

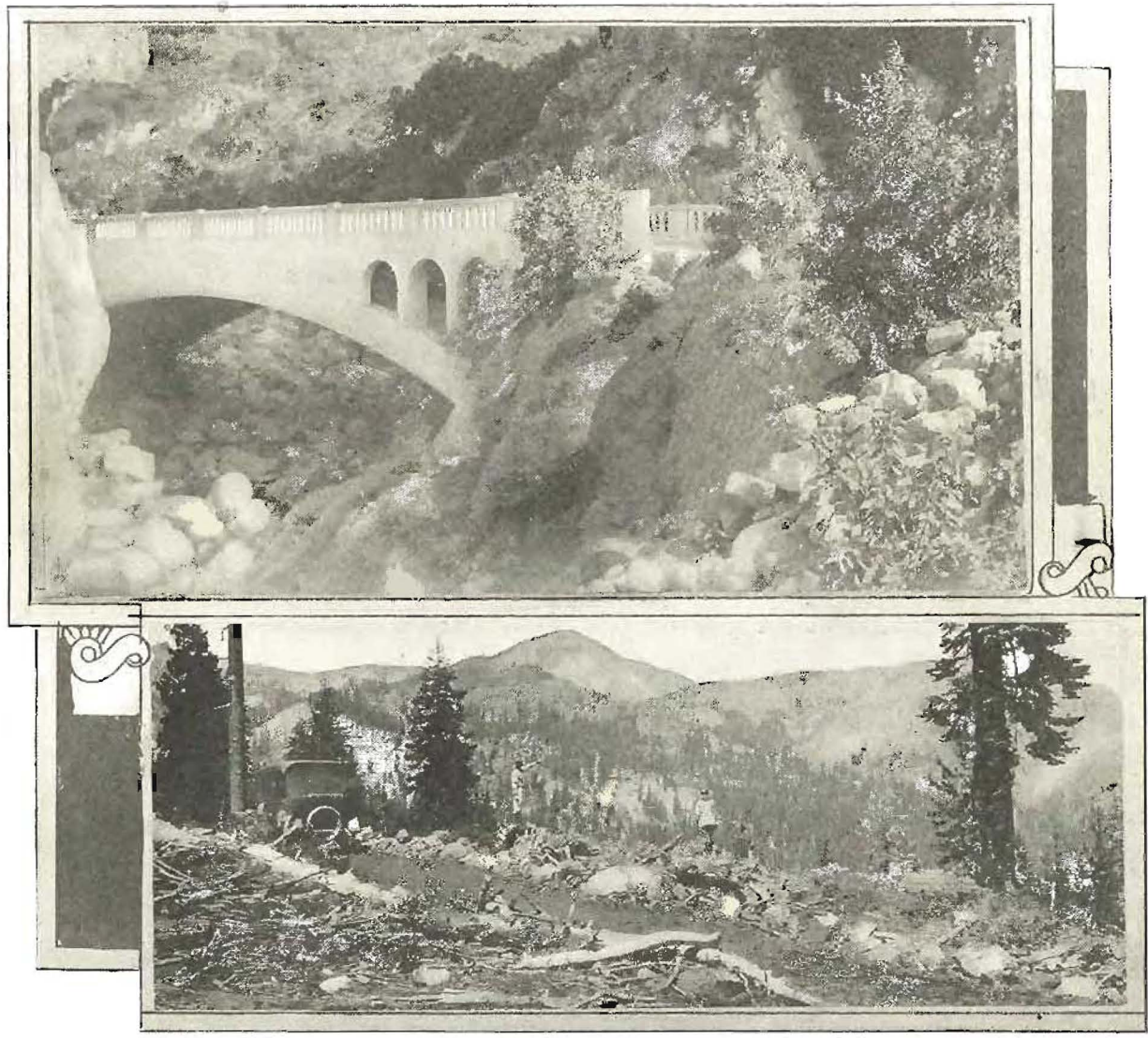
CALIFORNIA HIGHWAYS

OFFICIAL PUBLICATION OF THE CALIFORNIA HIGHWAY COMMISSION

Vol. 1

SEPTEMBER, 1924

No. 9



Above, the Pine Creek bridge on the state highway in the Cleveland National Forest, southern California; below, location of a forest highway leading to Lassen National Park, Lassen Peak in the background.

In this Issue: FOREST HIGHWAY PROJECTS IN CALIFORNIA.

Articles by PAUL G. REDINGTON, District Forester, and F. E. BONNER, District Engineer,
United States Forest Service.

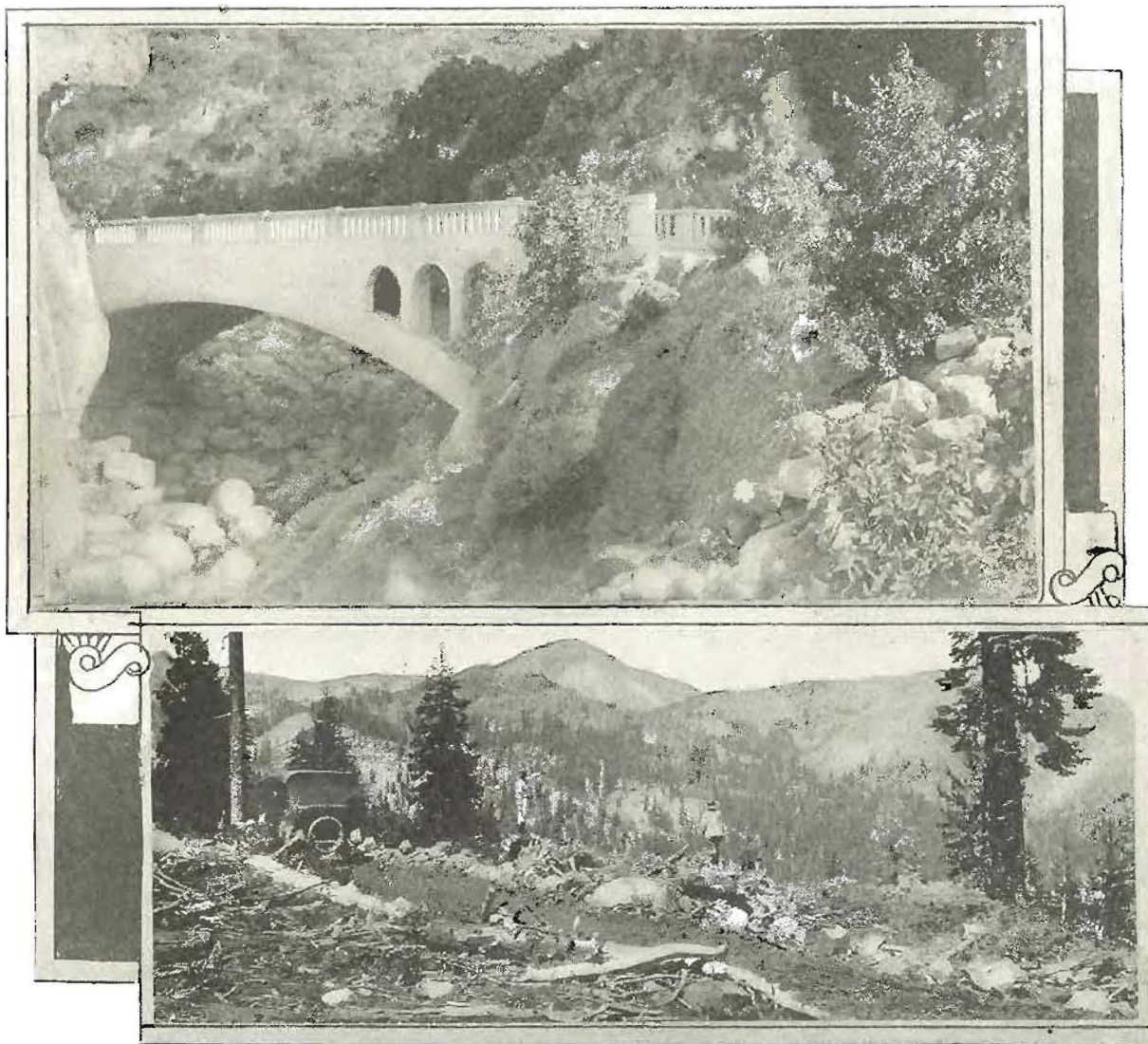
CALIFORNIA HIGHWAYS

OFFICIAL PUBLICATION OF THE CALIFORNIA HIGHWAY COMMISSION

Vol. 1

SEPTEMBER, 1924

No. 9



Above, the Pine Creek bridge on the state highway in the Cleveland National Forest, southern California; below, location of a forest highway leading to Lassen National Park, Lassen Peak in the background.

In this Issue: FOREST HIGHWAY PROJECTS IN CALIFORNIA.

Articles by PAUL G. REDINGTON, District Forester, and F. E. BONNER, District Engineer,
United States Forest Service.

