

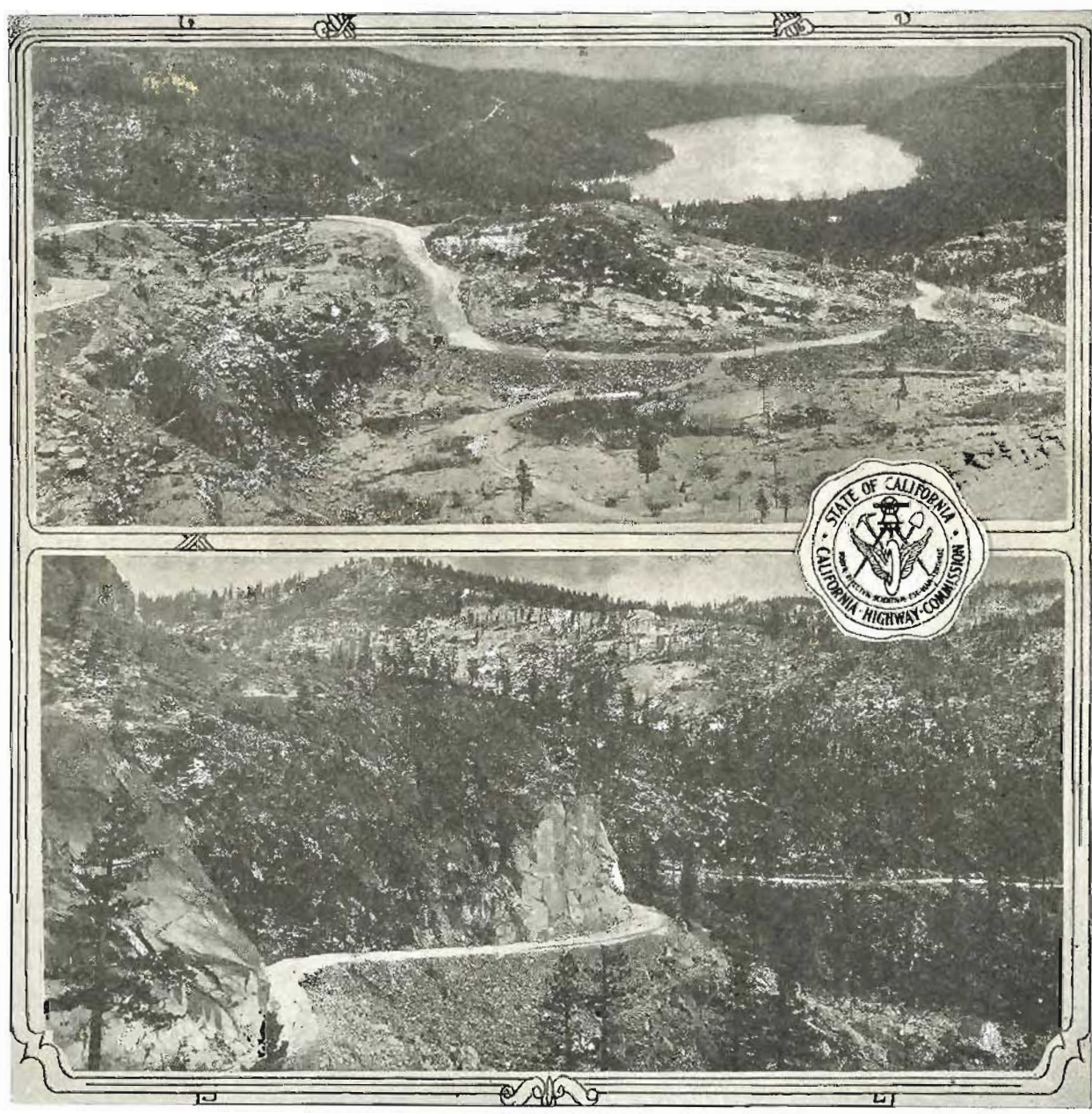
CALIFORNIA HIGHWAYS

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CONQUERING THE HISTORIC DONNER SUMMIT—View of the recently completed grade from Donner Lake over Donner Summit. Above, the new seven per cent grade climbing up from Donner Lake (in background). The old road is in the center of the picture and the dotted lines (at the left) indicate the location of a bridge which is yet to be constructed on the new grade. Below another view of the new roadway which replaces an 18 per cent grade. The new section is a part of the trunk line connection with Nevada on the Victory highway. See article on page five.

In this issue: KEEPING TRAFFIC MOVING ON THE REDWOOD HIGHWAY.

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TABLE OF CONTENTS

The New Donner Grade.....	FRONT COVER
Roster of the Department.....	Page 2
Recent Changes in the Accounting System.....	Page 3
By HERMAN B. WEAVER, Chief Accountant	
California's Most Costly State Highway.....	Page 4
New Highway Ends Terrors of Donner Grade.....	Page 5
Keeping Traffic Moving on the Redwood Highway.....	Page 6
By L. D. PACKARD, Assistant Engineer, Bridge Department	
Accurate Proportioning Plant for Concrete Aggregate.....	Page 8
By W. D. EATON, Resident Engineer	
Something Different in Final Cross Sectioning.....	Page 9
By F. W. HASELWOOD, Acting Division Engineer	
Difficult Big Sur Contract Completed.....	Page 10
By L. H. GIBSON, Division Engineer, San Luis Obispo	
What the Divisions Are Doing.....	Pages 12 and 13
Division Four Tries New Crossing Warning.....	Page 14
By HARRY SCHREIBER, Maintenance Superintendent, Division IV	
"Just Among Ourselves".....	Page 15
Map of Federal Aid Highway System.....	BACK COVER

Recent Changes in the Accounting System

By HERMAN B. WEAVER, Chief Accountant.

DURING the year 1924, a number of important changes have been made in the accounting system of the California Highway Commission looking to its efficiency and simplification. This article is a brief description of these changes and the general plan under which the accounting department functions.



