gasoline Tax (2 cents per gallon).....	18,075,000
Transportation Tax.....	1,000,000

Total for Maintenance and Reconstruction.....\$27,100,000

#### For New Construction.

Federal Aid (Memorandum only).....	\$4,969,412
Special (State General Fund).....	200,000
Grand Total.....	\$32,269,412

### EXPENDITURES.

Statutory Salaries (State Highway Engineer and Commissioners).....	\$41,600
--	----------

#### Administrative.

Salaries and Wages.....	\$1,026,840
Materials and Supplies.....	196,000
Service and Expense.....	343,800
Equipment.....	43,000

Total.....	\$1,609,640
Maintenance.....	10,080,000
Reconstruction (99 jobs).....	15,410,360

Total (Highway Maintenance).....\$27,100,000

#### New Construction.

Federal Aid.....	\$4,969,412
Special (State General Fund).....	200,000
Grand Total.....	\$32,269,412

Concerning the operation of the Highway Budget, State Highway Engineer R. M. Morton says:

"The subdivisions of the highway organization are expected to follow the set-up for the period included in the budget which was prepared by them last fall and approved by the central office. This means that the efforts of the divisions

should be concentrated on preparation of plans and specifications for the reconstruction work detailed in the budget. Projects not mentioned in the budget can not take precedence over those which are set forth in detail. The amount set aside for maintenance of state highways must be carefully conserved and handled so as to accomplish that maintenance without exceeding the appropriations. The same applies to the minor improvements, and to all other details of the set-up.

Inasmuch as the budget includes a two-year period of activities, the divisions are requested to separate the proposed work into a schedule for each year, with approximately half of the total expenditure for each half of the biennium.

To a large extent the option to initiate new reconstruction projects or to delay those previously considered of immediate importance, has to be foregone under the budget. The energies of the department must now be concentrated upon accomplishing only those things which are included in the budget. Each division organization should familiarize itself with budget projects and appropriations which concern its territory, and should, as soon as possible, adjust its plans and its forces to accomplish the construction as outlined."

## APPOINTMENT OF FRESNO MAN COMPLETES ORGANIZATION OF NEW HIGHWAY COMMISSION

The appointment by Governor C. C. Young of M. B. Harris, prominent attorney of Fresno and former member of the state senate, completes the organization of the new administration's State Highway Commission.

For several months Governor Young has been seeking a third member from Central California and the appointment of Senator Harris is the successful culmination of his efforts to secure an outstanding man from the San Joaquin Valley.

The California Highway Commission is now composed of Ralph W. Bull of Eureka, chairman; J. P. Baumgartner, Santa Ana; and M. B. Harris, Fresno.

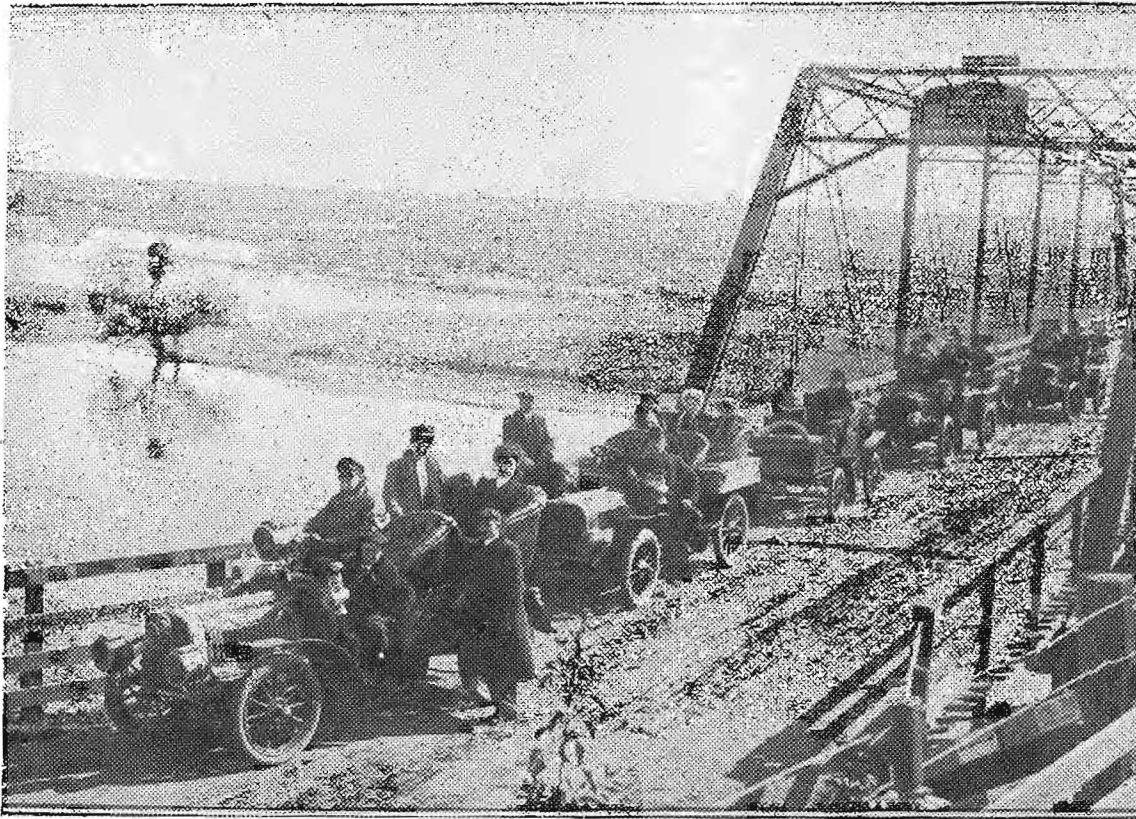
## CUBAN HIGHWAY TO COST SEVENTY-FIVE MILLION

A road-building project undertaken in Cuba, when costs are compared, makes Californians figure that we get our roads built at extremely reasonable figures. Contracts have been let for a paved road 705 miles long, from Pinar del Rio via Havana, Matanzas, Santa Clara and Campagney to Santiago. It is to be paved the entire length, to a width of 20 2/3 feet, with six-foot shoulders. The contracts call for completion of the project in five years. The total cost is \$75,870,000, or an average of \$107,465 per mile.

A 10-cent gasoline tax is one of the means used for financing the highway.

Czechoslovakia is planning to collect a tax on motor vehicles to meet the pressing need of highway construction. There are about 15,000 automobiles and 12,000 motorcycles in the country and the tax on them is expected to provide several million crowns per year.

HERNDON BRIDGE IN SERVICE SINCE 1903



Scene at Herndon Bridge 24 years ago when an 11-mile auto trip was a real adventure. Note the car lines of that period.

(Reported by E. E. WALLACE, Acting Division Engineer of Division VI.)

TWENTY-FOUR years ago the Herndon Bridge, brand new, safe, and graceful, was adequate for any demands of the traffic of that day. This time honored span bridges the San Joaquin River about ten miles north of Fresno. Its ability to withstand the terrific pounding it has received in the last ten years has demonstrated that it was well built.

Today it carries all the north- and south-bound through travel of central California. It is crossed by tourists from every state in the Union. It ties together at the San Joaquin River the great highway that extends from Vancouver to San Diego.

Acting Division Engineer, E. E. Wallace of Division VI, reports the collapse of a trestle bent on this time-honored bridge, which occurred at two o'clock on the morning of March 9th, causing a sag of three feet in the floor. Following

the accident several trucks and lighter vehicles passed over the damaged section. Nearby residents, by flagging traffic, undoubtedly prevented serious accidents.

Repairs were started on the day of the accident and by six p.m., a new bent had been erected and the bridge opened to traffic. By formal action the highway commission has limited the gross weight of vehicles to 8 tons, and signs have been posted.

Repairs have been carried on to keep the bridge temporarily in service. This work includes strengthening of all columns of the south approach. It is expected that the work of relocation, which will involve the construction of a new bridge approximately 950 feet long and 1.6 miles of new roadway, eliminating two existing grade crossings of the Southern Pacific, will be started later this year.