California Highway Department

California Highway Commission

HARVEY M. TOY, Chairman, San Francisco

N. T. EDWARDS, Commissioner, Orange

LOUIS EVERDING, Commissioner, Arcata

R. M. MORTON, State Highway Engineer, Sacramento

PAUL F. FRATESSA, Attorney, San Francisco

W. F. MIXON, Secretary, Woodland

Headquarters Staff, Sacramento

T. E. STANTON, Assistant State Highway Engineer

FRED J. GRUMM, Office Engineer in Charge of Surveys and Plans

C. S. POPE, Construction Engineer

G. R. WINSLOW, Maintenance Engineer

HARLAN D. MILLER, Acting Bridge Engineer

LOWELL R. SMITH, Purchasing Agent

R. H. STALNAKER, Equipment Engineer

HERMAN B. WEAVER, Chief Accountant

Division Engineers and Headquarters

T. A. BEDFORD, Division I, Willits

J. B. WOODSON, Division VI, Fresno

H. S. COMLY, Division II, Dunsmuir

S. V. CORTELYOU, Division VII, Los Angeles

F. W. HASELWOOD (Acting), Division III,
Sacramento

E. Q. SULLIVAN (Acting), Division VIII,
San Bernardino

J. H. SKEGGS, Division IV, San Francisco

F. G. SOMNER, Division IX, Bishop

L. H. GIBSON, Division V, San Luis Obispo

J. C. McLEOD, Division X, Sacramento

General Headquarters, Fifth Floor, Forum Building, Sacramento

TABLE OF CONTENTS

Roster of the Department.....	Page 2
Highways Needed to Develop California's Forests..... By PAUL G. REDINGTON, District Forester, United States Forest Service.	Page 3
Views of Klamath River Forest Highway Project.....	Page 4
State Forces Cooperate in Suppressing Fires.....	Page 5
The Forest Road System of California..... By F. E. BONNER, District Engineer, United States Forest Service.	Page 6
California Forest Highway Projects.....	Page 7
Highway Reconstruction Problems Encountered on the Sacramento-Stockton Road By J. C. McLEOD, Division Engineer.	Page 8
New Guard Fence Tried in South.....	Page 10
Maintenance Superintendent Builds Pavement Marker.....	Page 11
What the Divisions Are Doing.....	Page 12
"Just Among Ourselves".....	Page 14
"Smileways"	Page 15
Views of Construction Activities in California National Forests	BACK COVER

Highways Needed to Develop California's Forests

By PAUL G. REDINGTON, District Forester, United States Forest Service.

IN HER national forests, California has an unmatched asset which is one of the very foundation stones in the economic structure of the great commonwealth.

Few realize what enormous treasure houses of raw materials their forests are. They comprise a vast area of



PAUL G. REDINGTON

government owned land aggregating over 19,000,000 acres, blanketing the great mountain ranges from Mexico to the Oregon line. They support a stand of merchantable timber estimated at 96,515,813,000 board feet. They supply summer forage sustaining 200,000 cattle and 473,000 sheep. Already various localities within the forest have yielded a vast amount of mineral wealth and still have deposits of incalculable value.

The national forests of California contain most of the developed and potential water power which is so vital to the industrial progress of the state. They also are the source of most of the irrigation water supply upon which the extensive agricultural development of the state is founded and more and more the large metropolitan districts are reaching back into the higher mountains for their domestic water supplies.

Recreation Increasingly Important.

Aside from all these very tangible connections to the material progress and well-being of the community, the national forests are finding remarkably increasing favor as the summer playgrounds of the people. In fact, the rapidly increasing use of the forests for recreation promises to soon place this function equal in importance to the development of timber, grazing and water power. The forests also render a valuable service in the propagation of the wild life of the state.

Contrary to an impression held in some quarters, all these vast resources are not "bottled up" to be handed down to unborn generations, but are available now, to any citizen, for development and exploitation under reasonable and unburdensome restrictions, merely adequate to protect public interest and to insure a sustained yield of the forest products. Always, the Forest Service is striving to assure that the resources of the national forests fulfill to the limit their proper function in the rapid development and upbuilding of California.

Roads Pressing Need.

One of the most pressing needs of the forests is more adequate transportation facilities. A complete road system serving this far flung estate is essential not alone for proper

management and fire protection but to open these resources to the people.

The great bulk of the forest area is now practically inaccessible and without a market. For illustration, the annual cut of timber at present is but 268,000,000 feet, out of the enormous total of 96,500,000,000 feet. The sale of even this much returns \$877,000 a year to the United States Treasury. The annual growth will support a cut of at least 1,000,000,000 feet, which figured at present low stumpage would bring in \$3,000,000 a year, perpetually.

The progress of logging is dependent largely upon good transportation and while in some cases railroads are required to conduct operations on a large scale, in many localities it is roads that are needed.

Recreation has increased so enormously in the last few years that the older roads are no longer adequate to handle the traffic and many new roads are necessary to open attractive recreation localities hitherto inaccessible. Statistics indicate that nowhere in the country are people "taking to the woods" as are Californians.

The problem of providing an adequate transportation system serving the forests must be met as a large cooperative enterprise. Many of the trunk highways traversing the forests are in the state highway system and thus serve a dual purpose by providing for through travel of statewide importance and for local development of the localities through which they pass. Many other roads are important links in the county systems and aside from the forest use

(Continued on next page.)

CONVENTION PLANS

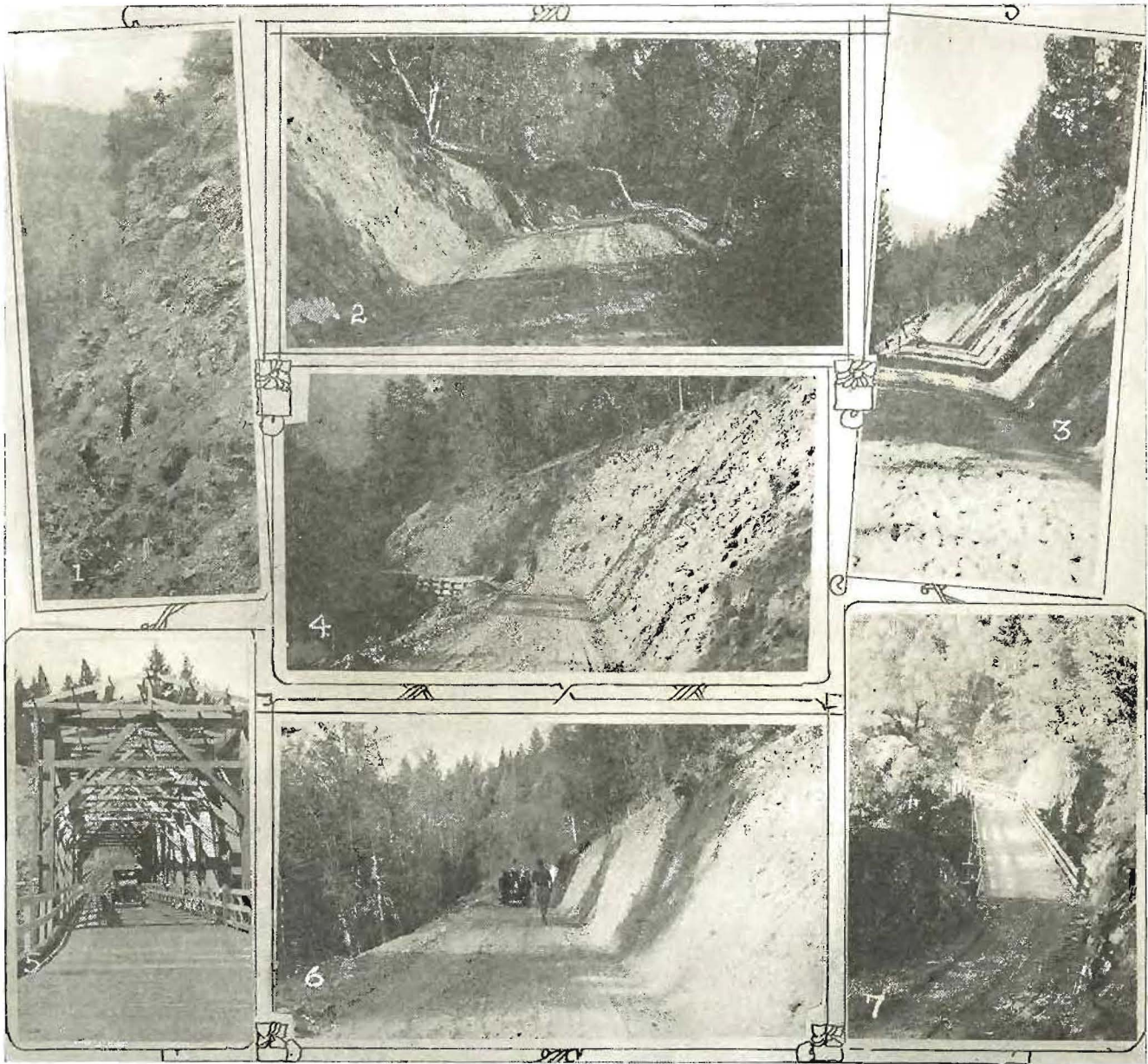
IN THE October issue of the bulletin we hope to give complete information concerning the coming convention of the American Association of State Highway Officials which will convene in San Francisco during the middle of November.

The convention program is about complete and gives assurance of worth while discussion of the many problems that are being encountered by the various states in the construction of a great system of highways for America.

San Francisco business men, led by Chairman Harvey M. Toy of the highway commission, are arranging a typical California welcome and entertainment. Attendance from every state in the Union is expected. Delegates are urged to come to California by the northern routes and to leave via Los Angeles.

It is probable that arrangements will be made to take the visitors from San Francisco to Los Angeles by automobile over the coast and valley routes at the conclusion of the convention. This will give an opportunity for inspection of many miles of California state highway construction.

FAMOUS KLAMATH RIVER FOREST HIGHWAY PROJECT



THE VIEWS—1. Sidehill in the rugged canyon cleared ready for grading operations; 2, 3, 4, 6. scenes along the new grade shortly after its completion; 5 and 7, typical bridge structures. Only a primitive trail existed before the road was built. The fifty miles of grading cost over \$1,000,000.

FORESTS NEED HIGHWAYS

(Continued from page 3.)

serve important communities and industries. The rest of the roads in the system are primarily for forest development and administration, and, therefore, largely an obligation of the federal government alone.

With the forest road appropriations made by congress the Forest Service aims to forward improvement as rapidly as possible on all these three classes. Due largely to the splendid cooperation of the state highway commission, much progress already has been made toward the ultimate completion of the state's part of the forest highway system.

A march entitled "California Highways" and dedicated to Ben H. Milliken, superintendent of prison road camps, has been composed by D. G. Gallur, director of the San Quentin Military Band.

Sr. Manerto Cruz, engineer with the bridge department of the Bureau of Public Works, Manila, Philippine Islands, recently visited Sacramento while studying methods of the bridge department of the California Highway Commission.