HERMAN B. WEAVER

that the work is handled in the proper manner.

The passing of invoices, formerly done at the central office, is now handled by the divisions, thus making available to the divisions, at earlier dates, information in regard to expenditures.

Closer supervision of the work of the various divisions also has been accomplished by establishing the position of traveling accountant, who makes regular trips to the division offices for the purpose of giving instructions and seeing

Costs Data by Sections.

The highways of the state are identified by routes between given points, which routes are numbered. Each route passing through a county is segregated therein into sections, which sections are designated by letters. One of the changes has been to have all the charges for each section accumulated in one place so that when a section of the road was under consideration, reference could be made to the records and full data obtained as to the cost of its construction.

The work of the California Highway Commission has advanced very rapidly, expenditures jumping from about \$3,000,000 in 1917, to \$18,000,000 in 1922, and \$16,000,000 in 1923. During the same period, the accounting work has increased much more rapidly, due to the fact that additional new work has been assigned to the department, the

principal items being the accounting for the federal aid and for the large amount of surplus war equipment received from the national government.

Public Funds Guarded.

As all expenditures made by the California Highway Commission are from public funds, every precaution is taken to see that the expenditures are properly made and that the goods or service has actually been received.

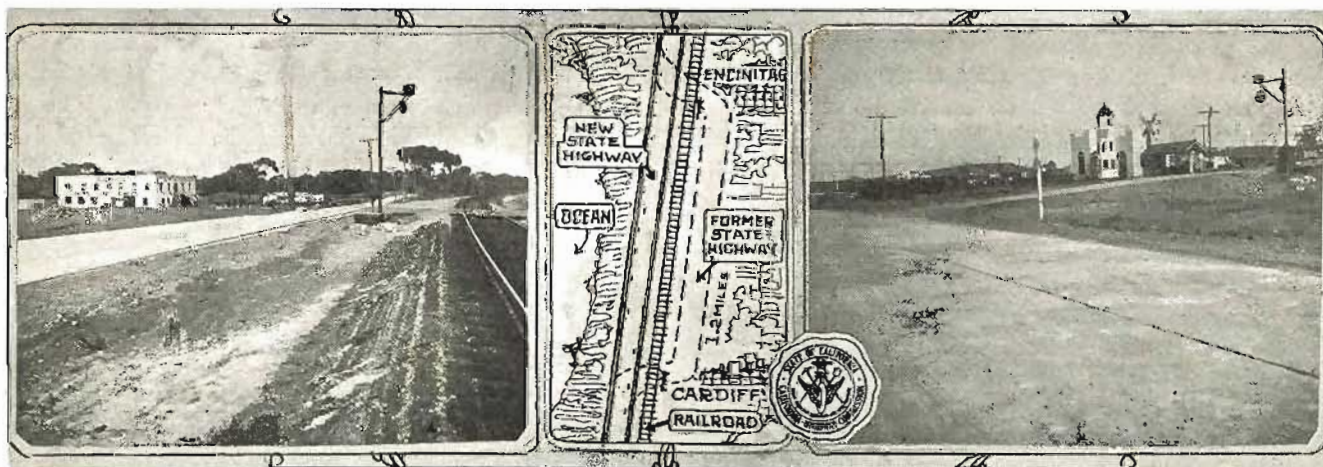
The expenditures of the Commission may be classified under four main headings, as follows: (1) contract payments; (2) salaries and wages; (3) traveling and incidental expenses of employees; (4) purchases of material, equipment, and supplies.

These classes of expenditures are handled in the following manner:

CONTRACT PAYMENTS—Contract payments are based on estimates made by the resident engineer on the job. These estimates are prepared monthly or semimonthly by the division engineer in whose division the work is located. They are then forwarded to central office where they are checked by the Engineering Department and passed to the Accounting Department where they are combined in schedules; these schedules are handled in the same manner as schedules described below under the heading "Purchases."