MINNESOTA FINDS  
GRAVEL UPKEEP COSTLY

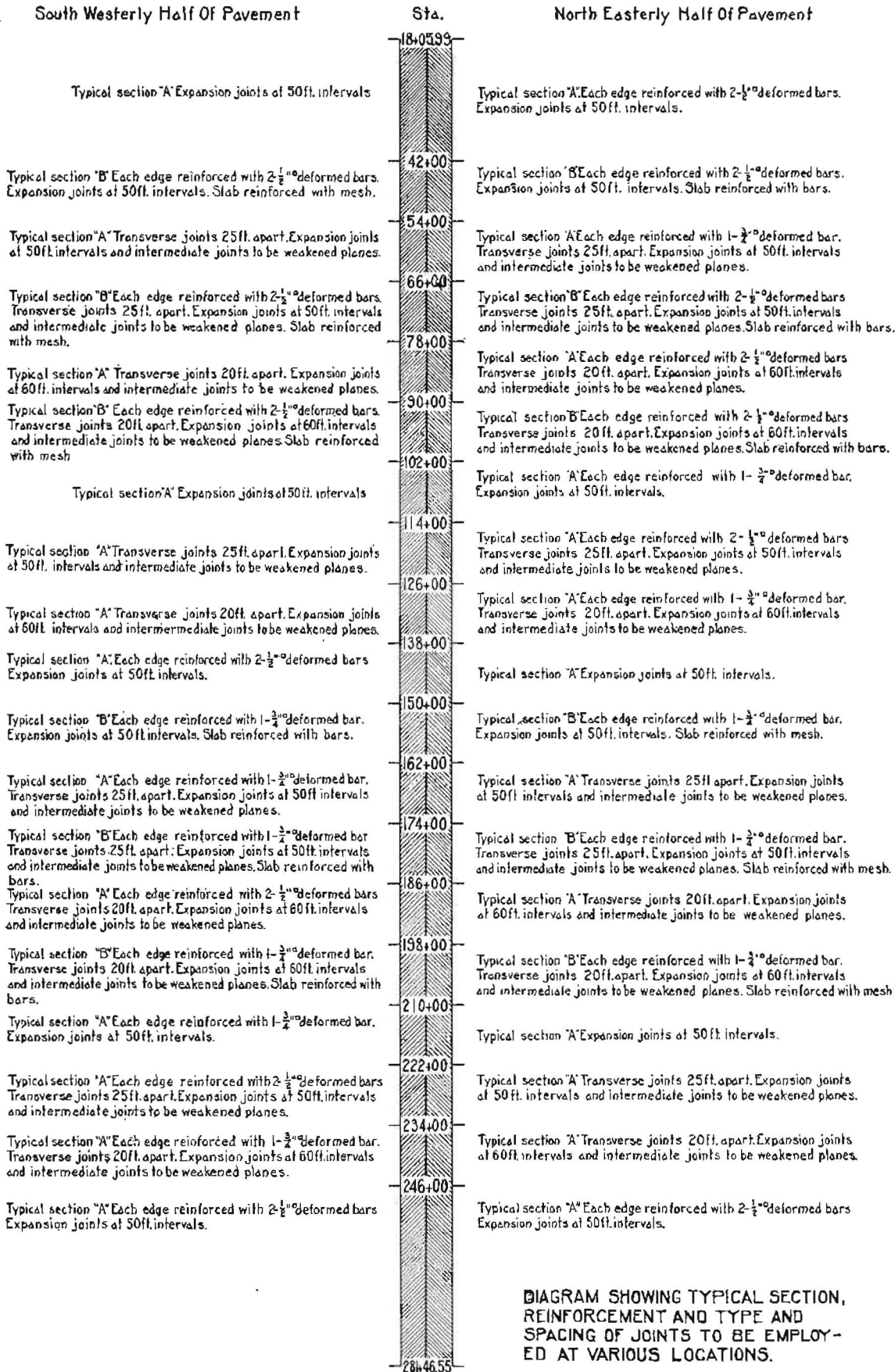
Figures compiled by the Minnesota State Highway Commission show that the yearly cost of gravel roads on main routes is almost twice that of concrete roads. Depreciation, interest on investment, and the upkeep on the concrete trunk highway No. 3 cost Minnesota \$1,678 per mile. The total cost per mile on trunk highway No. 1, a gravel road, was \$3,101, a difference of \$1,423 for each mile which properly could be listed as a loss.

NEW EDITOR FOR THE BULLETIN.

With this issue of "California Highways" the editorial duties are assumed by J. P. Hall, who succeeds Frank B. Durkee. Since January, 1924, the Bulletin has been edited by Mr. Durkee and under his direction has become a useful adjunct to the state's highway department. In 1926, Mr. Durkee passed the state bar examination. He is assuming new duties as right of way assistant to Harry A. Encell, attorney for the State Highway Commission.

Hall is a newspaper man of Colusa County, owning a weekly newspaper at Arbuckle, and recently was editor of the Daily Colusa Sun.

DIAGRAM OF EXPERIMENTAL CONSTRUCTION IN VENTURA



The diagram reproduced on this page is for the information of those particularly interested in the experimental pavement sections recently completed on the Oxnard coast highway in Ventura County. This project and the building of these experimental sections was described in an article, which appeared in the March, 1927, issue of California Highways under the heading "Experimental Pavement Sections on Oxnard Route."

Use of this chart in connection with the article referred to will permit engineers and others to investigate the results of traffic on the various pavement sections. The experiments consisted chiefly in twenty-one pavement designs differing with respect to steel reinforcing and transverse joint spacing. Lack of space prevented the use of the diagram in the March issue.

By referring to this diagram and the article in the March issue, it will not be necessary for investigators to have with them the official construction records when inspecting the project.

DIAGRAM SHOWING TYPICAL SECTION, REINFORCEMENT AND TYPE AND SPACING OF JOINTS TO BE EMPLOYED AT VARIOUS LOCATIONS.

## Romance of Transportation in California

By F. W. HAZELWOOD, Division Engineer, Division III.

**EDITOR'S NOTE**—A paper, prepared by F. W. Hazelwood, Division Engineer of Division III, and read before the Sacramento Chapter of the American Society of Civil Engineers, was sent to the editor's desk with the idea that it might contain something of interest regarding state highways that could be rewritten. Reading it over the editor was so entertained with the romance containing so much of interest regarding the early transportation problems of the California pioneers, which had a great bearing on later and modern road building, that he was convinced that to reduce or cut the story in any way would be out of the question.

The Bulletin has never run a continued article but will make an exception of Mr. Hazelwood's "Romance of Transportation in California," running it in two installments, the first of which appears below.

**I**N THESE days of specialization in engineering as well as in other professions, most of use are so wrapped up in the particular branch in which we are engaged, that we too rarely see beyond it. Like an amateur musician with an instrument of many strings but with ability to play on but one, there should be no apology needed if in attempting to take up a brief period of your time I adhere to the subject with which I am most familiar.

I am not, however, going to discuss any technical phase of highway engineering either in general or specifically, but rather to look back into the earlier history of the state and bring to you a few facts relative to the transportation emergencies in those days and to the development of roads in general and one road in particular.

The territory now under my jurisdiction includes two routes over the Sierra Nevada Mountains, one by way of Auburn and Truckee and one by way of Placerville and Lake Valley which are now as they were in the early days, rival roads.

Along the Placerville road are many markers which I call the "Here stood" signs, put up by the Native Sons to mark the spot of a stage station, hotel or saloon of the early days. It is reported that the Auburn road is soon to be similarly marked.

These signs suggest a stage in development of California and a problem in transportation so different from those we have on these same roads today that I have always had a desire to go back into the early history of the state and learn more of the transportation requirements of that great population that teemed the mining regions on both sides of the mountains and the means by which these requirements were met. We today look upon this early period as one brief and romantic, accomplishing its purpose and passing with the once populace mining towns; but the transportation system developed was a heritage of these times even though it flourished for a few years and was then pushed into the background, if not into complete decadence, by the completion of the Central Pacific Railroad.