H. E. Warrington, formerly head of the bridge department, is now in private practice and has opened office in the Underwood Building, San Francisco, in partnership with C. H. Kromer, formerly with the state division of architecture.

STATE FORCES COOPERATE IN SUPPRESSING FIRES

Agreement With Forest Service Brought Into Play—
Prisoners in Camp at Briceburg Make Great Record.

LAST spring the California Highway Commission entered into an agreement with the United States Forest Service whereby employees of the commission were charged with the duty of assisting in suppressing fires adjacent to the state highways within the national forests. In several of the divisions this agreement has been brought into operation during the present summer.

Prisoners Volunteer.

One of the notable instances of cooperation was in Division VI where practically the entire Briceburg prison camp on two different occasions fought fires for several days in the forest adjacent to the Merced River.

The first fire occurred June 9th to 16th. Many convicts volunteered to fight the flames and worked for days on the fire lines. Again on August 6th, a second fire started and more of the prisoners volunteered. On one occasion a large number of prisoners were away from the camp from Wednesday until the following Tuesday and every man came back. At times, the camp had as high as 150 convicts and twelve free men on the fire lines at one time. The men fought fire willingly from eighteen to twenty hours without sleep or rest, only stopping from sheer exhaustion.

Superintendent W. B. Albertson has received a letter from Forest Service officials praising the work of the prisoners to which he adds his own commendation. There was not a single escape.

Employees of Division X twice cooperated with the Forest Service in fighting fires, on July 1st and 2d between Pine Grove and Cooks Station on the Alpine highway, and on September 6th on the Big Trees road. Thirty-two men in all were thus employed.

Maintenance forces of Division IV, on three different occasions between May 1st and July 15th, battled fires in the vicinity of the State Redwood Park. This was without the National Forest. Water tanks and pipe lines along the highway were threatened, the men confining their efforts to protecting state property.

Division VIII Active.

Division VIII reports that E. R. Samson, maintenance foreman at Beaumont, with a small force of men suppressed several fires at their inception along the highway right of way. L. H. Lucas, maintenance foreman in Waterman Canyon, also was successful in extinguishing a number of fires. For his work in fighting one large fire he was commended by Forest Supervisor R. H. Charlton of the Angeles National Forest.

Division Maintenance Engineer J. E. Stanton of Division VIII rushed state highway tools to the scene of a fire in the Big Bear section and materially aided in its suppression in its early stages.

Where the fires are within the national forests and representatives or employees of the highway commission are not responsible for their origin, the Forest Service has agreed to reimburse the state for the time of the men used in fighting fires at the current fire fighting wage.

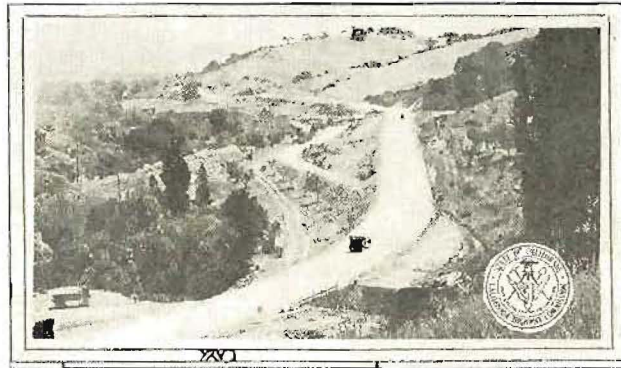
Five

CHITTENDEN PASS OPEN

DIVISION V is proud of the new 3.04 mile unit of state highway recently completed through the Chittenden Pass, San Benito County, connecting the coast trunk line with the improved highway system of Santa Cruz County. Work was begun October 9, 1923, and completed August 2 of this year.

In connection with the Pacheco Pass lateral, the Chittenden Pass road provides an almost direct connection between the San Joaquin Valley and the beaches of Monterey Bay, and also takes the place of an unimproved county road for much local traffic between Watsonville and Gilroy, San Juan, and Hollister.

The road was declared a state highway by special act of the legislature of 1921. Considerable heavy grading was done to improve alignment. The roadbed is 24 feet wide and is paved with asphalt macadam, 20 feet wide and six inches thick. The entire job cost approximately \$88,000 or \$29,000 per mile.



SCENE ON THE CHITTENDEN PASS—Note old meandering county road at left or new state highway.

An expression of thanks for the work done by the men of the Briceburg Prison Road Camp in fighting forest fires.

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
SIERRA NATIONAL FOREST

CAMP COERT DuBOIS, August 23, 1924.

SERGEANT E. J. HOBBS,
Camp E, Briceburg, California.

DEAR SIR: I want to take this opportunity of expressing my appreciation of the work done by the men under your supervision.

The rangers report that the men showed unusual good spirits in helping out and their service is appreciated.

There were some very outstanding individuals but unfortunately we did not get their names, but I wish you would express to all your men our appreciation of their work.

Very sincerely yours,
(Signed) M. A. BENEDICT,
Forest Supervisor.

THE FOREST ROAD SYSTEM OF CALIFORNIA

By P. E. BONNER, District Engineer, United States Forest Service.

THE provision of adequate transportation facilities serving the national forests is one of the most difficult and spectacular features of the country's highway program. By their very nature, the national forests consist in general of the most rugged, the most densely timbered and the least developed regions of the entire country. Twenty years ago, when the Forest Service first became charged with their administration, it found vast areas without transportation routes of any kind.

Under the circumstances one of the first big tasks was to plan out and begin the construction of a comprehensive road and trail system. Funds were very limited in the earlier years and the initial work had to be confined largely to the building of pack trails for the rangers to reach the more important localities.

In response to an increasing demand for better facilities, congress, in 1912, authorized the Forest Service henceforth to use for road and trail construction 10 per cent of the receipts from the sale of timber and other forest products. This appropriation, called the "10 Per Cent Fund," permitted a substantial start on the forest road building program which has progressed at an accelerating rate ever since.

Congressional Appropriations.

In 1916, congress made another appropriation amounting to \$1,000,000 a year and running for a period of ten years. This act is still in force and the last appropriation will be that for the fiscal year 1926. This appropriation is termed the "Section 8 Fund" and the expenditures are reimbursed to the treasury from the forest receipts.

In recognition of the need for more rapid progress on the forest system, the "Federal Forest Road Construction" appropriation of \$9,000,000 was made in 1919.

Again in the fall of 1921, with current funds nearing exhaustion, congress appropriated \$15,000,000 more for forest roads and trails. This act specifically provided for two distinct classes of roads. First, there was set aside under the designation "Forest Highway Fund" \$9,500,000 of the appropriation for those roads in the national forests needed particularly for public travel and primarily important from the standpoint of completing the parts of the state system and the county roads traversing the forests.

Thus does congress recognize the obligation of the United States as a large land proprietor and reimburse the local agencies for the loss of taxable revenues from areas permanently under federal control.

The other part of the 1921 act set aside \$5,500,000, called the "Forest Development Fund," for the roads and trails needed primarily for the protection and development of the forests themselves.

For the past two years appropriations of \$6,500,000 a year have been made under the same provisions governing the 1921 appropriation. Of each appropriation, \$3,500,000 was apportioned to the Forest Highway Fund and \$3,000,000 to the Forest Development Fund.

The following tabulation summarizes the forest road appropriations to date and shows the share apportioned to California from each:

Appropriation	Total	California share
10 Per Cent Fund.....	\$4,591,149 60	\$731,889 42
Section 8 Fund.....	9,000,000 00	1,175,395 00
Federal Forest Road Construction..	9,000,000 00	1,176,619 87
Forest Highway Fund.....	16,500,000 00	2,527,632 00
Forest Development Fund.....	11,500,000 00	1,399,270 00
Total	\$50,591,149 60	\$7,010,806 29

These appropriations combined with substantial cooperation from many of the states and counties have made possible the construction of a great many of the more urgently needed projects.

The program carried out under the Forest Highway Fund is worked out in cooperation with the state highway departments and the standards of construction approximate approved practices in the respective states. Through a cooperative arrangement, construction work on the forest highways is supervised by the United States Bureau of Public Roads, while the construction of the forest development roads and the trails is carried out directly by the field organization of the Forest Service.

Notable Forest Projects.

Forest road building in California has resulted in the construction of a number of notable projects. Prominent among these is the fifty miles of highway built in Siskiyou County down the rugged canyon of the Klamath River from Happy Camp to Orleans, where before only a primitive trail existed. This project alone required the expenditure of nearly \$1,250,000. A similarly difficult project, under way for a number of years, and now in prospect for completion in 1925, is the road down the Salmon River canyon in the Klamath Forest. Other important roads completed include the Laguna Mountains highway in San Diego County and the Huntington Lake road in Fresno County.

The present program is contributing in an important way toward the improvement of the mountain units of the state highway system. A section of the Trinity River lateral has been finished and work is now in progress on extensive sections of the Cuyama lateral in Santa Barbara County, the Big Bear Lake highway in San Bernardino County, the Red Bluff-Susanville highway, the Sonora-Mono lateral, the Colfax-Truckee highway, and the Crescent City-Grants Pass connection, in Del Norte County.

Among the more important roads in the local county systems now under construction are the Yuba Pass road in the Tahoe National Forest, the road from Murphys to the Calaveras Big Trees grove in Tuolumne County and the San Marcos Pass road in the Santa Barbara Forest.

Concurrently with the undertaking of these larger projects primarily important from the standpoint of public travel, there are being completed by the Forest Service, under the forest development road activities, a great number of the

(Continued on next page.)

CALIFORNIA FOREST HIGHWAY PROJECTS

THIRTEEN forest highway projects, located on the California state highway system, have been completed or are now under construction with funds supplied by the United States Forest Service. The state highway commission is cooperating on six of the projects, the others are being built exclusively with federal funds.

The work now under way involves the ultimate construction of more than 200 miles of highway at a cost of millions of dollars. Expenditures on August 31, 1924, as

reported by the Bureau of Public Roads, had reached a total of \$3,436,811.