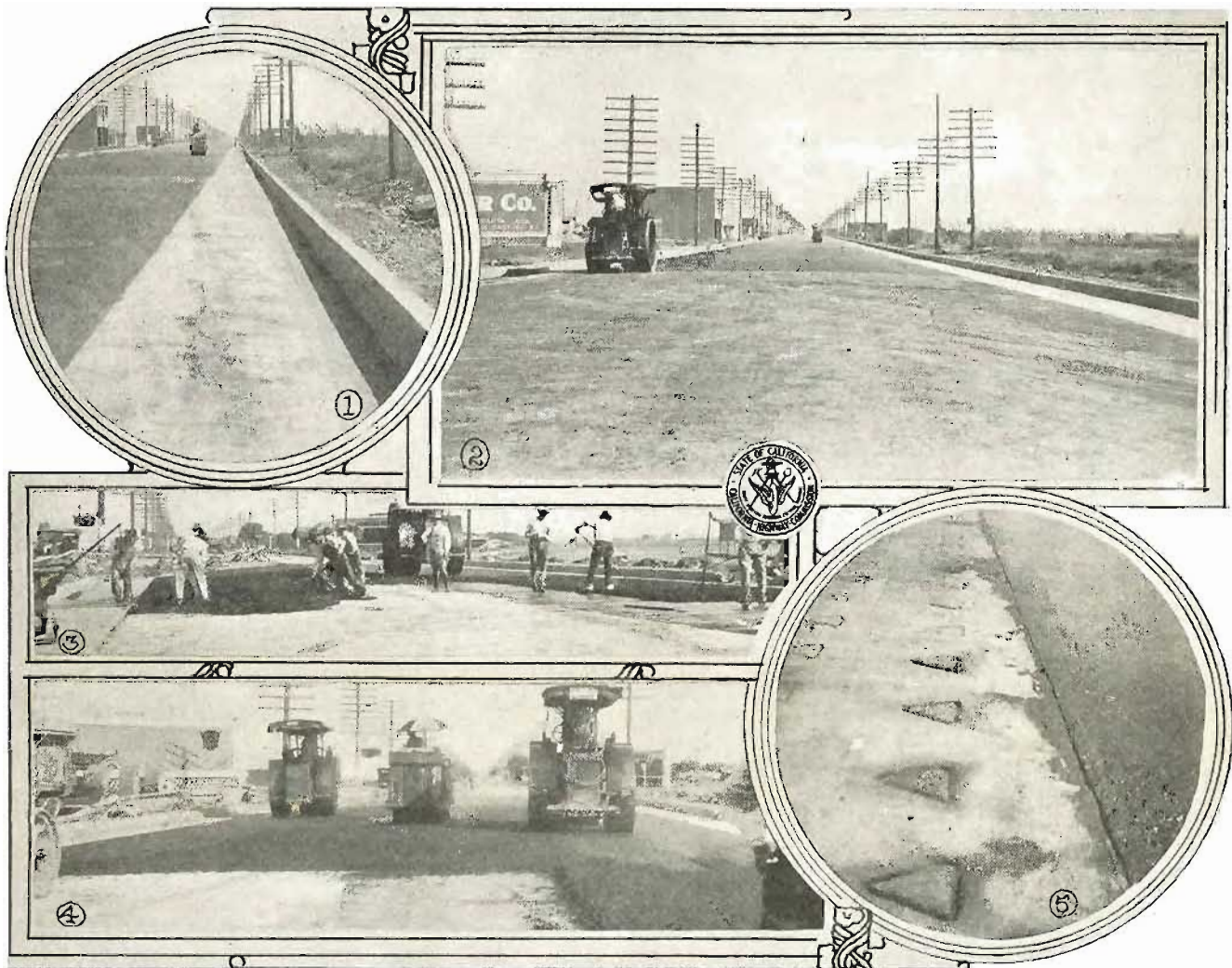
SALARIES AND WAGES—Pay rolls are prepared monthly at headquarters and in each division for the staff employees and weekly in each division for laborers and other employees on day labor work. When the pay rolls reach headquarters, they are also combined in schedules which are passed for payment. The employees carried on the weekly pay rolls are paid one week after the wages are earned, from a revolving

(Continued on page 5.)



CROSSINGS ELIMINATED IN SAN DIEGO COUNTY—The two Santa Fe railroad crossings eliminated by a relocation of the highway and railroad tracks in San Diego County. The old highway was abandoned between Encinitas and Cardiff, and the railroad moved over to provide a roadway for the new pavement along the ocean front. The new pavement is twenty feet wide.—A gas tax job. (Division VII.)

CALIFORNIA'S MOST COSTLY STATE HIGHWAY



FIGHTING TRAFFIC CONGESTION—Views on the reconstructed Whittier boulevard in Los Angeles County (Pasadena Avenue to Montebello) 56 feet wide; (1) the concrete curb and gutter, six feet wide seven inches thick; (2) the completed pavement, seven-inch concrete base and two-inch asphalt concrete wearing surface; (3) and (4) placing and rolling the asphalt surface; (5) methods used to bind asphalt surface; right, state contract using an asphalt paint; left, county contract using roughened concrete base—a gas tax job. (Division VII.)

THE answer of the Highway Commission to the tremendous traffic problem of the territory about the city of Los Angeles is California's most costly state highway, a fifty-six-foot street, approximately three miles of which have been completed on the Whittier Boulevard in Los Angeles County. Specifically, the construction extends from Pasadena Avenue to Montebello.

Half of the pavement was constructed by Los Angeles County and financed by the county and a special road improvement district, and the other half was built and paid for by the state with gasoline tax and motor vehicle revenues. The two jobs were awarded to the same contractor, George H. Oswald, and were carried on simultaneously.

The new highway has six-foot gutters and curbs built of concrete seven inches thick. The forty-four feet of pavement has a seven-inch concrete base laid upon four inches of rock macadam and disintegrated granite. A two-inch asphalt concrete wearing surface was applied, making the total thickness of the pavement nine inches.

Slight Difference in Plans.

Methods of construction employed by the county and the state were the same except for the method of binding the asphaltic wearing surface to the concrete base. The state finished the concrete smooth and applied a coat of asphaltic paint as a binder, while the county, after finishing the concrete, artificially roughened it with a tamper provided with lugs.

The cost of the state's half was approximately \$74,000 per mile and the cost to the county was about the same, making the total cost of the highway in the neighborhood of \$150,000 per mile.

The new highway provides a brand new "Main Street" for the town of Belvedere Gardens, a rapidly growing community of the Southland. Its main purpose, however, is to care for the increasingly heavy traffic, including a large number of commercial vehicles, between Los Angeles, Whittier, and Orange County cities.

NEW HIGHWAY ENDS TERRORS OF DONNER GRADE

THE steep grades and circuitous alignment of the road descending the eastern slope of the Sierra in Nevada County, a danger and annoyance to travel since the days of the fated Donner party, have at last given away to the determined assault of the road builder.

The acceptance by the California Highway Commission of the 3.32 miles of grading from Donner Summit easterly to Donner Lake recalls the struggles of the revered pioneers who blazed the first trails into California, and marks an important step forward in the progress of California highway construction.

A roadway averaging twenty-four to twenty-six feet in width, wider on the turns, of improved alignment and on a maximum 7 per cent grade, has taken the place of the old road with its 18 per cent grades, and sharp and narrow turns. Much of the new roadway is through solid granite, and its completion involved some of the most difficult construction in California.

Full Use Awaits Bridge.

With the exception of about half a mile near the summit, the road is now ready for traffic. This half mile will not be available until the completion of a 200-foot bridge across a deep ravine and the completion of 3.7 miles of road now under construction by the United States Bureau of Public Roads with forest highway funds. This contract extends from the summit westerly to Soda Springs.