In gathering data I soon found that the subject was a large one and I am therefore confining my attention to the development of that remarkable artery of commerce leading from Sacramento to Atchison by way of Placerville and particularly the portion leading from Placerville to Carson Valley, over which passed a traffic, the magnitude and details of which are almost inconceivable today.

Following the Mexican War, the movement of Americans to California which began about 1841, both by boat around the Horn and overland across the mountains and the desert, was greatly accelerated. The greater impetus to this migration came with the discovery of gold in 1848.

Transportation conditions were acute in those days. There were neither roads nor suitable vehicles. Commodities and equipment and many people came by boat to San Francisco. The only method of getting to the mining camps was by boat to the river ports at Stockton, Sacramento and Marysville

and thence overland. Thousands of immigrants came westward overland establishing several well known emigrant routes over the mountains, one of which was by the way of Carson and Hope Valleys and Placerville, but freight could not be brought in by this method.

There was at this time neither on land or water any organized means of transportation. No such thing as a common carrier existed prior to the discovery of gold. A few row boats and small schooners operated between Yerba Buena and Sacramento. Every emergency, however, finds some one ready to meet it and in 1849 many sailing boats and steamers made their appearance on the rivers. One of the early steam boats on this run was the Senator, a steamer of 500 tons, brought around the Horn by James Cunningham, afterward father-in-law of D. O. Mills. As an indication of the demand for transportation it is interesting to note that during her first year on the river the Senator earned \$60,000 per month. The fare to Sacramento was \$30 with \$10 extra for a state room and meals were \$2 each. Freight was \$40 to \$50 per ton.

Competition in this lucrative business naturally and rapidly developed and early in 1850, 43 sailing vessels and 16 steamers were on the run from San Francisco to Sacramento while at one time 59 ocean-going sailing boats were lying in the river waiting to unload their cargoes.

A condition in river transportation familiar in the growth of an industry soon developed. The pendulum swung too far, competition became too keen. There were too many in the business and it was a case of everyone for himself. In 1852 the passenger fare reached a low figure of \$2.

Out of this chaotic condition was born the California Steam Navigation Co., organized March 1, 1854, with a capital stock of \$2,500,000, which retained control of water transportation in California for 17 years.

Previous to and during 1849 land transportation was conducted almost entirely by pack animals. The first known regular wagon transportation was in 1848-9 when a wagon operated once a month from the river landing at New Mecklenberg (Marysville) and Daniel Silles' ranch in the upper Sacramento Valley.

The great influx of people to the mining camps requiring transportation of food, clothing, supplies and equipment resulted in early exorbitant rates until these transportation agencies followed a similar course of over development and organization, as did river transportation.

A merchant in Coloma paid in ten consecutive days \$65,000 in gold dust for the transportation of goods from Sacramento to Coloma. With this tariff it is no wonder that flour was \$1 per pound and pork \$1.50. The charge for packing from Coloma to various camps along the river was 50 cents to \$1 per pound additional.

Development of roads became an immediate necessity and it is recorded that in the early fifties El Dorado County built and maintained a network of roads radiating from

## Roman Roads and the American Federal Aid System

IN the past quarter century there has been a greater revival of interest in highway construction than has occurred since the building of the Appian Way 2000 years ago. Rome is credited with the finest roads of history, some of which are still in existence.

Contemplating the past, it is interesting to contrast the methods and the motives of the Romans, in their highway activity, with the methods and motives back of the highway construction of today. Rome built roads to hold her empire together—by force.

She built roads in order that troops might be moved quickly to points where insurrection from within, or invasion from without, threatened the stability of the government and the prestige of the empire.

Americans in the building of the great federal aid system, which today covers the country, seek to cement together a nation and an empire—but not by the use of force.

Americans realize that widespread familiarity with the many sections of the country will result in understanding, appreciation, and the establishment of unity. It is to be hoped that troops will never move over the great highways, stretching from coast to coast, to subdue either internal uprisings or repel invasions. But the fellowship of the man in New York and the man in San Francisco will be strengthened and the nation as a whole knitted closer, when, from the Atlantic and the Pacific, "the twain have met" and have learned to know and understand each other. Without good roads, this will not be possible.

Americans, however, because of the difference in motives, are building a more unified and permanent empire by good roads than ever was accomplished by the Romans.

### THE TYPE CONTRACTORS CRY FOR.

The foreman had come across Bill slacking and smoking on his job, and spoke his mind thus: "Look here, Bill. This 'er's a contract job, and it ought ter 'ave been finished by now. Jest shove that pipe away an' get on wiv yer work, else it will be the sack for you."

"Well," said Bill, deliberately, "yer know Rome wasn't built in a day."

"Don't want none o' yer back answers," said the foreman. He paused and then added: "'Sides, I wasn't the foreman on that job, neither."—Louisiana Highway Magazine.

### Romance of Transportation in California

(Continued from page 6.)

Coloma to the principal bars along the river or important centers of population, chief among these being the road to Georgetown.

As an indication of the status of land transportation in 1853 it is interesting to note that there were engaged in packing from Marysville some 33 firms and 20 Mexican owners of mule teams. The number of mules packing from Marysville to the surrounding mines was over 4000 and over 400 wagons with 4- to 6-horse teams or oxen were employed.

There rapidly developed from the necessities of the case, stage companies handling passengers, express and mail and freight contractors to carry merchandise from river ports to interior towns. These contractors were equipped with great wagons carrying from 4 to 6 tons and hauled by from 4 to 8 spans of mules.

(To be concluded in May number.)

Seven

### SMITH RIVER IN DEL NORTE GIVES TROUBLE SANS WARNING



RIVER ON RAMPAGE—Above, summer level of Smith River, Del Norte County; temporary bridge in use while Redwood highway is under construction; below, three views taken within an hour showing destruction of bridge during recent storm; heavy wire cable anchors were of no avail. (Views taken near prison road camp.)

## Historic Priests Grade Now Modern State Highway

Reported by C. Bovey, Maintenance Engineer, Division X.

PRIESTS GRADE is a name familiar to practically all tourists and pleasure seekers who travel in the high Sierra Nevada Mountains. For many years, this grade has been considered a very dangerous one and has thus become famous. Many people have foregone the pleasure of going into the Yosemite Valley by way of the Big Oak Flat road because they feared this grade.

Widening operations have been under way for some time on this grade, and it might be of interest to the readers of the highway magazine to give some of the history of this famous grade.

Early in the 50's, miners rushed to Chinese Camp, Moccasin Creek, Big Oak Flat, and other historical mining sites in this vicinity. A saw mill was started in the mountains above Groveland to furnish lumber for the various mining activities and as there was a large camp on Moccasin Creek which is at the foot of Priests Hill, it became necessary to construct some kind of a road to haul lumber to this camp, and also to haul supplies from the valley to the various camps above Priests. So, in 1859, this road was started.

There had been a great gold stampede just prior to this time in other parts of the state, and as usual, after such a stampede, many of the miners returned to their former haunts dead broke. This was especially true of the miners who returned to Moccasin Creek and Big Oak Flat, and so labor was cheap at this time. Scores of the miners were glad to seek employment building the road between Moccasin Creek and Priests, at the rate of \$1 and board per day. This road was constructed almost entirely with pick and shovel and wheelbarrow.

Tourists who have traveled up Priests Grade remember how steep and formidable it looked. This road was used for heavy hauling up until the year 1913. Old residents in the vicinity of Priests tell of seeing 30-horse teams negotiate this grade. The limit load for each horse in those days was considered a thousand pounds. When automobiles first tried to negotiate the roads in this vicinity, they found old Priests Grade a little bit too tough for them. Mr. Corcoran, proprietor of Priests Hotel, says that he kept a team of horses harnessed up in his barn at all times during these days to pull the automobiles up the grade. He had very little rest as practically every car that tried to negotiate the grade had to call on him for help. A few intrepid drivers found that they could back up the hill instead of going up the right way, as the old gravity feed systems on the cars would not permit the gasoline to flow into the carburetor on some of the steep grades unless they backed up the grade. Anyone taking a look at the old grade now would wonder who had the nerve to back his car up it.