This assistance in the construction of the highway system is in addition to regular federal aid appropriations and is a recognition of the obligation of the federal government because of its ownership in California of millions of acres of valuable forest lands.

The following table gives data on the forest projects on the state highway system:

FOREST HIGHWAY PROJECTS ON CALIFORNIA STATE SYSTEM

Project name	National forest	Lgth. miles	Type	Part completed	Expended to Aug. 31, 1924	State's share of cost
Big Bear Valley	Angeles	13.2	18-ft. grading	78%	\$420,539	\$210,000
San Gabriel	Angeles	12.0	18-ft. grading	1.4 mi. built	187,914	150,000
Arroyo Seco	Angeles	3.8	18-ft. grading	3.8 mi. built	140,071	-----
Klamath River	Klamath	49.0	8-ft. grading	completed	1,190,592	none
Red Bluff-Susanville	Lassen	12.0	16-ft. grading and graveling	66%	165,692	50,000
Alturas-Cedarville	Modoc	23.4	18-ft. grading and graveling	7.7 mi. built	132,430	gravel surf.
Redding-Alturas	Modoc-Shasta	10.9	14-ft. grading and graveling	98%	204,902	none
Cuyama	Santa Barbara	15.5	18-ft. grading	75%	437,044	210,000
Sonora Pass	Stanislaus-Mono	13.3	16-ft. grading and graveling	no const.	6,290	none
Truckee-Tahoe	Tahoe	14.0	18-ft. grading and graveling	no const.	1,082	none
					(surveys)	
Emigrant Pass	Tahoe	3.7	20-ft. grading and graveling	22%	33,138	none
Trinity River	Trinity	4.7	8-ft. grading	completed	92,117	none
Crescent City	Siskiyou	27.2	16-18-ft. grading and graveling	33%	425,000	553,000
Total	-----	202.7	-----	-----	\$3,436,811	-----

FOREST ROAD SYSTEM

(Continued from page 6.)

more local roads. Generally these are built on rather modest standards and while intended primarily for fire protection and administrative purposes, they serve a wide use in allowing the public access to attractive recreation points away from main arteries of travel.

Big Task Ahead.

Altogether, forest road building activities in California have resulted in the construction of nearly 700 miles of road and the improvement of many miles more of the roads already existing. While this constitutes an impressive start, the major part of the work still remains to be done.

The comprehensive plan which has been worked out shows the ultimate forest road system in California will involve probably 7,300 miles. It is estimated its completion will entail a further expenditure of \$35,000,000, possibly more.

GREELEY IN CALIFORNIA

Col. W. B. Greeley, chief forester of the United States, has been spending the greater part of the summer in California to assist during the period of fire hazard.

IOWA SUPERVISORS FAVOR GASOLINE TAX

Iowa supervisors, facing increased demands for highway expenditures, by resolution called upon the legislature to pass a gasoline tax to produce revenue for the highway funds. The resolution declared it was an equitable means of raising the needed revenue.

The supervisors also passed a resolution asking that a limit be placed on trucks and passenger busses using public highways to protect the surfaces which are now being rapidly run down by overloaded machines.—*The American County.*

SECRETARY MIXON MARRIES

THE newspapers on Saturday morning, September 12th, brought a thrill of surprise to the State Highway Department with the announcement of the marriage in San Jose, the day before, of Secretary W. F. Mixon and Mrs. Edna Mahr, formerly of Woodland, Mr. Mixon's home town.

The happy couple received congratulations from many friends throughout the state when they returned to Woodland where they will make their home.

Headquarters expressed its esteem of Secretary and Mrs. Mixon by presenting them with a handsome silk down comforter as a wedding gift.

HIGHWAY RECONSTRUCTION PROBLEMS ENCOUNTERED ON THE SACRAMENTO-STOCKTON ROAD

By J. C. McLeon, Division Engineer, Sacramento.

ONE of the pressing problems facing the California Highway Commission is the need for the reconstruction of a considerable mileage of old county built roads, incorporated into the state highway system at various times since 1912.

Most of these roads are from ten to fifteen years old, and, measured by the needs of present day traffic, are of inferior types of construction. Road building, at the time they were designed and constructed, had not reached the comparatively high standards of the present day, nor was the enormous increase in motor vehicle traffic anticipated.

Many miles of these roads are a part of the main trunk highways that traverse the length and breadth of the state. They are being subjected daily to loads and speeds far beyond their capacity, and, as a result deteriorate badly, with resulting high annual maintenance charges. The solution of this problem is the rebuilding of these roads with a modern hard-surfaced pavement.

Subbase Not Disturbed.

It has long been an axiom among engineers that every section of highway presents problems that are peculiar to that particular section. In reconstruction work, it is the utilization of the existing road surface, so that the benefits of its thorough settlement under years of travel may be incorporated into the new pavement.

The following is a brief summary of the magnitude of a representative reconstruction job, on the Sacramento-Stockton highway, along with a short exposition of the methods used and some conclusions drawn therefrom.

The section of state highway recently reconstructed extends from the south limits of Sacramento in a general southerly direction for a distance of thirteen miles. The original pavement consisted of an oil bound macadam constructed by Sacramento County in 1910. The road, itself, is a part of the main highway extending from the Oregon line to Los Angeles, via the San Joaquin Valley, and is also on the route of the transcontinental Lincoln highway. It was taken over as a part of the state highway system in July, 1915.

During the last few years, annual maintenance charges on this section became so excessive that its reconstruction was imperative. After a thorough study, a Portland cement concrete pavement was decided upon. For the first three miles south of Sacramento, where suburban travel is heavy, the new pavement is twenty-four feet wide. For the balance of the job a twenty-foot width was deemed sufficient. The pavement is six inches thick at the center and is thickened in the outer three feet on each side from six to nine inches.

We desired to take advantage of the well settled oil macadam road as far as practicable, but due to its excessive crown and corrugated and broken surface, the new pavement could not be placed directly upon it without using an excessive amount of concrete to fill irregularities.

Oil Macadam Scarified.

The problem was solved by requiring that the oil macadam

be scarified and thoroughly broken up, reshaped to the new required width, and compacted with rollers to ultimate compression. Care was taken to scarify only to the depth of the old pavement, the earth grade remaining undisturbed. During construction, this phase of the work presented two major problems as follows:

First, when work began in the spring the temperature as a whole was low. As a result, the asphalt binding of the old pavement was solidified, and its breaking up proved difficult. After the weather warmed up, all difficulties on this score vanished and rapid progress was possible.

The experience with this job, however, indicates the advisability of confining work of this character to the hot summer months to obtain the best bid prices.

The second problem had to do with the impossibility of constructing a true template subgrade out of a material containing so much rock. The tendency of the contractor was to get the subgrade low, which would in turn upset the proportion of the materials over that required by theoretical measurement. This was overcome by placing a thin cushion of sand on the subgrade, removing all inequalities and bringing the surface to grade. This proved a good solution in more ways than one. It provided an ideal subgrade and where the sand cushion was placed the transverse expansion cracks appear fewer in number than where no sand was used.

Modern Equipment Used.

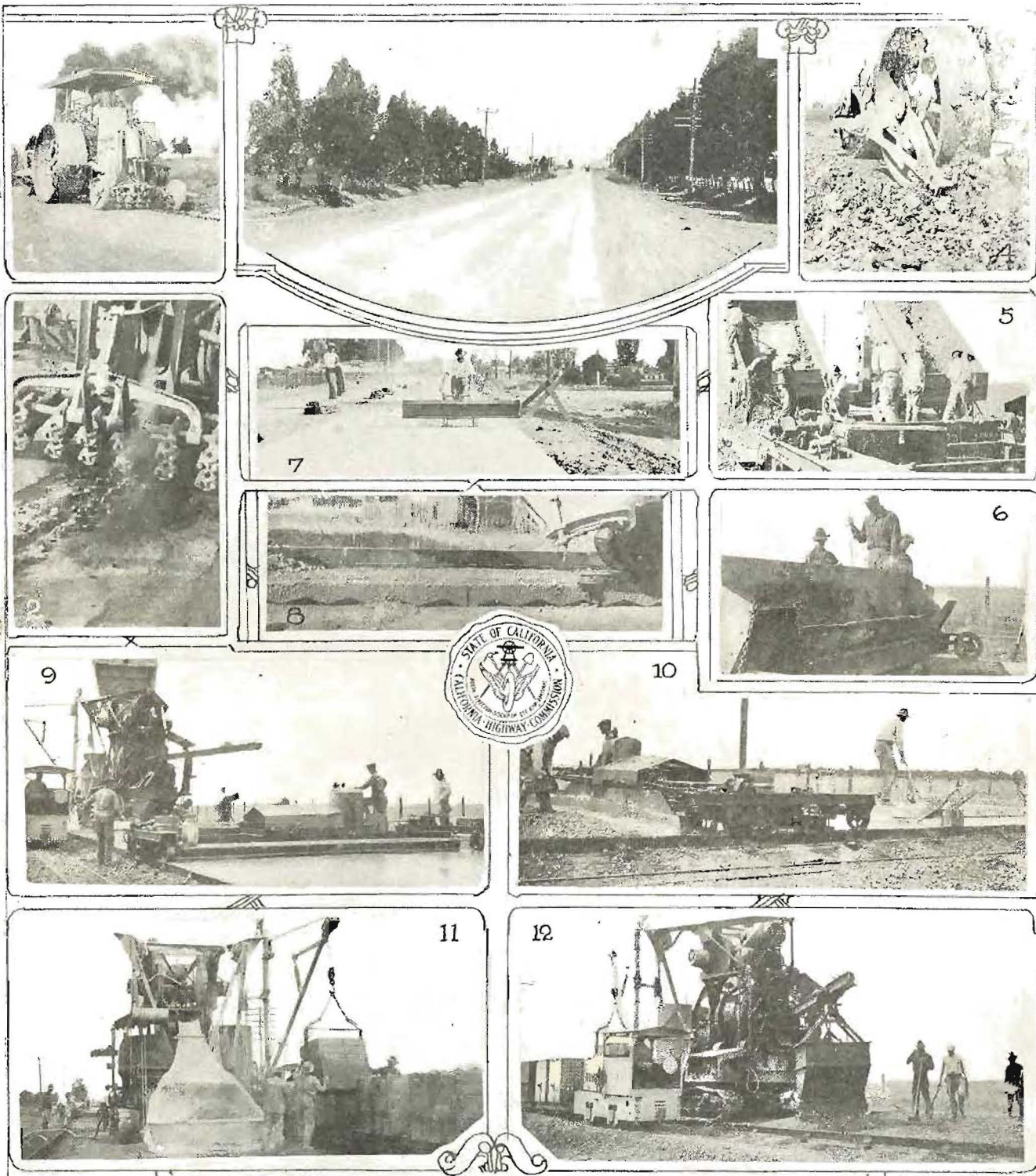
The job required the mixing and placing of 29,000 cubic yards of concrete. Materials alone entering into this quantity of concrete would require a railroad train over ten miles long and the material would weigh 152,336,000 pounds. The thirteen miles of pavement were poured in 108 days, including all delays, or a grand average of 270 cubic yards of concrete, approximately 700 lineal feet of 20-foot by 6-inch pavement per day.