The old grade from the summit to Donner Lake always has been a dreaded ordeal for traffic to and from Lake Tahoe or Nevada and eastern points. Its elimination is one of the important improvements accomplished in the construction of the main trunk line to the Nevada border. When the proposed bridge is completed a dangerous subway under the

tracks of the Southern Pacific will be eliminated. The new road is located on the sunny side of the mountain which means its use for a longer period each year.

The new state highway is the third road to be built over the Donner Summit since the days when the emigrants took their wagons apart and drew them up over the cliffs with ropes. The first rough trail was replaced by a road with somewhat better grades, but on the shady side of the mountain. This, in turn, is now replaced by a wide, modern highway with easy grades and good alignment. It reveals unexcelled vistas of rugged mountains and, below, beautiful Donner Lake nestles like a jewel in a magnificent setting.

Few Jobs More Difficult.

The Donner Summit contract for grading and draining structures was awarded to J. Wilmshurst and Theo. Manetas, January 4, 1923. Work was begun in March, 1923, and was discontinued in December on account of winter snows. Progress was slow on account of the difficulty of breaking up and disposing of the hard granite through which all of the road is built. Few road jobs in the state have proved more difficult. The work was completed October 25, 1924.

As completed by the contractors, the roadway is composed entirely of broken rock. To make it travelable, it has been covered with disintegrated granite which will serve as a filler for the base upon which a future rock surfacing will be placed.

The location of the road and the major part of the construction was under the direction of former Division Engineer G. R. Winslow of Division III. J. W. Vickrey was both locating and resident engineer on the project.

CHANGES IN ACCOUNTING

(Continued from page 3.)

fund provided for that purpose. The staff pay roll employees are not paid until after warrant is received from the Controller, sometime after the first of the month.

TRAVELING EXPENSES—Under this head are included traveling expenses of employees and small contingent items, the accounts for which are prepared by the employees who incur the expenses and from time to time these accounts are assembled in schedules and the schedules take the regular course. In some cases, to avoid inconvenience or unnecessary hardship on the employee, advance payment is made from the revolving fund.

PURCHASES—As far as possible, all purchases are made through Headquarters Purchasing Department, the authority of the division engineers to make purchases being confined to emergency transactions which are necessary to avoid delay to the work and to service and commodities which can be obtained locally to better advantage. Purchases are made at headquarters upon requisition from the division or department requiring the goods.

It has been the policy of the Commission to advance no bills for payment until the goods have been received in satis-

factory condition and a regular channel of audit has been established to insure this. Under this policy, after satisfactory quotations have been secured by the purchasing agent, a purchase order is issued to the vendor setting forth the quantity, description and price of the goods desired and giving shipping instructions for their delivery.

The original of this order is sent to the vendor, two copies are sent to the division office which in turn forwards one copy to the employee in the field to whom the goods are to be shipped and the fourth copy is retained at headquarters for the files of the Accounting Department.

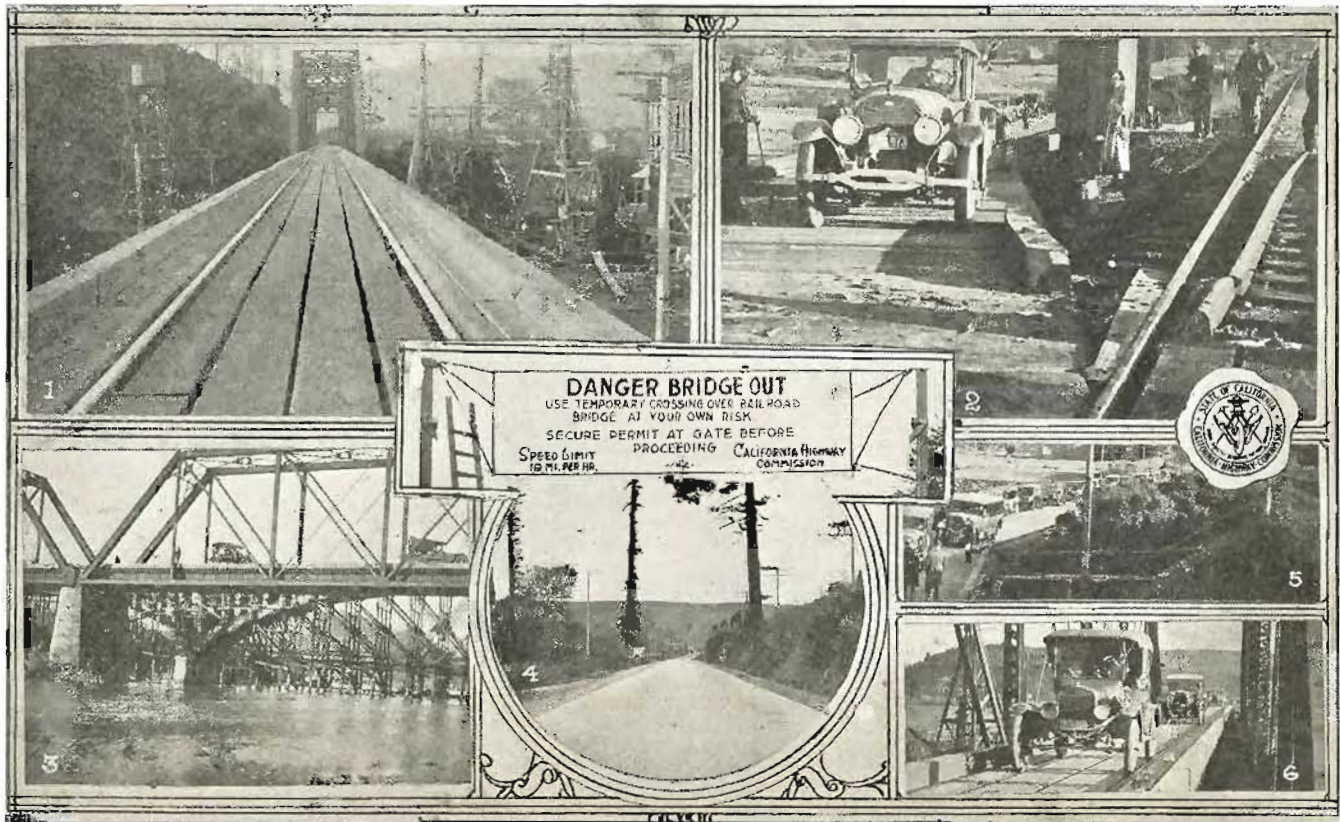
All Goods Carefully Checked.