In 1912, the residents in the vicinity of Big Oak Flat decided it was time to build a new road to take the place of this famous old grade. They figured if they could get any kind of a road blazed through that would permit a car to travel over it, they could ask the county to take over the road. An engineer who happened to be living at Priests at that time took over the job of surveying the new route and he made an excellent job of it, laying out a fairly well aligned road and a very uniform grade averaging less than 6 per cent, which was rather a light grade for those days.

Miners and citizens of Big Oak Flat and vicinity took up a

public subscription to finance the building of this new highway, and succeeded in raising enough money to build a highway along the new grade, seven feet wide. Hardly had the new road reached the top when the leader behind the movement started out to negotiate the grade with his horse and cart. He took several men along with him to help boost him over some of the worst places, and as soon as he had negotiated the stretch, the citizens of Big Oak Flat asked the county to take over the road and widen it. Evidently, the county officials were behind the movement as they accepted the road almost immediately as a county road, and soon after widened it to make it fairly safe for a one-way road.

On May 19, 1915, by special legislative act, the Big Oak Flat road was taken over by the state to connect with the road inside the National Park line which was then known as the Great Sierra Wagon Road. The road at that time was approximately 12 feet wide.

At first the road was maintained by the State Department of Engineering and later was taken over for maintenance by the California Highway Commission. State maintenance forces kept working on Priests Grade, widening it in its most dangerous spots and improving it throughout.

Splendid work was done on this grade by Superintendent S. E. Harris, now of Jamestown, and later by Ben H. Milliken, now State Superintendent of Prison Road Camps.

In 1924, under the direction of Superintendent W. H. Martin, the Priests Grade was widened from the top of Priests to the Moccasin Creek turnout to a width of 16 feet throughout, but from Moccasin Creek turnout to the foot of Priests Grade remained an average width of fourteen feet, although maintenance forces under the direction of Mr. Martin continued to widen it in places from year to year.

Late in the fall of 1926, work was started on a real widening program for Priests Grade. The Hetch Hetchy Water Service Department of the city of San Francisco had imported a large 1¼-yard Marion steam shovel to Moccasin Creek for the purpose of constructing a road near the power plant. They very kindly consented to cooperate in the widening at Priests Grade by furnishing this large shovel at a very nominal rate. Work was actually started about December first at the foot of Priests Grade and was carried through to the Moccasin Creek turnout by January 16, 1927.

At first, it was the intention of the highway commission to widen to the Moccasin Creek turnout only, but the results proved so popular with all the citizens in the vicinity and with the public at large that the commission decided to appropriate \$15,000 more to carry the work on to the summit of Priests Grade. The large shovel has been tearing away at the grade for several months and on March 21st the last bucketful of earth was dumped over the grade at the top where the famous old Priests Hotel once stood, but which was destroyed by brush fire in 1926.

Superintendent H. L. Montfort has been in charge of the entire widening operation, and has performed splendid work throughout. The grade now has a minimum width of twenty feet, and in many places is much wider. The chief improvement has been caused by cutting down blind points and placing the earth on the sharp in-curves, thus straightening the road and making it more visible throughout.

Tourists should no longer have any fears in negotiating this famous old grade as there are now very few blind curves



# HEAVY SNOWS STILL BLOCK SIERRA HIGHWAY



SCENES ON THE CALIFORNIA STATE HIGHWAY IN THE HIGH SIERRAS—(1) Donner Lake from Donner Summit; note Donner Summit Bridge to the left. (2) A 20-foot cut on the highway nearly level with snow. (3) State highway looking towards Donner Summit. (4) Camp at Tahoe City. (5) State highway looking east towards Tahoe City from Tahoe Tavern.

The opening of the California State Highway over the Sierra Nevada summit will be delayed considerably this year judging from the report brought back by Division Engineer F. W. Haselwood of Division III and Maintenance Engineer J. C. Vickrey who made a trip into the snow on the week end of April 17th.

Going to Truckee by train they made an inspection to the west as far as the Summit, making their way on skis. In some places the snow was found to be from ten to fifteen feet deep, with a number of drifts of greater depths.

The highway commission will open the road to the head of Donner Lake and when opened sanding of the road west of that point will begin.

The accompanying pictures give an idea of the difficulties to be overcome before the Truckee route will be open.

P. L. Fite has been appointed to take the place of Harry L. Montfort, resigned, who has been maintenance superintendent on the Big Oak Flat road. Mr. Fite has taken over superintending the finishing touches on Priests Grade, on the Big Oak Flat route into Yosemite. He has seen a number of years service with the highway commission of South Carolina and has also supervised road work in Mexico. He is the son of Joseph S. Fite, chief filing clerk in the commission's Sacramento office. Mr. Montfort has entered the contracting business at Sonora and will be one of the owners of a rock crushing plant. He was one of the most popular engineers of the department and has the best wishes of many friends.

## Historic Priests Grade Now Modern State Highway

(Continued from page 8.)

left on this stretch, and even these are plenty wide enough to negotiate without any feat.

Standard guard rail is soon to be placed at all points which might be considered dangerous. All work will be completed in plenty of time for the regular summer rush over the Big Oak Flat road to the Yosemite Valley.

Widening of Priests Grade should prove very popular and should make the Big Oak Flat road into the Yosemite Valley almost as well traveled as the new all-year highway, as it is far more scenic and gives one a real taste of the mountains.

### HIGHWAY BASEBALL TEAM OPENS SEASON.

With "Bill" McNeely as captain and Marion McGriff, manager, the state highway ball team opened the season on April 16th, meeting the capitol building team. The capitol must have recruited among the legislators as our boys were left on the short end of a 10-2 score.

Manager McGriff reports the following as signed up with the highways: Garrigan, Faustman, Hawthorne, Zink, Simpson, Dwyer, Kimball, Lernhart, Peacock, Manhart, McGriff, Cook, Sullivan, Haley, McNeely, Temby, Kerins and Pieper.

Manager McGriff has entered his team in the Sacramento Twilight League and so will be well fortified with "previous engagements" in case challenges come in from division teams.

## DISCUSS WIDER PAVEMENT POLICY

At the recent meeting of the Michigan State Administrative Board in the office of Governor Green in Lansing, State Treasurer Frank D. McKay suggested that the board establish a definite policy of wider trunk line pavements. Mr. McKay had been quoted as favoring a policy of a 24-foot width but did not adhere to this idea when it was explained by State Highway Commissioner Frank F. Rogers that a width of 24 feet would only invite increased congestion and added danger. Mr. Rogers explained that if a pavement is widened beyond 20 feet that nothing further under 30 feet would be advisable.

Mr. McKay said in this connection:

"It seems to me that this board ought to establish some kind of policy, anticipating road traffic within the next few years, especially out of the city. The first five or six miles out of towns should be 35 or 40 feet and the rest 30 feet."

Commissioner Rogers replied: "A 24-foot road is a dangerous road. Some people think they are three-lane traffic roads, and they are not, with safety. In building roads 20 feet wide we seek to establish shoulders 8 or 10 feet in width so that in the future it might be possible to build 10 feet on each side of the road, when traffic demands. Of course, a 20-foot road, in my opinion, is just as safe as a road between 20 and 30 feet. Then there is no stopping point until you get to 40 feet. Our thought has been in building grades to build wide enough so that we can widen the road if necessary. Of course that would mean very hard work in rolling country."

Mr. McKay asked Mr. Rogers if he did not think that trunk lines out of a town of any size for five or six miles should be at least 30 feet wide. Mr. Rogers stated that that should be based upon the size of the town and the amount of the traffic.

"Of course," he said, "there are towns like Grand Rapids which have a heavy traffic, and I think that M-13 out of Grand Rapids should be 30 feet wide for a considerable distance. Out of Detroit we have them wider."