A part of this job was constructed from a central mixing plant, the concrete being hauled to the job in trucks. The balance of the job was done using a central proportioning plant, the mixer being on the grade. This mixer was of exceptionally large size and was built especially for the Kaiser Paving Company, the contractors on this unit. The material was hauled to the mixer on an industrial railway.

Using this equipment, the contractor averaged over 1000 lineal feet of pavement per day for the last six miles of this contract.

Experiments with calcium chloride for "curing" purposes were made during the progress of the work. Due to the very low humidity at the time it was used, it constituted a severe test as to the practicability of the calcium chloride method. The surface appearance of the concrete thus treated is good, and data from core cylinders show a breaking strength almost identical with that of dyked and ponded concrete on the same section. The cost of calcium chloride appears to be the same or a little higher than the dyking and ponding method heretofore used.

(Continued on page 11, column 2.)



THE SACRAMENTO-McCONNELL PAVING JOB—1 and 2, views showing difficulty of scarifying oil macadam during cold weather; 3, section of completed highway just before final finish; 4, showing ease with which scarifier worked in warm weather; 5, dumping concrete hauled from central mixing plant, note stiff consistency; 6, spreader box used for spreading concrete hauled in trucks from central mixing plant; 7, method of applying calcium chloride for "curing"; 8, joint holder for longitudinal center expansion joint; 9, mechanical finisher operating in foreground; 10, another view of mechanical finisher, men in background operating longitudinal float; 11 and 12, views of the big mixer; used on the latter part of the job; 11, shows hoisting of aggregates prepared at the central proportioning plant. The locomotive of the industrial railway is shown in 12.

True to Life.

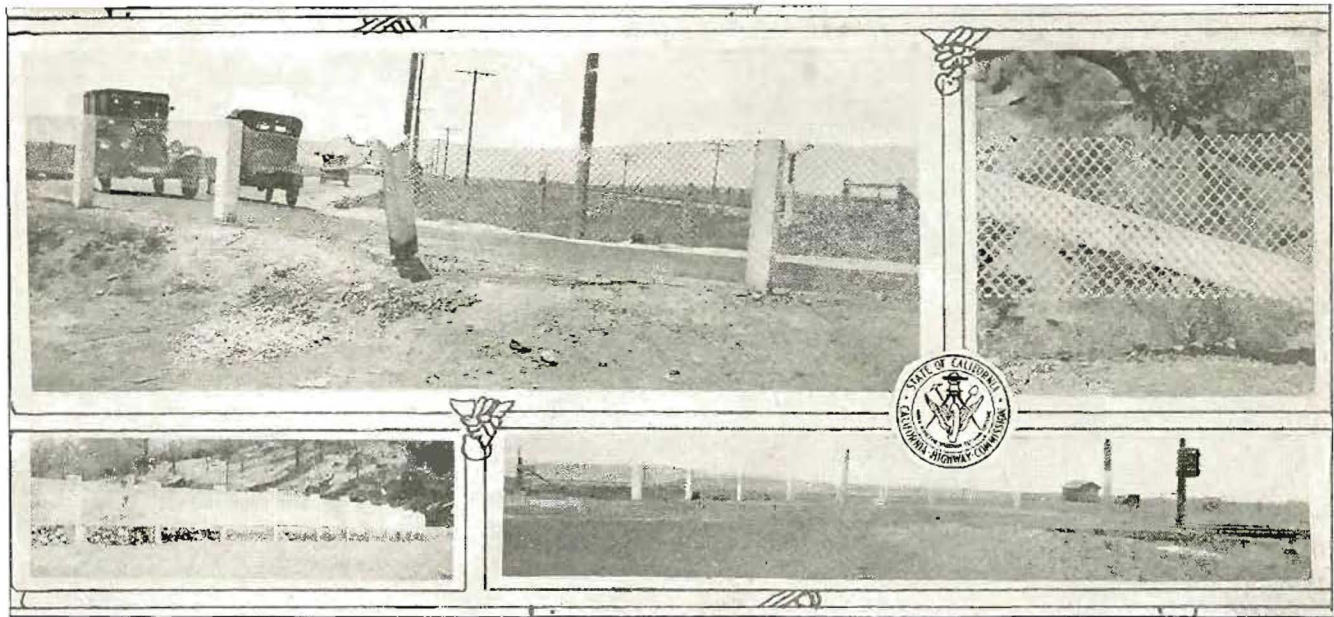
Smith—"I wish I had one of the crisp rolls that mother used to make."

Mrs. Smith—"Yes, and I wish you had one of the crisp rolls that father used to carry."

Nine

Tardy Student—"Well, a sign down here—"
 "Well, what has a sign got to do with it?"
 "The sign said: "School Ahead Go Slow."

The difference between Satan and the road department is that the former makes his detours more enticing.—*Knoxville Journal*.



WIRE NET GUARD FENCE STOPS CAR--Upper left, near Oceanside, San Diego County, wire net fence with post broken, but wire net intact; upper right, detail section of the fence; lower right, view of the crossing before accident; lower left, same type of fence in Division VI.

NEW GUARD FENCE TRIED IN SOUTH

(From Division VII)

FOR EXPERIMENTAL purposes sixty-four feet of wire net guard fence recently was erected on the outside of a sharp curve at the Santa Fe Railroad grade crossing just north of Oceanside, on the State Highway, Route 2, San Diego County.

The twenty-four-inch fence fabric is supported by six-inch posts, eight feet apart and set three feet into the ground. The two end posts were made from ten-inch piling set about five feet into the ground.

Cost of Fence.

24-inch fence fabric, 64 feet at 40 cents f. o. b. job.....	\$25 60
9 posts at \$1.25 f. o. b. job.....	11 25
Erecting 64 feet at 30 cents (per Brassington).....	19 20
Staples and paint at 5 cents (64 feet).....	3 20

Cost of 64 feet.....	\$59 25
Cost per foot (material and labor).....	925

Result of Collision.

Shortly after the installation of the guard fence it was struck by a Ford sedan. One six-inch by six-inch post was broken off at the ground, and the wire fabric to adjacent posts (sixteen feet in all) was badly stretched, but not broken. The Ford sedan was only slightly damaged and was repaired and on its way in about an hour.

The fence was repaired by cutting out the two eight-foot panels of wire, stretched by the collision, and installing a new post and sixteen feet of new wire net.

The cost of repairs amounted to about 95 cents per lineal foot or slightly more than the cost per lineal foot for erecting the original fence.

It is believed the use of eight-inch by eight-inch posts, set four feet into the ground, would improve this type of guard fence.

FOREST SERVICE OFFICIALS

SEVENTEEN national forests, with a net area of over 19,250,000 acres, are under the jurisdiction of the officers of the California District of the United States Forest Service, with headquarters in the Ferry Building, San Francisco.

Paul G. Redington, district forester, heads the service in this state. He is assisted by the following corps:

Robert L. Deering, assistant forester, in charge of *Operation*; T. D. Woodbury, assistant forester, in charge of *Forest Management*; Jesse W. Nelson, assistant forester, in charge of *Grazing*; L. A. Barrett, assistant forester, in charge of *Lands*; W. I. Hutchinson, assistant forester, in charge of *Public Relations*; C. L. Hill, in charge of *Forest Products*; S. B. Show, silviculturist, in charge of *Research*.

F. E. Bonner is the district engineer of the Forest Service and E. W. Kramer is the hydro-electrical engineer.

NEW FILLER COSTS LESS

BECAUSE of variations in temperature, expansion joints are now being provided in all concrete paving on California state highways. The present policy calls for installation of joints at 100-foot intervals, instead of placing them wherever the pouring of concrete happens to stop at noon and night, as was formerly the practice. In the past, these joints have been filled with a patent filler somewhat expensive and declared lacking in various necessary qualities.

The department worked out its own filler, the formula being nothing more complicated than sawdust and asphalt, a mixture of which makes a contraction joint filler more satisfactory than any yet tried, the cost being less than that charged for the patent filler formerly used.

McKESSON IS NAMED

State Highway Engineer R. M. Morton announces the appointment of C. L. McKesson, research engineer on the staff of the testing laboratory, as the representative of the California highway department on advisory board on highway research of the National Research Council. Valuable research work is being carried on by the council at its headquarters in Washington, D. C. Each state is represented on the advisory board.

MAINTENANCE SUPERINTENDENT BUILDS PAVEMENT MARKER

A ONE-MAN pavement marker mounted on a motor-cycle side car frame is now in service in Division II in the vicinity of Red Bluff.

The outfit was designed and built at the Red Bluff maintenance yard under the supervision of F. L. Stump, maintenance superintendent, and is used to paint guide lines in the center of the pavement on bridges, curves, and at other places where they may add to the safety of traffic.