Upon receipt of the goods they are carefully checked against the purchase order, both for quantity and quality, and a "receiving record" showing the receipt and condition of the goods is made up and forwarded to the division office.

In the meantime, the invoices (in triplicate) for the goods have been forwarded by the vendor to the division offices. These invoices are then checked against the purchase order and receiving record and appropriate accounting references and other data necessary for the proper segregation of the expenditures is noted thereon. These invoices are then grouped by funds and listed on "claim schedules" made up in quadruplicate. The original and duplicate copies of the

(Continued on page 7.)

KEEPING TRAFFIC MOVING ON THE REDWOOD HIGHWAY



KEEPING THE REDWOOD HIGHWAY OPEN IN FLOOD TIME—Scenes at the Van Duzen River, near Alton, Humboldt County, where a temporary crossing was swept away during recent floods. (1) Northwestern Pacific railroad bridge planked as an emergency crossing until the new bridge (at right) is finished; (2) Commissioner Louis Everding in his Lincoln, going up the approach to the railroad bridge, the first car over after the blockade was lifted; (3) machines crossing the railroad bridge; (4) large warning sign erected by the bridge department; (5) cars waiting to cross the bridge; (6) machines passing over the railroad structure. (Division I.) (Photos by Bridge Department.)

By L. D. PACKARD, Assistant Engineer, Bridge Department.

HOW the bridge department met a situation on the Redwood highway, in Humboldt County, caused by the biggest storm since 1876, should prove of interest to the readers of CALIFORNIA HIGHWAYS.

Near Alton, the department has under construction a reinforced concrete bridge across the Van Duzen River parallel to a bridge of the Northwestern Pacific Railroad. During the summer traffic was handled over a temporary structure and it had been hoped that the new bridge might be finished before the season of high water.

Prior to October 25th last, the Van Duzen River was practically dry. On that day it began raining, and early on the morning of October 28th, the detour bridge went out. Traffic was then routed over a county bridge which was washed away that afternoon.

This possibility had been foreseen by the bridge department, and an application was then pending with the railroad company for permission to use its bridge in case of emergency.

Commissioner Aids Engineer.

When the highway was closed to traffic because of the floods, Commissioner Louis Everding of Arcata made a personal appeal to the railroad officials and permission to floor the railroad bridge was received by bridge department engi-

neers on the ground at 11 a.m., October 29th. The first truck load of lumber reached the site at 1 p.m. the same afternoon and a force of twenty-five men immediately began planking the railroad structure and construction of necessary approaches.

In the flooring of the railroad bridge, 55,000 feet of lumber was used and another 10,000 feet went into the two approaches. Two hundred cubic yards of grading also was done and 2500 feet of electric wire strung for the lighting of the bridge and the illumination of two large signs erected as traffic warnings. Approximately 1000 feet of the railroad bridge was floored.

Traffic had been held up less than four days when Commissioner Everding drove his Lincoln across the railroad bridge at 8.10 a.m., November 1st, the first car to cross.

Gates have been placed at the approaches and watchmen in the employ of the railroad and deputy sheriffs are on duty at all times to handle traffic. Temporary semaphore signals for the enginemen also have been installed.

Assistance Appreciated.

Members of the highway commission personally signed waivers releasing the railroad company from all liability in order that the bridge might be used and traffic accommo-

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ACCOUNTING SYSTEM

(Continued from page 5.)

claim schedule, with the original and duplicate copies of the bills attached, together with triplicate copy of the schedule without attachments, are forwarded to headquarters. The fourth copy of the claim schedule, with the triplicate copies of the invoices attached, is retained in the division for its information.

When the claim schedules are received at headquarters, they are audited in the Accounting Department and approved by the State Highway Engineer (or assistant) and by the auditing committee of the commission. The original is then filed with the State Board of Control, the duplicate being retained by the Accounting Department. Like all other claims against the state, the highway claims go through a final checking and auditing by the Board of Control and, with its approval affixed, are advanced to the State Controller, who draws one warrant in favor of the disbursing officer of the commission for the total amount of the schedule.

Method of Payment.

Upon receipt of this warrant, the disbursing officer deposits it to the credit of the commission in one of the several Sacramento banks and the Accounting Department then draws checks in favor of the several parties whose claims were listed on the schedule.

These checks are signed by the secretary as the disbursing officer of the commission, and are countersigned by the State Highway Engineer or the chief accountant.

Transactions covering purchases made by the divisions are

handled in the same manner, except that the purchase order is issued by the division engineer.

Schedules covering contract payments, salaries and wages and traveling expenses, are handled the same as schedules covering invoices, excepting that the schedules covering pay rolls are passed to the Civil Service Commission for checking before being filed with the Board of Control.

To a limited extent, advance payments are made from the division revolving funds for team hire, board and purchases, when the vendors are unable to extend credit. Such items are included in division revolving fund accounts which are sent to headquarters to be scheduled.

No Exception to Rule.

There is one exception to the rule that bills are not paid until the goods are received; on cement purchases, the cash discount is considerable and a check of the goods can be made without trouble. These bills are passed for payment as soon as received and an additional record is kept to see that the cement is afterwards received.