Mr. McKay asked Mr. Rogers if he did not think that bridges on trunk lines should be built so that they can be widened, and Mr. Rogers said:

"We are building all our bridges that way at the present time."—Michigan Roads And Pavements.

The California Highway Commission is now making no pavement less than 20 feet in width and in sections close to large centers widths of 30 and 40 feet are used. Whittier boulevard in Los Angeles County, with a width of 56 feet was built with county and special road fund cooperation, while Del Paso boulevard, in North Sacramento, recently completed, has a width of 76 feet. Property owners cooperated with the state in the building of this pavement.

### THE BRIDGE BUILDER.

An old man, going a lone highway,  
Came at the evening, cold and gray,  
To a chasm vast and deep and wide.  
The old man crossed in the twilight dim;  
The sullen stream had no fear for him,  
But he turned, when safe on the other side,  
And built a bridge to span the tide.

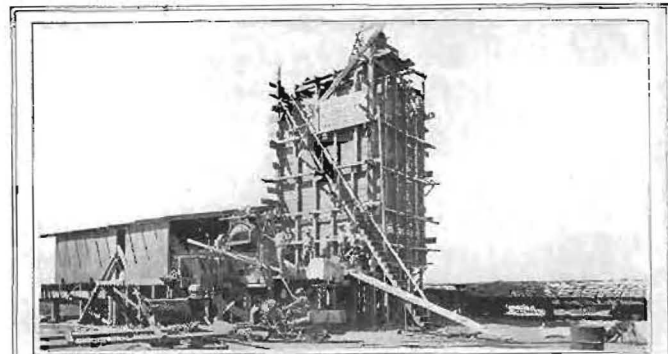
"Old man," said a fellow pilgrim near,  
"You are wasting your strength by building here;  
Your journey will end with the ending day;  
You never again will pass this way.  
You've crossed the chasm deep and wide;  
Why build you this bridge at evening tide?"

The builder lifted his old, gray head.  
"Good friend, in the path I have come  
There followeth after me today," he said,  
"A youth, whose feet must pass this way.  
This chasm, that has been naught to me,  
To that fair-haired youth may a pitfall be;  
He, too, must cross in the twilight dim.  
Good friend, I am building this bridge for him."

—Anonymous.



Snow removal on Burney Mountain section of Alturas lateral. Photos. by Division II.



PLANT LAYOUT—Above, central storage and mixing plant on Santa Maria bridge contract; bunkers were filled directly from cars by bucket conveyors; mixer discharged batches directly into reservoir hopper supplying dump car on narrow gauge track. Below, movable hoisting and chuting tower mounted on platform and operating over railroad track; note incline and dump car on hoist platform.

## World Peace Through International Roads

IN EARLY times there was a saying that a "Roman peace" was a world-wide peace—and highways built by the Romans were a potent influence in maintaining peace.

In modern times we have the same opportunity to cement the friendships of nations through the influence of highways. The advent of the automobile and its transition from a luxury to an economic necessity has made the better roads movement an international matter.

The National Bank of Commerce in New York has made a study of the international demand for road improvement and some of the conclusions of the report furnish an interesting commentary on the progress of road building in foreign countries.

Trunk highway development was practically neglected during the last half of the nineteenth century when railroads were thought to have supplanted roads permanently.

Existing roads, except those built primarily for automobiles, were intended for horse-drawn vehicles and have deteriorated rapidly under the speed and weight of the automobile. In those countries possessing good systems, the problem has been to conserve the present highways, and make them equal to the demands of modern traffic. Newer and less developed regions, such as Australia and South America, must answer the demand for improved highway transportation by building new roads.

France, well known for its fine roads and a pioneer in their construction, drainage and maintenance, has excellent national highways and the road problem there is largely a matter of deciding upon the most suitable surfacing. English roads in general compare favorably with the French. Striking unanimity prevails in reports from all parts of the world of increased registration of motor vehicles, and interest in, and plans for road building. In Scandinavia roads are now deemed so essential to the country's development that it is realized that future appropriations must be greatly increased to keep up with the growing volume of motor traffic. Poland has recently adopted an ambitious road program and Finland expects soon to have 30,000 miles of improved highways.

Development of good roads in Egypt is making rapid progress. Farther south in Africa, in Nigeria, in Southern

Rhodesia and in the Union of South Africa there is public interest in the road problem. Despite political upheavals China is showing a genuine enthusiasm for road building and a growing realization of the necessity of highway development. Australia is planning to spend over \$16,000,000 on highway development this year and will devote \$100,000,000 to be expended on roads in the next 10 years. New Zealand's highway development is going ahead rapidly.

However, it is in Latin America that the most striking movement is taking place. Transportation means of any kind are inadequate in Latin America. Railroads have been built at heavy cost of money and energy but expansion of the highway system will probably come more rapidly because the public is already converted to the use of motor service. Several Latin-American republics have ambitious programs, many of them being already well under way. Increasing ownership of automobiles, bringing the inevitable demand for good roads, has generally been responsible for the good roads movement in South American countries.

Highway expansion stands as the most significant transportation development since the advent of the railroads. Increasing motor-vehicle registration is the best indication of the wide sweep of this movement as a good-road program usually accompanies extended use of the automobile, although in turn, increased traffic follows improved highways. Among the incalculable economic benefits of good roads to a community are cheaper transportation costs, better standards of living, the opening up of potentially rich and unexploited districts formerly inaccessible, improvement of regions already served and a general increase of commercial activity.

American leadership in pavement surfaces has been one of the consequences of the tremendous development of the automobile industry in this country which has far outstripped similar development in other countries.

*And so again highways have become agents for world peace and American engineers are doing their part to preserve the peace of the world through leadership in pavement design and construction.*

### NATIONAL AND STATE ROAD PROGRAMS IN BILLION CLASS

(From the Chico Record.)

OUR federal and state governments alone spent on important highways, in the last five years, more than a billion dollars, of which the federal government has paid almost half. The federal highway system is now three-fourths improved. Last year there were added to this cooperative system over 9,000 miles, making a total of 56,000 miles. More than 182,000 miles have been planned for interstate traffic.

Federal and state officials are now working on a plan that would provide within a few years ten well-paved trans-continental routes east and west, and the same number running north and south.

Congress has been asked to authorize negotiations looking to the creation of a great Pan-American highway connecting the capital of Canada and those of the United States, Mexico and all the countries of Central and South America.

This last venture may wait until certain current difficulties with Latin-America are ironed out. But obviously things are moving in regard to roads. This is the road-building age.

#### WEBB'S RULING AIDS HIGHWAY WORK.

Attorney General U. S. Webb on the 21st instant ruled that the California Highway Commission could now legally award contracts for work that are to be paid for out of the budget for the coming biennium which begins Just 1st. As many parts of the state are anxious to have their allotted work started Webb's ruling will be appreciated.

Eleven

### HIGHWAY COMMISSION COOPERATING WITH COUNTY OFFICIALS FOR THE ERADICATION OF PUNCTURE VINE.

The fruit men of northern Solano are loud in their praise of the manner in which the state and county officers have controlled and destroyed the puncture vine in Solano. C. L. Cain, a maintenance foreman for the Highway Commission worked in conjunction with Carl Spurlock, horticultural commissioner, and J. W. Mills of the farm bureau. The new method of killing the puncture vine was to oil the vine twice. The first oiling opening the burrs and the second killing the germ.—Vallejo News.

The French Parliament, in the 1927 budget, passed the largest government appropriation it has ever made for roads and bridges, 2,000,000,000 francs.