The apparatus consists of a marker wheel with a felt tire hung on an eccentric axle with a lever attached by which it may be raised or lowered from the pavement, a fifteen gallon asphalt or paint container with a feeder pipe and valve to the wheel, and a fifteen-gallon sand container with a spreader pipe to the rear of the marker wheel.

Operation Simple.

The asphalt feed pipe valve and the sand feed pipe valve are both operated by the same lever. The operator has but two motions to perform, lower the marker wheel, and turn on the asphalt and sand.

A collapsible rod extends to the edge of the pavement to keep the wheel in the center of the highway. A low gear engine sprocket makes it possible to operate the machine at a speed as low as $2\frac{1}{2}$ miles an hour. The cost of operation, including labor, equipment rental, and materials, Stump reports, is not in excess of 40 cents a mile.

Division IV also has built a simple one-man pavement marker as shown in the illustration below.

ABOUT GRAVEL ROADS

(From *Western Highways Builder*.)

A TWO-WEEKS journey over the Pacific highway and several important tributary roads from San Diego, California, to Seattle, Washington, leads to the conclusion that the properly built, efficiently maintained gravel-surfaced road is as satisfactory a type of construction as any rational individual could ask for.

The Western Association of State Highway Officials recognizes the pertinent fact that this type of road will carry the majority of the traffic in the public land states for some

time to come, and has appointed a committee to investigate and report on successful methods of construction and maintenance.

To this committee I would suggest a trip over the Pacific highway from Sisson to the Oregon state line where Robert Morton has created a high-speed, albeit gravel boulevard from a most uncomfortable and treacherous stretch of road. This section of the California state highway system is carrying 1200 to 1500 vehicles a day without serious difficulty.

In Oregon, a similarly fast road has been built between Medford and the boundary of Crater Lake National Park and between Klamath Falls and the Pacific highway, by the Oregon highway commission. These three roads permit of a speed, with comfort and safety, of 35 to 45 miles an hour. Little more could be asked for.

One doesn't have to search far for the secret of this successful road service. It lies in small gravel and constant, continual, efficient maintenance.

RECONSTRUCTION PROBLEMS

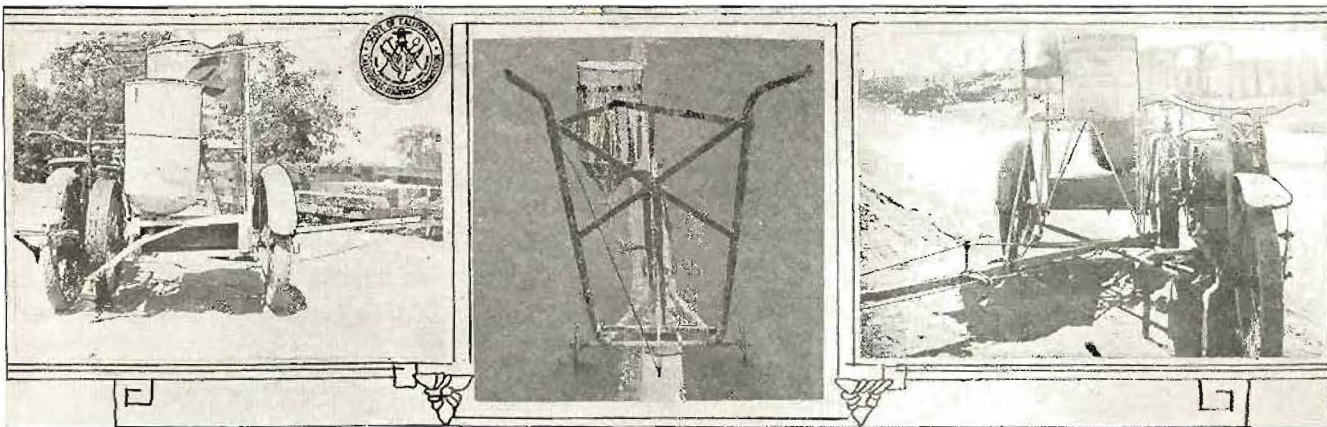
(Continued from page 8.)

Vialog Tests High.

The completed road presents a smooth, safe and pleasing appearance. Vialog tests show only twelve to sixteen inches of roughness per mile. This is a remarkable record considering that New York specifications, where the vialog has been extensively used, permit a maximum of fifty inches per mile. The old oil macadam has a record of 196 inches of roughness per mile.

The total cost of the thirteen miles of paving was approximately \$420,300, or \$32,250 per mile. It was financed from the gasoline tax fund, and is one of the largest projects on the state system completed to date with funds from this source.

All who have had to do with the construction of this road feel that high standards of highway construction have been adhered to and it is hoped that the community it serves and the public at large will feel a measure of pride in the work accomplished.



NEW PAVEMENT MARKERS—At left and right, views of the pavement marker mounted on a side car, the work of maintenance superintendent in Division II; center, one-man pavement marker in use in Division IV.

WHAT THE DIVISIONS ARE DOING

Progress at Van Duzen.

THE reinforced concrete bridge across the Van Duzen River, about twenty miles south of Eureka, is rapidly taking form as the contractors rush the work in anticipation of the coming winter. A diver, working on the cofferdam of one of the piers, attracted the attention of tourists recently. Many motorists spent hours at the bridge site watching operations.

The bridge department reports the site of the great Klamath River bridge, at Requa, Del Norte County, a busy place these days. Contractor F. Rolandi has a sawmill, blacksmith shop, and other activities under way. Preliminary work has been begun on one of the piers. Several pile drivers are on the job.

The big grading contract in the vicinity of Fresh Water Lagoon, Division I, soon will be reported 100 per cent complete.

Ten Miles More of Paving.

The length of unpaved highway between Redding and the Oregon line, on the Pacific highway, Division II, was reduced by ten miles during September when the Kaiser Paving Company completed its operations north of Redding. This splendid new pavement, twenty feet wide, will be opened to traffic early in October.

Rapid progress is being made on the new Division II shop building at Redding. Construction also has started on the new division office building, also located in Redding.

The Nevada Contracting Company soon will have completed its widening contract from Bayha to Half Way Creek, in Shasta County. The work is far ahead of schedule.

Grading operations soon will be started by Dunn and Baker of four miles of widening work on the Pacific highway along the Klamath River. Culvert work is nearing completion. The grading is an extension of their previous contract completed early in the summer.

Polk and Polk have about completed their contract for the rock surfacing of the Susanville lateral between Chester and Westwood.

Hearings Held on Underpasses.

Plans have been completed by Division III for the construction of a ground level road from the American River bridge to North Sacramento and further progress is awaiting action by the State Railroad Commission upon the application of the highway commission for the elimination of two railroad grade crossings on this same section. The bridge department submitted its plans for the underpasses at the recent hearing.

The commission has allotted \$1,000 for an investigation of the best means of eliminating the Ben Ali grade crossing over the Southern Pacific, just beyond North Sacramento.

A contract has been let to the Chico Contracting Company for the paving of 1.7 miles on the Chico-Orland state highway, near Chico, with asphalt concrete. Plans have been completed for the grading of approaches to the new Stony Creek bridge on the same route.

The main eastside trunk line between Marysville and Roseville presents a greatly improved appearance following the lengthening of culverts and removal of unnecessary guard rails.

The commission has approved an allotment of \$5,000 for cooperative work with the Glenn-Colusa Irrigation District in the construction of drainage ditches adjacent to the state highway on the Sacramento Valley westside trunk line.

State forces have begun the grading and surfacing of a mile of state highway at the north end of Lake Tahoe to connect up with the Nevada highway on the east side of the lake.

Construction has been begun by Proctor and Cleghorn on their contract for the construction of a 398-foot bridge across the Truckee River and the Southern Pacific railroad at Polaris, Nevada County, on the Truckee River highway.

Cleaning and painting of bridges across the Sacramento River and Butte Slough on the Oroville-Willows lateral, in Glenn County. Division III, has about been completed by Jenkins and Elton of Sacramento.

Bay Shore Highway Begun.

BEFORE a great concourse of people, including Chairman Harvey M. Toy of the highway commission, Mayor James Rolph of San Francisco, supervisors and others from San Francisco and the peninsula cities, Division IV early in September

celebrated the beginning of construction on the Bay Shore highway when the first earth was moved by D. A. Foley and Company of Los Angeles, contractors. The contract covers grading of the first 5.2 miles.

The concrete pavement on the Beltane-Schellville contract, in Sonoma County, has been completed and opened to traffic as far as Fetters Springs. The entire contract will be completed shortly.

Laying of asphalt concrete surfacing has been begun by contractors Freeman and Whiting on the contract for the widening of the Peninsula highway between Redwood City and San Francisco Creek.

Grading has been completed by contractor W. A. Dontanville, who is widening the highway between Greenville and Livermore, Alameda County. Pouring of "flush" concrete shoulders has been begun.

Coast Unit Completed.

Division V reports the completion of the extension of the Blake and Heaney contract for the grading of a section of the San Simeon-Carmel highway, 2½ miles in length, from the northern San Luis Obispo County line to Salmon Falls, in Monterey County. The same firm had previously completed the grading and surfacing of ten miles south of the San Luis Obispo line. The road literally has been carved from the steep hillsides hundreds of feet above the Pacific Ocean.

A new impressive concrete girder bridge has replaced the old wooden county span over San Lorenzo Creek at the southern city limits of King City, Monterey County. State forces, under the direction of Division V, are now rushing the paving of the approaches. Monterey County and King City are cooperating with the state in meeting the cost of paving the quarter-mile gap in the highway which has existed at this point.

Shoulders Improved.