The system above described is simple of administration and is no more burdensome than is necessary in the expenditure of public funds. It results, however, in some delay in paying bills as the work of the commission is scattered all over the entire state and much of it is performed a considerable distance from the railroad stations at which the goods are received.

In handling the work of the department, the writer has been ably assisted by Assistant Chief Accountant Harry J. Pearce, who has occupied the position for the last three years. Carl M. Smith, formerly chief clerk of Division III, is the traveling accountant.

KEEPING TRAFFIC MOVING

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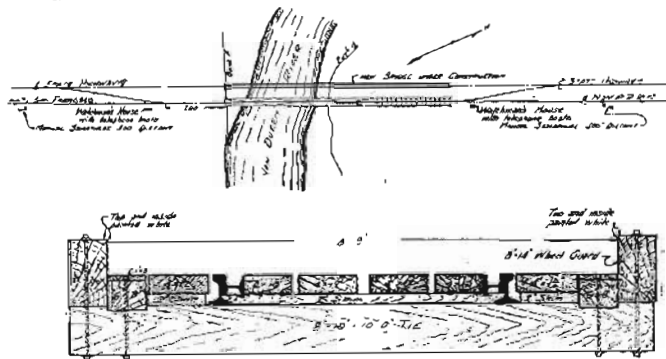
dated. In turn, those using the bridge are required to sign a waiver in favor of the commission and the state.

The bridge department wishes to express its appreciation of the generous assistance given by Commissioner Everding, whose wide acquaintance in the community brought instant compliance with every request for help or materials. Thanks also are due officials of the Northwestern Pacific Company for their decision to permit use of the bridge, to the Mercer-Fraser Company for the expeditious manner in which the work was done, and to the Pacific Lumber Company for rapid delivery of lumber. Resident Engineer Albert A. Lernhart worked night and day in an effort to cope with the unusual situation and serve the public.

A single track pile bridge is now being driven across the Van Duzen and use of the railroad bridge will be discontinued when this has been completed. The flooring, however, will not be removed until the new highway bridge is

completed and opened to traffic.

At its meeting in San Francisco November 15th, the highway commission adopted a resolution thanking the railroad company for its action in permitting the use of the railroad bridge at Van Duzen.



Sketch showing construction details of temporary floor placed on Northwestern Pacific railroad bridge at the Van Duzen River, Humboldt County.

FROM DISTANT LANDS.

Two distant lands recently have sent representatives to investigate California state highways. Mamerto Cruz, engineer of the Bureau of Public Works, Manila, Philippine Islands, and Mohammed Raffai, an engineer from Egypt, recently went over work in Division VI, escorted by Division Engineer J. B. Woodson. They were particularly interested in the prison road camps.

Seven

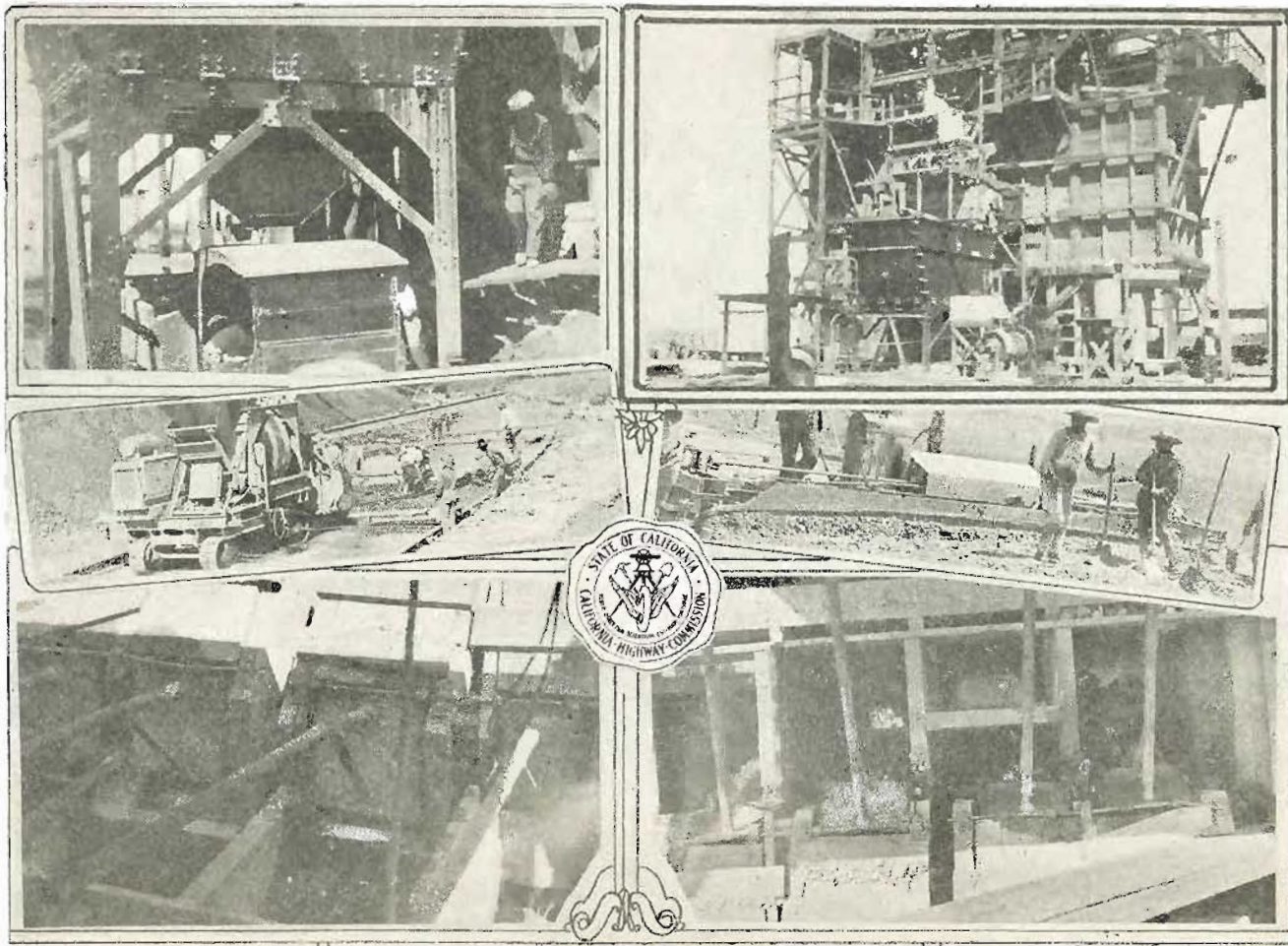
Saves Time, Anyway.