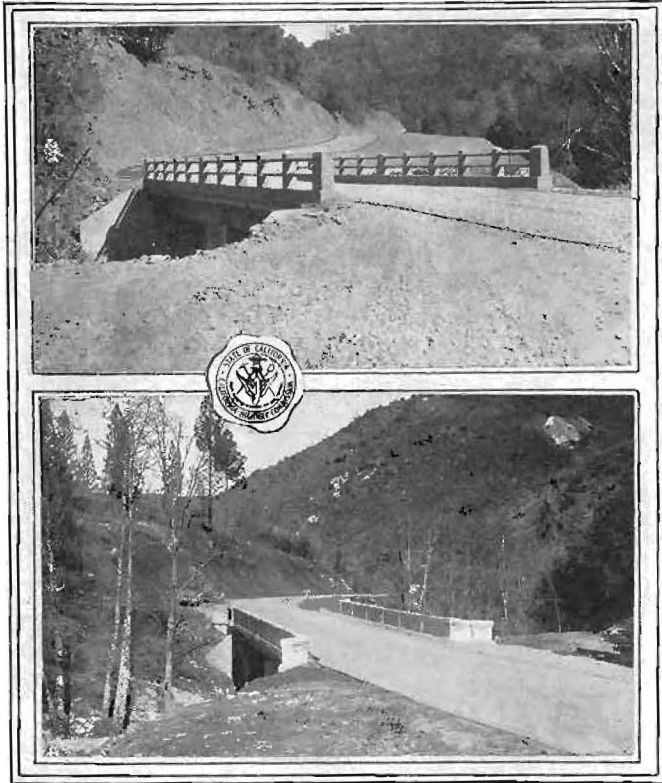
#### ALL-YEAR HIGHWAY TRUE TO NAME.

"The new all-year road certainly lives up to its name," W. B. Lewis, superintendent of Yosemite National Park, said following his return from a motor trip to Fresno

Due to excellent maintenance work by the California State Highway Commission, Yosemite Valley has been readily accessible to automobile visitors since the new route opened last August.—Portland Oregonian.

Extraction of road taxes from the populace has been found less painful by the use of "gas" than by any method tried.—Kentucky Highways.

**MODERN BRIDGE PRACTICE**

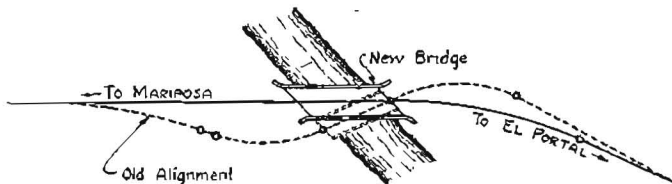


**NEW BRIDGE PRACTICE**--At Bear Creek on Yosemite highway. Above, old structure at right angle across stream; below, new bridge using old substructure with alignment greatly improved.

**MODERN** ideas practicable for present traffic are now going into the building of better bridges on California state highways.

Three outstanding developments in bridge design have been developed during the past two years. These are wider roadways, better alignment of bridge and approaches, and more attention to esthetics of design.

The standard width of roadway for state highway bridges previous to 1924 was, with few exceptions, twenty-one feet. Today, on roads where twenty-foot pavement is contemplated or seen as a future possibility, bridges are made twenty-four feet wide, or wider. Where traffic justifies wider roads, bridges are being built correspondingly wider. A number of thirty-foot bridges and subways have been built during the past two years, and some have been constructed as much as forty feet in width. Bottle-neck bridges that retard traffic are no longer tolerated on new construction and are being eliminated on the old roads as fast as funds permit.



**NEW ALIGNMENT AT BEAR CREEK.**  
Yosemite Lateral.  
VI-MPA-18-E.

It was formerly the practice in highway bridge construction to build bridges at right angles to the stream wherever possible and without vertical or horizontal curves in the structures or approaches. Economy and simplicity of design resulted from this rule, but it also often resulted in dangerous

**MAINTENANCE DEPARTMENT  
PREPARES MOTORING PUBLIC  
FOR HIGHWAY OILING PROGRAM**

Between April and September of this year, the Highway Commission will expend \$600,000 throughout the state in oil treating some 700 miles of crushed rock and gravel roads.

The effective life of the resulting surface is economically justified, not only by the immediate benefits of reduced maintenance and elimination of material loss, but also by the fact that traffic is served by dustless roads whose smoothness rivals that of more expensive construction types.

An important feature of oiling the highways is the care of traffic over roads being oiled, so important in fact that T. H. Dennis of the Maintenance Department has issued a letter of instructions to all division engineers in an effort to have the matter handled in a manner that will reduce to the minimum the inconvenience to the motoring public.

Following are the instructions as issued:

Our success in oiling and its continuation depend entirely on the way we handle traffic. If poorly handled, it may become so unpopular with the public that it will have to be abandoned. Therefore, let this part of the program receive your earnest consideration. The following suggestions are submitted as an aid in this work.

1. Where possible, use detours and see that they are adequately signed and the signs kept illuminated at night.
2. Keep the press and the auto clubs' representatives fully advised of these detours.
3. Where detours are lacking, oil short stretches of road half width and establish one-way traffic controls. Post flagmen on these controls to regulate and advise traffic. Printed cards, as per sample, passed out by flagmen may prove beneficial:

**—ATTENTION—**

**THIS ROAD IS BEING OIL TREATED. PLEASE  
EXTEND YOUR COOPERATION BY DRIVING  
SLOWLY AND COMPLYING WITH SIGNS.**

California Highway Commission.

4. Where controls are impractical, screen both applications.
5. Before oiling, see that sufficient screenings are on hand.
6. If oil is floated over road by unexpected rains, cover with screenings immediately and hold off traffic until covered.
7. Be prepared to screen oil on superelevated curves.
8. Place large 4' x 6' wooden warning signs some distance from each end of oiling operations and keep illuminated at night.  
Place 15" x 24" cardboard warning signs at frequent intervals along the oiled roadway.
9. Have wooden signs neatly painted and cardboard signs printed.  
All printed cards may be secured from this office on requisition.

sharp turns at bridge approaches and poor alignment generally.

It is now the aim to make the alignment and riding qualities of bridges and approaches equal to the high standard used in building highway pavements, so that maximum speed limits may be permitted with safety. Studies are constantly being made of proposed crossings, and where necessary the bridge is skewed or curved to get the desired result in the most economical manner.

## BRIDGE DEPARTMENT NEWS

The Bridge Construction Department has recently taken over the work of foundation investigation at sites of proposed bridges. They are using a calyx core drilling machine recently purchased by the State Testing Laboratory.

John Berg, an expert driller and J. Savage, of the headquarters highway shops, recently with Mr. McKesson in pavement core drilling operations, will assist in this work under the supervision of George J. Porter, who was resident engineer on the structures near San Adro, Monterey County. The crew is now located at Redwood Creek near Orick, Humboldt County.

Guy Mayes, acting resident engineer, has been assigned to the construction of Vejas Creek bridge Road VII-S.D-12-D.

J. M. Kerins, assistant resident engineer, will assist W. A. Douglas in the construction of Santa Ana overflow channel bridge.

Work has been started on the Ben Ali crossing by Frederickson and Watson, of Oakland. The state will be represented by Harry Carter.

Wm. Sutton, formerly employed in the State Testing Laboratory, has been assigned to assist G. W. Thompson on the South San Francisco undergrade crossing. M. J. Christy is also temporarily assigned to this work.

H. A. Farris is a new employee in the bridge construction department.

The contract for reflooring, cleaning and painting the Salinas River bridge at Soledad was recently completed and J. P. Winslow, acting resident engineer in charge of this work, has resumed his duties in the office.

### Work of Bridge Engineer Commended.

**M**R. S. V. Cortelyou, Division Engineer for Division VII, has forwarded to State Highway Engineer, Mr. R. M. Morton, directing to the attention of Mr. James Gallagher, Acting Bridge Engineer, a copy of resolutions adopted by the United Foothill Boulevard Association, which speaks highly of the rapid and efficient work of Mr. C. W. Jones of the Bridge Department.

The resolutions state that due to the speeding-up program adopted by Mr. Jones the bridge in question was opened for traffic sixteen days ahead of schedule.