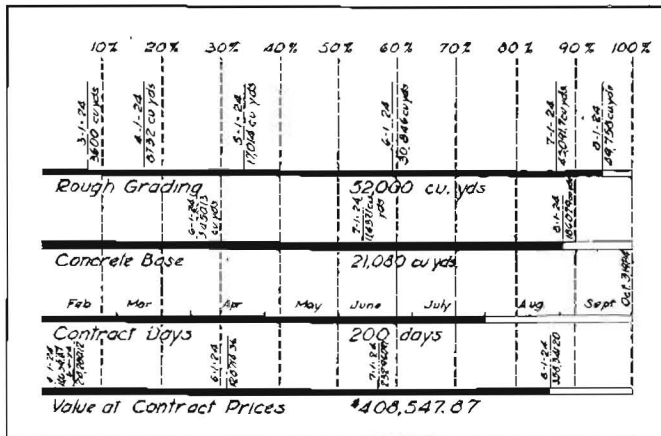
Division VI reports that the sand shoulders along the highway between Tipton and Earlimart, on the San Joaquin Valley trunk line, have been oiled and the cost of pavement maintenance cut down for a distance of fifteen miles.

Cottages for maintenance foremen have been constructed on the recently acquired maintenance station sites at Lemon Cove, Los Baños, and Lost Hills, all in Division VI.

Whittier Paving Rushed.

THE Belvedere Gardens Chamber of Commerce has written a letter to the contractors engaged in widening and thickening the Whittier boulevard, a state highway in Division VII, commending them on the rapid progress of the work. Laying of the concrete base has been completed and placing of the asphalt concrete surfacing is well under way.

Subcontractors have begun pouring concrete on the Huntington Beach-Corona Del Mar contract on the coast boulevard. The work has been begun at the Huntington Beach end of the job.



California Highway Co
Division VII

PROGRESS CHART—Method used by Division Engineer S. V. Cortelyou to keep tab on a big reconstruction job in Los Angeles County.

DIVISION ACTIVITIES

Contractor W. D. McCray has begun operations on the grading job between Corona Del Mar and Laguna Beach on the coast boulevard, recently awarded by the commission.

The bridge over Anaheim Bay, on the same route, built by Orange County has been completed and accepted.

State forces have completed the improvement of alignment on blind curves on six miles of the ridge route, Los Angeles County, and are now at work on a line change through the Callahan Ranch which will eliminate six curves.

The widening and thickening of the Ventura boulevard between the Ventura County line and Camarillo has been completed westerly to the top of the Conejo grade.

On the same route, the Oswald contract between Shoup avenue and the westerly boundary of Los Angeles County is about complete. Concrete paving has been completed and shoulder work is being finished.

Over seven miles of pavement have been completed on the Jahn and Bressi contract for widening and thickening the state highway between San Diego and Oceanside.

Celebration Planned.

Grading operations between the sand hills and the Colorado River, on the Borderland highway, Division VIII, are rapidly nearing completion. A tour over this route as far east as El Paso, Texas, in celebration of the event, is planned by a group of San Diego citizens.

East of the Sierras.

Division IX has completed work planned for the present on the surfacing of Sherwin Hill twenty miles north of Bishop, Inyo County, and the widening of the eight-foot pavement, south of Big Pine, by the use of volcanic cinders.

Borrowed Earth for Shoulders.

ON the Sacramento-McConnell paving job, recently dedicated with a public ceremony at Old Elk Grove, shoulders across adobe sections have been built up with new loam soil "borrowed" and hauled to the highway in trucks. The bridge department still has several bridges under construction.

Surveys and field work for the Jackson-Pine Grove unit of the Alpine highway have been completed and chief of party C. W. Springer and transitman Arthur Wallace have been transferred to the Banta widening and thickening job in San Joaquin County, as assistant resident engineers.

Good progress is reported on the Vacaville-Dixon widening and thickening contract in Solano County. The half mile of second story concrete work over the hill, east of Vacaville, has been sublet by Force and Currigan to Leventon and Heintze, former assistant division engineers in Division III.

Magnesium chloride has been applied to a section of road between Wallace and Burson, in Calaveras County, with good results.

Timber is being prepared for the reconstruction of two bridges over the south fork of the Tuolumne River on the Big Oak Flat road.

Funds have been allotted for the installation of fog signals and the extension of the signal system on the bridge over the Sacramento River at Rio Vista.

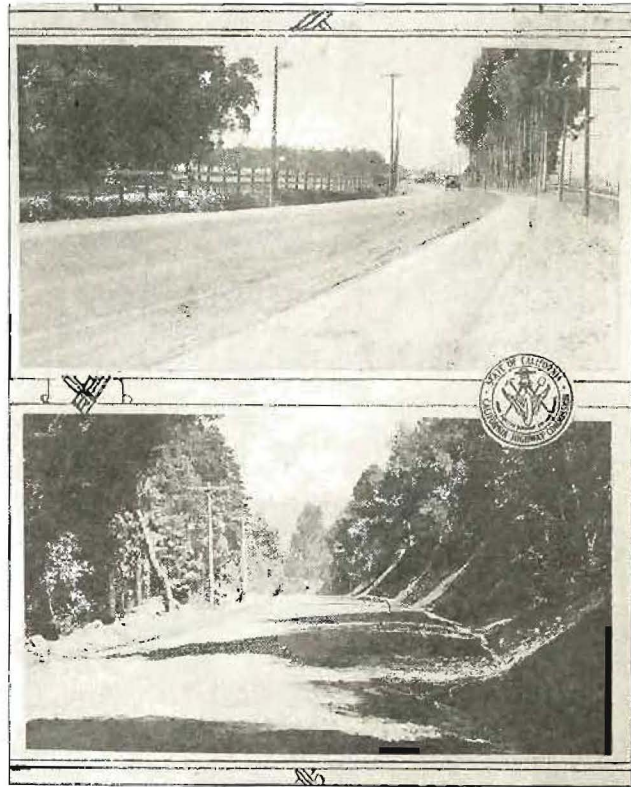
A new concrete structure is being built to replace an obsolete wooden bridge over Monitor Creek and a new top is being placed on the timber bridge over West Carson River, on the state highway in Alpine County.

The famous "joy bump" on the highway between the Stanislaus River and Salida on the San Joaquin Valley trunk line, has been eliminated at a small expense by the maintenance forces of Division X.

INITIATIVE OPPOSED

The Madera County Farm Bureau has gone on record as opposing the initiative measure proposed by the motor transportation interest of the state which will be voted upon by the people at the November election. The bureau asserts that the proposal, if ratified, will take away from the cities and counties the right to license and regulate stage lines and gives nothing in return.

Thirteen



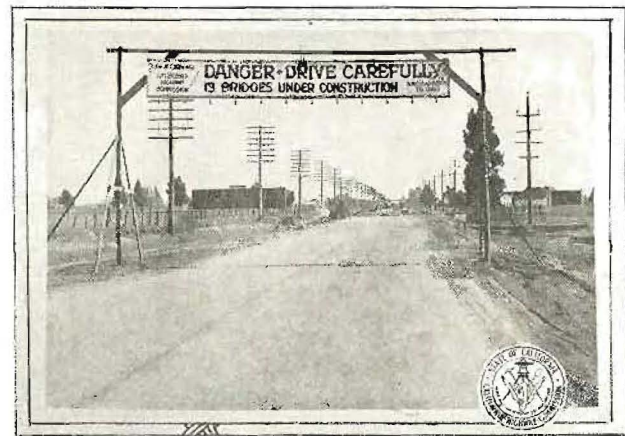
DIVISION IV JOBS—Above, scene on recently widened and thickened section of highway near Milpitas, Santa Clara County; below, road in the California Redwood Park widened by state forces.

DESERVES CREDIT

(From the Placerville Republican.)

ROADMASTER SACKETT, who is in charge of the maintenance of the state highway between this city and Folsom, certainly deserves a great deal of credit for the good work he is doing all along this stretch of road. He is making his maintenance money go just as far as possible and is stretching it so well that every month sees a few more of the curves widened and the roadbed kept in good repair.

Such work as he is doing will do much to help motorists and visitors enjoy their trips along this highway.



Illuminated warning erected on the Sacramento-Stockton road by the Bridge Department.

CALIFORNIA HIGHWAYS

OFFICIAL PUBLICATION OF THE
CALIFORNIA HIGHWAY COMMISSION
 SACRAMENTO, CALIFORNIA

HARVEY M. TOY, Chairman;
 N. T. EDWARDS and LOUIS EVERDING, Commissioners.

ROBERT M. MORTON, State Highway Engineer.

W. F. MIXON, Secretary

We are pleased to permit publication of any of the matter contained herein and this privilege is extended newspapers and periodicals without restrictions.

FRANK B. DURKEE Editor
 P. O. Box 1103, Sacramento, California.

Vol. 1. SEPTEMBER, 1924 No. 9

JUST AMONG OURSELVES



HIGHWAY NEWS NOTES

Harry Pearce Weds.

HARRY J. PEARCE, popular assistant accountant at headquarters, had the honor of being the groom at the first wedding to be solemnized in the new Hotel Senator, Sacramento. His bride was Miss Tessie Colston Krieger of Kentucky and the ceremony was performed on August 26th.

The secret of the coming affair leaked out shortly before it was to occur and Harry's friends in the accounting department tendered him a surprise luncheon and freak shower several days before the wedding. They also presented the happy couple with a handsome floor lamp as a wedding gift.

Mrs. Fay Barrett enjoyed a vacation at Echo Lake and says she caught a great big trout.

Issues Warning.

Purchasing Agent L. R. Smith is taking no chances. His new stenographer is a "Mrs.," who takes the place of Mrs. Carl Almquist, *nee* Miss Judith Younggren. Mrs. Ilo Baumgart recently accepted the position, which was the occasion for a warning by Smith that he will expect a year's notice hereafter when the young women of his well trained staff plan to embark upon the "sea of matrimony."

Mr. Morton on Vacation.

STATE Highway Engineer R. M. Morton and Mrs. Morton, while on a short vacation, motored to Victoria, British Columbia, returning during the latter part of the month.