Brown—"Since I bought a car I don't have to walk to the bank to make any deposits."

Black—"Ah, you ride there?"

Brown—"No, I don't make any."

There are a lot of families in America so poor that they have only one automobile to their name.—*American Lumberman*.



WIDENING THE VENTURA BOULEVARD—Upper right, bunkers of the rock company furnishing materials for paving operations; upper left, loading compartment dumping from storage bin through adjustable batch box; left center, paver loading batch just received from dump truck; right center, mechanical surfacer used to spread and tamp concrete received from mixer; below, measuring boxes for proper proportioning of coarse aggregate from various size screens. (Photos by Division VII.)

VENTURA BOULEVARD JOB HAS ACCURATE PROPORTIONING PLANT FOR CONCRETE AGGREGATE

By W. D. EAVON, Resident Engineer.

WIDENING and thickening of the state highway between the southerly county boundary and Camarillo, Ventura County, on the trunk line between Los Angeles and Ventura, has just been completed and a greatly improved roadway is the result.

The old grade was widened to thirty feet, and a twenty-foot cement concrete slab, reinforced at the edges with wire mesh, was placed over the old fifteen-foot pavement. Curves of less than 300-foot radius were widened and replaced with curves of greater radius, and where the old fifteen-foot pavement was in good condition it was widened to twenty feet for a distance of about two and a half miles on the Camarillo end of the job with a two and one-half-foot concrete shoulder on each side.

Plan of Operation.

The fine and coarse aggregates for concrete were obtained from the Saticoy plant of the Orange County Rock Company and were hauled direct from the plant to the concrete mixer by trucks, the dump bodies of which were divided into four compartments, each holding a batch for the mixer.

As the trucks loaded with sand and rock passed through Camarillo, they received cement in sacks, direct from the cars, in the proper number for each batch of aggregate. A distinct advantage was thus gained, as materials were handled but once from the source of supply to the mixer. The number of dump trucks in use varied from sixteen to forty-three, the average haul being about twenty miles.

At the start, considerable difficulty was encountered in getting the grading of coarse aggregate to conform to the specifications. This condition, however, was overcome by the construction, at the plant, of a set of four measuring boxes for different sizes of rock, the size of each box being determined by screen tests of the aggregate taken from each individual screen. The total capacity of these proportioning boxes was equal to the number of cubic feet of coarse aggregate used in the batch.

Contents of the proportioning boxes were thoroughly mixed by discharging through a specially designed opening into a storage bin, the capacity of which was about four

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PROPORTIONING PLANT

batches. From the storage bin the coarse aggregate was drawn into an adjustable measuring box set to hold the correct number of cubic feet for each batch, and then discharged into the trucks.

Accurate Measure Assured.

The fine aggregate was drawn directly from the bunker into an adjustable measuring box and discharged into the trucks.

The method employed gave an accurate measure of both the fine and coarse aggregate, the rock being properly graded by measure to conform to specifications.

A 21-E Multifoot paver was used to mix the concrete and the consistent daily run was about 500 lineal feet of twenty-foot pavement. An Ord surfacer handled the concrete after it had been deposited by the mixer.

Steel headers were used throughout the job. They proved satisfactory, were easy to place and to remove and relay.

Sam Hunter, of Santa Barbara, was the contractor on the job.

SEVERE SENTENCES POSSIBLE FOR ESCAPES FROM PRISON ROAD CAMPS

ACCORDING to an opinion of Attorney General U. S. Webb, the State Board of Prison Directors may fix sentences of one year to life imprisonment upon prisoners escaping or attempting to escape from prison road camps. Prison Director Thomas M. Gannon has informed the highway commission that the Board of Prison Directors will take advantage of the ruling.

For some time past, escapes from the road camps have been sentenced under section 106 of the Penal Code, enacted in 1921, which provides a penalty of one to five years imprisonment. Section 105 of the code provides a penalty of one year to life for escaping from state prison authorities.

The opinion of the Attorney General holds that there is no difference between escaping from the prison proper and escaping from the prison authorities outside the prison. Men in the road camps of the highway commission are under the discipline of guards from the prisons.

The repeal of section 106 of the Penal Code may be asked of the next legislature.

In fixing final sentence of men convicted of escaping from the road camps, the Board of Prison Directors, Director Gannon announces, will be governed by the circumstances of each case.

The highway department is now engaged in the compilation of the biennial report for the period ending June 30, 1924. It will be filed with the Governor in the near future.

The Highway Education Board, Washington, D. C., announces the distribution of \$6,500 among the school children of the United States for the best essays on the solution of the traffic problem.

Not Well Planted.