### FOREMAN RECEIVES DESERVED PRAISE.

Wilkie Woodard, Chief Engineer of the Alphonzo E. Bell Corporation of Los Angeles, writes the following very commendatory letter to S. V. Cortelyou, Division Engineer of Division VII, concerning the efficient work of one of Mr. Cortelyou's foremen, Mr. Stauff:

During the last storm, which as you will remember was quite severe. I was at Castellammare and saw your foreman, Mr. Stauff, in action. I made up my mind at that time that I was going to write you that I consider him thoroughly efficient, not afraid of hard work, cold and long hours. I noticed how tidily he keeps the shoulders and road bed in his section, and I want to commend him to you, although I think you appreciate his ability."

The new California State Highway Commission building at San Bernardino will be thrown open to the public for inspection on April 30th, in connection with the celebration that will dedicate the new county courthouse.

## DIVISION VII MOURNS LOSS OF VALUED FOREMAN

On the 13th of this month the many friends of State Highway Foreman Albert W. Schmuck of Division VII were called to pay their last respects following an accident on the 9th in which he lost his life. He was injured when a road grader struck a rock and tipped over, throwing him head first against a passing car.

During the past ten years, Mr. Schmuck has handled many heavy maintenance and day labor jobs for Division VII. His most recent work, successfully completed, was installing riprap protection and removing slides on the Ventura end of the Coast highway between Las Flores Canyon and Oxnard. He has been working on this Coast highway for two years and was one of the most successful and popular superintendents in the department. He lived in San Gabriel.

## NATIONAL RECOGNITION FOR PRISON CAMP ACHIEVEMENT

The "Island-Lantern," published monthly by the prisoners at the United States Penitentiary, McNeil Island, Washington, in its April number has a very complimentary article on the results obtained by the Department of Prison Road Camps in California.

Preceding a resume of a report on the work in California the editor of the "Island Lantern" writes:

The use of prisoners in road building by the State of California has had splendid results. The state has acquired many miles of excellent road; hundreds of prisoners have had all the advantages of the healthiest kind of work in the outdoors under humane conditions and, what is more important, have reaped the rewards of their labor. It is interesting to note that before prisoners were paid their work was not comparable to the work of free men, but under the present pay system their work excels that of free men.

## CIVIL SERVICE EXAMINATIONS

Of interest to engineers is the announcement of the California State Civil Service Commission for examinations to be held shortly after the closing date for filing applications, April 30th.

Examinations will be held at Sacramento, Redding, San Bernardino, Bishop, Fresno, Los Angeles, San Luis Obispo, San Francisco and Willits for the following: Junior Engineer Draftsman, Grade 1, salary, \$75 to \$130; Assistant Civil Engineer Draftsman, Grade 2, salary, \$135 to \$165; Civil Engineer Draftsman, Grade 3, salary, \$170 to \$230; Assistant Electrical Engineering Draftsman, Grade 3, salary, \$170 to \$230; Electrical Engineering Draftsman, Grade 3, salary, \$170 to \$230; Mechanical Engineering Draftsman, Grade 3, salary, \$170 to \$230.

Examinations will also be held at Sacramento, San Francisco and Los Angeles for the following testing laboratory positions, the last day for filing applications being May 10th: Laboratory Aid, Grade 2, salary, \$135 to \$165; Junior Testing Engineer, Grade 3, salary \$170 to \$230; Assistant Testing Engineer, Grade 4, salary, \$235 to \$280; Associate Testing Engineer, Grade 5, salary, \$285 to \$350.

## NEW HIGHWAY ENGINEER FOR NEVADA.

It is reported that S. C. Durkee, Division Engineer for Reno, Nevada, section, will on June 1st succeed George W. Bordon as Nevada State Highway Engineer.

WHAT THE DIVISIONS ARE DOING

**DIVISION VI.**

HEADQUARTERS, FRESNO.

E. E. WALLACE, ACTING DIVISION ENGINEER.

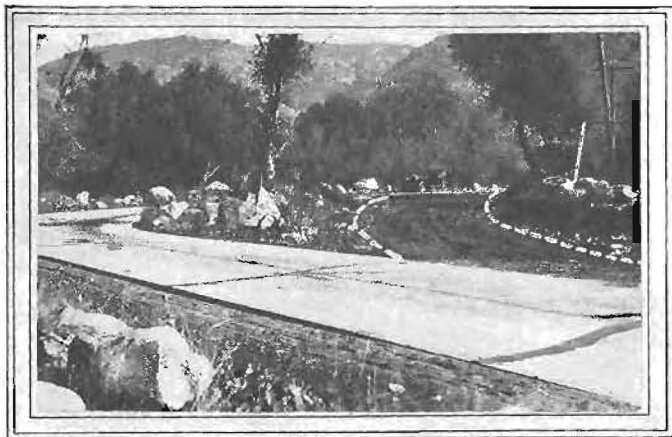
Counties of Fresno, Madera, Merced, Mariposa, Kings, Tulare, and Kern, north of the Tehachapi.

**D**IVISION VI is starting a heavy shoulder oiling program along Route 4. A great deal of work has been done since the first of the year in improving drainage conditions, eliminating irrigation ditches and borrow pits along the right of way and crowning the roadway out to the fence line. That the work is appreciated by the travelling public is evidenced by the number of favorable comments received.

While at work at rock quarry No. 4, located on state highway near Clearinghouse, G. W. Cave, a convict laborer, was killed by falling rock. The rock was imbedded in the hillside and fell suddenly, giving the laborer no chance for escape.



**MASONRY RUBBLE WALL**—Located on Merced-Yosemite highway near the confluence of Bear Creek and the Merced River, completion of which is reported by Acting Division Engineer E. E. Wallace of Division VI. Last year, Bear Creek, when in flood, caused a severe wash-out and to prevent recurrence, a rubble masonry wall 500 feet long and approximately 14 feet high was constructed. The footings required removal of approximately 1900 cubic yards of rock and earth, which work was performed by a 1¼-ton steam shovel. The wall required 1600 cubic yards of masonry and it is found that the total cost was \$8 per cubic yard. Skilled masons were employed for the masonry work but common labor was performed by convict laborers. The material for wall was secured from a quarry site located in Bear Creek opposite the wall.



**CURVES ARE DANGEROUS**—Here's one of the many on Route 10, Division VI, Sierra-to-the-Sea highway, that is being widened and strengthened by the placing of a water-bound macadam base which it is proposed to cover with an oiled surface later in the season.

Allotments have been received for oiling of Merced-Yosemite lateral between Mormon Bar and El Portal, a distance of 32 miles. This entire distance has been gravelled or is now in the process of being gravelled. From Mormon Bar to a point 10 miles east, the oiling work will be done under the penetration method as the gravel is now in place and benefit of the winter rains was received to assist in compaction. From this point to El Portal, the mixing method will be used. Approximately one-half million gallons of 60-70% asphaltic road oil will be required for the work. The section of the road near El Portal has received the full 6-inch thickness of gravel and oiling will be started within the next few days.

Widening the roadway from 18 to 20 feet and reducing the present high crown and super-elevating curves is now in progress on the Merced-Yosemite lateral between Cathay and Mormon Bar.

**DIVISION VII.**

HEADQUARTERS LOS ANGELES

S. V. CORTELYOU, DIVISION ENGINEER.

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



**MAINTENANCE CREW TO THE RESCUE**—Stages attempting to ford the stream in the Arroyo Seco, Los Angeles County, during a recent storm, met with disaster. Wire and plank suspension bridges constructed by the state highway maintenance crew enabled pedestrians to cross the flood-swollen stream.



**LIGHT SHOVELS EFFICIENT**—Slide material which came down on the Ridge Route during recent storms is being removed by two light gas shovels and dump trucks. These small shovels work in close to the bank on this mountainous section of highway without interference to the traffic.

On the Jahn and Bressi contract for the paving of Mountain Springs grade in San Diego and Imperial counties, good progress is being made. Two miles of 20-foot concrete pavement is now complete and open to traffic, and in addition, nearly three miles of half-width, 10-foot pavement is in place.