Others from headquarters who have been on vacations recently include: L. V. Campbell, assistant office engineer, who spent several weeks inspecting state highways in southern California; R. S. Badger, of the maintenance department; and William Bock of the drafting department.

Turns School Teacher.

Mrs. Edith Rolston, for four years clerk in the division office at Dunsmuir, has resigned to accept a position as teacher in the Dunsmuir schools. She has been succeeded by Mrs. Augusta Mitchell of Sacramento.

F. E. Davis, draftsman, was among the Division II force who visited Crater Lake this season.

Lawrence Pierce, draftsman, and Ed Shelton, maintenance foreman, recently scaled Mount Shasta.

Eli Dallas, draftsman, is moving his family to Redding. Mrs. McDell Payne, typist has returned from a vacation in San Francisco.

Earl McNeely Once With Division III.

Earl McNeely, former Sacramento Coast League ball player, now creating a sensation with the Washington club of the American League, is claimed by Division III. He was formerly an engineering assistant in the division. Jim O'Connell, sold by San Francisco to the New York National League club, was a rodman in Division III in 1918. Such is fame.

W. C. McNeely and W. F. Faustman spent their vacations visiting Santa Cruz and other beach resorts. The hunting must have been good as they report having shot several "birdies" and "eagles" while trying out the golf courses.

Other Division III folks who have been on vacations include: F. R. Baker, Mrs. Mary Brown, and Misses Helen Edwards, Garland Taylor, Lucille Steers, and Rose Mulligan.

Mrs. Irma Beardslee, typist, has resigned.

H. R. Church, assistant resident engineer, reported resigned is still with Division III.

George W. Wade, assistant maintenance engineer, has moved into his new home in Heilbron Oaks, Sacramento.

Douglas H. Greeley is constructing a new home in the McKinley Park district.

Division IV Changes.

Niles H. Nelson, resident engineer, and Joseph L. Richmond, assistant resident engineer, has been transferred from the Beltane-Schellville contract to Susanville, in Division II. R. E. Messner, who has been acting as Division IV office engineer, has taken over Mr. Nelson's duties.

Resident Engineer E. J. Brown has been assigned to the asphalt surfacing job between Redwood City and San Francisco on the Peninsula highway, following the completion of the Milpitas-Coyote Creek widening job in Santa Clara County.

Resident Engineer L. C. Winkelman has been assigned to the Bay Shore highway contract.

L. A. Batham, chief draftsman, returned recently from a vacation in Humboldt and Mendocino counties where he is reported to have mysteriously acquired quite an appetite for sweets.

Leaves Division V.

W. L. Judkins, formerly resident engineer in Division V, has purchased interests in a construction company specializing in the laying of a mastic asphaltic floor covering for bridges, etc. He proposes to introduce improvements tried out on several state highway bridges.

Voss to Bakersfield.

T. W. Voss, formerly resident engineer in Division II, has been transferred to the prison road camp job on the Kern River as assistant superintendent.

H. E. Bedford, assistant chief draftsman, Division VI, recently attained the degree of D. A. D. when a daughter arrived at his home in Fresno.

W. B. Reed, maintenance foreman at Coalinga, has resigned.

R. L. Beuthel, Division VI office engineer, motored as far north as Vancouver, British Columbia, during his recent vacation.

Sails for Europe.

J. F. Elwood, Division VII draftsman, sailed recently for an extended visit through England and France. He is expected to know all about European roads when he gets back.

Arnold Richardson, assistant resident engineer, has resigned to accept a position with the Los Angeles city engineering department.

George Mack, formerly with Division II, is now assistant resident engineer at Capistrano, Division VII.

L. R. McNeely, assistant resident engineer, has been assigned to the Whittier boulevard paving contract.

J. B. Hodges has completed his work as resident engineer on the Anaheim Bay bridge and has been assigned to the McCray grading contract between Corona Del Mar and Laguna Beach, on the coast boulevard, Orange County.

R. L. Young and H. S. Payson, of Division VIII, have been loaned to Division VII, to supervise the laying of asphaltic concrete surfacing on the Whittier boulevard contract.

A. D. Griffin, resident engineer on the Hauser contract in Ventura County, is the proud daddy of a son.

SMILEWAYS

The Least She Could Do.

Nurse—"So you're the young lady who was with him when the automobile turned over?"

She—"Yes, I thought the least I could do was to give him that kiss he was trying to get."

Grade crossings seem to be abolishing people faster than the people are abolishing grade crossings.

"What's a zebra, father?" "A sport model jackass, my son."—*Farm Life.*

A Current Joke.

A chap was arrested for assault and battery and brought before the judge

Judge to prisoner: "What is your name, your occupation and what are you charged with?"

Prisoner: "My name is Sparks, I am an electrician and I am charged with battery."

Judge (after recovering his equilibrium): "Officer, put this guy in a dry cell."—*Georgia Highways.*

Put It Over.

We may
Look it over,
Think it over,
Read it over,
Talk it over,

But we shall be judged entirely by our ability to put it over.

Reason to Scratch.

Captain—"Sam, why do you scratch your head so hard?"

Sam—"Why, I got dem rithmetic bugs in this man's army."

Captain—"They're called cooties, why do you call them arithmetic bugs?"

Sam—"Well, sir, dey add to my discomfort, subtract from my pleasures, divide my attention and multiply like the dickens."

A congressman once declared in an address to the house:

"As Daniel Webster says in his great dictionary—"

"It was Noah who wrote the dictionary," whispered a colleague, who sat close by.

"Noah, nothing," replied the speaker. "Noah built the ark."

How Much a Yard?

Mrs. B was almost speechless as she beheld the Grand Canyon. "Isn't it wonderful?" she gasped.

"I'll say so," responded Mr. B, the well-known contractor. "Boy, oh boy, that was some excavating job!"

Even our most law-abiding citizens believe in second-story work when it comes to pavements.—*Motor Land.*

Must Have Been Los Angeles.

Irate Wife—"John, you've kept dinner waiting."

Meek Husband—"Yes, dear, but I had to walk to where my car was parked tonight, there wasn't a taxi in sight."

Don't envy the traveler. The home billboards are equal to those he sees.

And No Damages.

Mr. Peck—"What a wonderful view!"

Mrs. Peck—"You keep your eyes on the road, Henry! You can get that view on a post card for five cents."—*Judge.*

He Knew.

At a lecture, the speaker orated fervently: "He drove straight to his goal. He looked neither to the right nor to the left, but pressed forward, moved by a definite purpose. Neither friend nor foe could delay him, nor turn him from his course. All who crossed his path did so at their own peril. What would you call such a man?"

"A truck driver!" shouted a voice from the audience.

C. F. Heintze, formerly assistant division engineer in Division III, and now a contractor on state work, shows that he has a proper sense of humor when he tells this story on himself.

It seems that two state inspectors reported on the job of concrete paving he was about to start.

"Hello George, Hello Leslie," said Heintze. "I remember you when we worked in Division III together. By the way I always treated you pretty well didn't I?"

Silence reigned for a moment and then Leslie spoke up, "Well, I don't know about that—my memory of you sitting behind your desk was that you were thinking 'Shall I keep him or fire him?'"

HIGHWAY NEWS NOTES

Sad Death in Division VIII.

A. Achtert, 53, assistant resident engineer in the employ of the California Highway Commission for a number of years, died recently while on duty on the Sand Hills-Yuma grading contract in the Imperial Valley, Division VIII. He is survived by a widow and three children residing in Napa. He was well liked in the division and was always faithful in the performance of his duties.

Division Engineer E. Q. Sullivan announces that W. D. Darling has been promoted to general maintenance foreman for those sections of the highway north and west of Whitewater River, Riverside County. E. M. Maurer has been promoted to a similar position for the territory south and east of Whitewater. Darling was formerly street superintendent for the city of Riverside.

Other changes in maintenance foremen in Division VIII are announced as follows:

W. L. Tatspauh transferred from Amboy to Waterman Canyon; C. W. Hunt transferred from Newberry Springs to Fawn-skin; S. Billger from Goffs to Newberry; and Geothe Diaselliss appointed maintenance foreman at Amboy.

Miss Della Bittke, assistant cashier, has returned from a visit to her former home in Chicago.

W. D. Cook has been transferred from the Sacramento headquarters to Division VIII where he will be in charge of the new division shops and equipment.

Somner With Committee.

Division Engineer F. G. Somner accompanied the Committee of Nine on its recent tour through Division IX.

Division X Items.

W. K. Wright, assistant division engineer, Division X, took a forced leave of absence recently when his residence was quarantined due to the illness of Mrs. Wright. She is reported recovering.

George Ullom, assistant resident engineer on the Sacramento-McConnell paving contract, is now with Resident Engineer H. O. Ragan at Vacaville.

J. W. Cole, field draftsman with the Jackson-Pine Grove location party, also has been transferred to the Vacaville widening and thickening job.

Joe Farrell has been transferred from the Sacramento to McConnell contract to assist resident engineer C. O. Dingle on the Tracy widening and thickening contract.

Milliken in South.

Ben H. Milliken, superintendent of prison road camps, spent several days recently in southern California studying methods employed by Los Angeles County in the use of county prisoners in road construction work in the San Gabriel Mountains. The trip gave him opportunity to accept a number of invitations to address luncheon clubs and other organizations in the south on the use of convict labor by the California Highway Commission.

Fred Seymour, assistant to Ben Milliken, returned recently from a vacation enjoyed in San Diego.

CONSTRUCTION ACTIVITIES IN CALIFORNIA NATIONAL FORESTS



THE PICTURES—1, typical forest service bridge across small stream; 2, trail in the Angeles Forest; 3, a road in the Plumas Forest; 4 and 6, bridges spanning the Klamath River; 5 and 8, on the Mount Wilson Trail; 7, construction scene in the California Forest; 9, a view on the Yuba Pass highway; 10, a forest road near Echo Lake, in the El Dorado Forest.

CALIFORNIA STATE PRINTING OFFICE
 FRANK J. SMITH, Superintendent
 SACRAMENTO, 1924