The 3.2 miles of 30-foot concrete pavement on the contract for reconstructing Whittier Boulevard in Los Angeles County, between Michigan avenue, Whittier and the Orange County line, has been completed and opened to traffic. This contract was extended to include the widening of the existing 23-foot concrete pavement to 30 feet by the addition of flush concrete shoulders, which are completed from the county line, a distance of a half-mile to La Mirada street in La Habra. Work is now in progress on the crushed rock shoulders.

Practically all concrete is now in place on the paving contract of the Griffith Company from the easterly limits of Santa Ana to Tustin, Orange County.

Placing of concrete paving is in progress on the reconstruction of the Coast highway westerly from Ventura, the paving back of the "Long Seawall" having been completed. Contractor Knapp's concrete crew was temporarily disorganized as a result of an accident which killed three and sent ten of his men to the hospital when a stage collided with the truck in which the men were riding.

The construction of the approaches to the new Carlsbad overhead crossing of the Santa Fe tracks is now in progress.

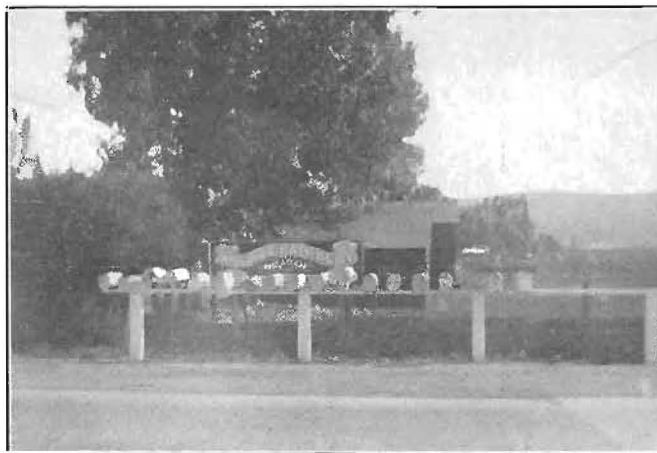
Work is under way on the reconstruction of the state highway in San Diego County, between La Mesa and El Cajon.

It is with regret that we announce a serious accident in which the seven-year-old daughter of Assistant Resident Engineer W. I. Templeton was so severely burned, that it may result in the loss of her arm.

## DIVISION IV MAKING RECORD IN MAIL BOX ARRANGEMENT



Before arranging mail boxes.



After arranging mail boxes.

### DIVISION X.

HEADQUARTERS, SACRAMENTO.

R. E. PIERCE, ACTING DIVISION ENGINEER.

Counties of Amador, Calaveras, Alpine, Tuolumne, Stanislaus, San Joaquin, Solano, and southern Sacramento and Yolo counties.

THE work of widening Priests Grade which was started in December, 1926, is now entirely completed. The entire 7-mile grade now has a minimum width of 20 feet and all blind curves have been eliminated so that this grade can now be considered safe for even timid drivers. The work of placing guard rail on Priests Grade along the river near Jacksonville and on Shawmut Grade is now under way. A small gas shovel is at work on two of the worst points near Jacksonville where the road is very narrow and the curves absolutely blind. All improvement work in this connection will be completed before the regular summer tourist travel commences along this road.

During the fall of 1926, work was started on the Mother Lode highway between Plymouth and Cosumnes River to build a new section of the highway on new location to eliminate two very bad creek crossings. This work was held up during the rainy season. It is again under way and will be completed in the early spring. Maintenance crews have been busy during the last three months in preparing several of the graveled roads in Division X for surface type oiling. This work is now practically completed and oiling operations are scheduled to commence on April 15th.

Division X is glad to report the return to work of F. C. Hewitt, even though he is still limping. Mr. A. D. Murray is a recent addition to the Division X drafting force.

### "So Much" Rope.

Willie—"Pa sent me for a piece of rope like this."  
Hardware Dealer—"How much does he want?"  
Willie—"Just enough to reach from the goat to the fence."—Exchange.

POSTMASTER George P. Lovejoy of Petaluma is so well pleased with the neat arrangements of the rural mail boxes on the state highway in his territory, which is in Division IV, under Division Engineer John H. Skeggs, that he has arranged a neat display by means of photographs and forwarded them to Mr. Skeggs, who in a letter to the Sacramento office commends the work of Mr. T. H. Dennis, Acting Maintenance Engineer.

A glance at the "Before" and "After" pictures sent in by Postmaster Lovejoy is convincing that such common articles as mail boxes can be made to add to the beauty of the scenery on the famed Redwood highway. In his short letter Mr. Lovejoy writes:

"I note with a great deal of pride the creditable attention given to the rural mail boxes on the Redwood highway. I wish to express my hearty appreciation for your cooperation in the matter, and to assure you of our continued best efforts in behalf of your excellent work."

### In Days Of Old.

When Noah sailed the ocean blue  
He had his troubles same as you;  
For days and days he drove the ark  
Before he found a place to park.—Azuride.

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

Cont. No.	Division	County	Route	Sec.	Location	Miles	Type	Contractor	Estimated cost	Date contract awarded	Contract time, days
<b>COMPLETED AND ACCEPTED SINCE MARCH 9, 1927.</b>											
None.											
<b>AWARDED SINCE MARCH 9, 1927.</b>											
520	VIII	Imperial.....	26	F	Between Adams Ave. and north limits of El Centro.....	0.50	Grading and Rock Surfacing.....	C. E. Pitzer.....	\$9,053 78	Mar. 28, 1927	60
521	VII	Orange.....	2-60	A-C	Between San Juan Creek and Serra.....	0.67	Grading and P. C. C. Pavement.....	V. R. Dennis Const. Co.....	98,364 04	April 13, 1927	150
					Total State Highway Fund Contracts Awarded.....	1.42			\$107,418 70		

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

## STATE HIGHWAY MAINTENANCE FUND CONTRACTS (Including Gasoline Tax Fund)

Cont. No.	Division	County	Route	Sec.	Location	Miles	Type	Contractor	Estimated cost	Date contract awarded	Contract time, days
<b>COMPLETED AND ACCEPTED SINCE MARCH 9, 1927.</b>											
M-116	VII	Los Angeles.....	2	D	Across the Rio Hondo, near Los Angeles.....		Widening existing bridge.....	Gutleben Bros.....	\$96,545 81	April 5, 1926	
M-122	V	Santa Barbara.....	2	K	Between Santa Barbara and Goleta.....	5.11	P.C. Conc. Wide. and Asph. Conc. Sur.....	Cornwall Const. Co.....	174,167 40	May 7, 1926	
M-150	VII	Los Angeles.....	4	E	Across La Placerita Cr. ½ mi. north of Newhall.....		Two Concrete Slab Bridges.....	I. P. Lipp.....	17,928 54	Oct. 12, 1926	
M-155	VII	Los Angeles-Ventura.....	2	C-B	Between Calabasas and Camarillo.....		Widening and Repairing Four Bridges.....	Henry Auerbach.....	23,989 78	Oct. 29, 1926	
M-157	VII	Los Angeles.....	9	E	Across Eaton Canyon Wash.....		Reinforced Concrete Bridge.....	Sidney Smith.....	50,499 80	Oct. 29, 1926	
<b>AWARDED SINCE MARCH 9, 1927.</b>											
M-165	II	Siskiyou.....	3	A	Line change near Weed.....	0.22	Grading and Rock Surfacing.....	J. P. Brennan.....	\$9,083 25	Mar. 28, 1927	60
M-166	II	Tehama.....	29	A	Paynes Creek Maintenance Yard.....		Maintenance Buildings.....	Martin Const. Co.....	4,085 00	Mar. 23, 1927	65
M-167	III	Sacramento.....	3	B	One mile south of Ben Ali.....		Undergrade Crossing.....	Fredrickson and Watson.....	52,167 66	April 13, 1927	150
					Total State Highway Maintenance Fund Contracts Awarded.....	0.22			\$65,345 91		

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

CALIFORNIA STATE PRINTING OFFICE  
CHARLES A. WHITMORE, State Printer  
SACRAMENTO, 1927