"But whose fault is it," demands a writer, "if a pedestrian gets run over the second time?" Speaking off hand, we should say the undertaker's. —*Automobile Bulletin.*

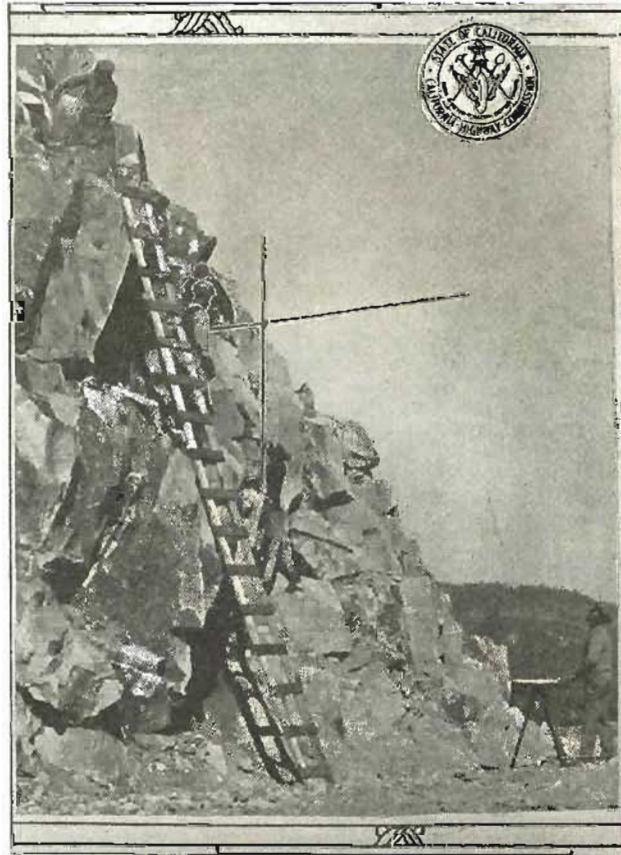
SOMETHING DIFFERENT IN FINAL CROSS SECTIONING

By F. W. HASELWOOD, Acting Division Engineer.

FINAL measurement of excavation quantities on the grading contract from Donner Summit to Donner Lake (Contract 419, Nev. 37-C), recently was completed. As will be seen from the accompanying illustration, the field work in connection with these measurements involved considerable difficulty.

To eliminate the usual trouble encountered when final sections are platted and do not close with the original ground, the platting was done in the field as the elevations were taken. A drawing board was attached to a tripod and the cross section sheets were fastened to this board. Any failure of the section to close was noted at once and the cause, whether in the original or final sections, was ascertained and corrected. By this means, frequent trips to the field to check the notes were avoided and the cost of the work materially reduced.

The plan was suggested by J. W. Vickrey, resident engineer, and was carried out under his direction.



FINAL CROSS SECTIONING—Methods used on the Donner Summit contract to make the final measurement in the field of excavation quantities. (Division III.)

Popular Way to Get Chickens.

Wife—"Henry, dear, we must have a couple of chickens for dinner."

Hubby—"All right; I'll take a spin in the car."

Road hogs are motorists who put on speed every time you try to get in front of them.—*Toronto Star.*



THE POLLOCK CONTRACT ON THE MONTEREY COAST—Views on the recently completed Pollock contract south of the Big Sur River, Carmel-San Simeon highway, Monterey County; (1) the completed grade high above the breakers of the Pacific; (2) Redwoods near the Big Sur; (3) a blast at Grimes Point; (4) the great cloud of dust and rock settling over the ocean; (5) another view of the completed grade and the Coast line below; (6) troubles of the contractor, a power shovel wrecked by a slide. (Division V.)

DIFFICULT BIG SUR CONTRACT COMPLETED

By L. H. Gibson, Division Engineer, San Luis Obispo.

THE extremely heavy grading and peculiar construction difficulties encountered make the \$1,000,000 contract for the building of that portion of the San Simeon-Carmel highway between Big Sur and Anderson Canyon, on the Monterey County coast, one of the most unusual and interesting projects so far completed on the California state highway system.

Award of the contract was made by the commission September 12, 1922, to the George Pollock Company of Sacramento and construction begun shortly thereafter. In the face of many difficulties, the thirteen miles of grading

along the ocean front was completed October 4th, of this year.

Material Treacherous.

Much of the material encountered was of a very treacherous nature, slides in excess of 300,000 cubic yards occurring in spite of the dry period during which most of the construction was done. At one point, the excavation amounted to over 80,000 cubic yards in less than 700 lineal feet.

Slides and falling boulders frequently buried and smashed power shovels, requiring almost complete rebuilding in two or three instances. One shovel was dashed approximately

BIG SUR CONTRACT

600 feet into the ocean as described in the April issue of the highway bulletin.

Many times immense boulders and slides came within a few feet of workmen, or fell where men had been but a few seconds before. Considering the conditions, it is almost miraculous that the contract was completed without fatalities, and with only one serious accident.

He Had Enough.

In one instance, a man was carried down a hillside on top of a slide. When he landed at the bottom, uninjured, he picked up his hat and left the job without a word, not even asking for his pay. Perhaps he showed good judgment, for another workman caught in a somewhat similar way had his leg crushed so badly it had to be amputated. In the latter instance, it took ten men all night to carry the injured man through a driving rainstorm over mountain trails and sides to reach the nearest available transportation.

Such were the conditions under which construction was carried forward. During the dry season, the fine volcanic formation of the mountainsides created clouds of dust which made it almost impossible to operate the shovels at some points. There was constant fear of slides and erosion, even in the summer, often carried away large sections of the roadbed, which, due to the formation of the coast line, is located several hundred feet above the breakers.

Contractor Maintains Boat Service.

The grading was begun at the Big Sur River, the end of the present county road, some thirty miles south of Carmel. It is difficult of access and the contractor maintained a boat service from Monterey during winter months to bring in provisions, men, and needed equipment.

The strenuous efforts of the contractor to complete the work before the commencement of winter rains were successful. The grading was pronounced finished the day before the first rain of the season.

Credit also is due the final survey party which, under the direction of George A. Tilton, Jr., completed a particularly difficult job of cross-sectioning on the same day the contractor finished his work. E. B. Brown was resident engineer.

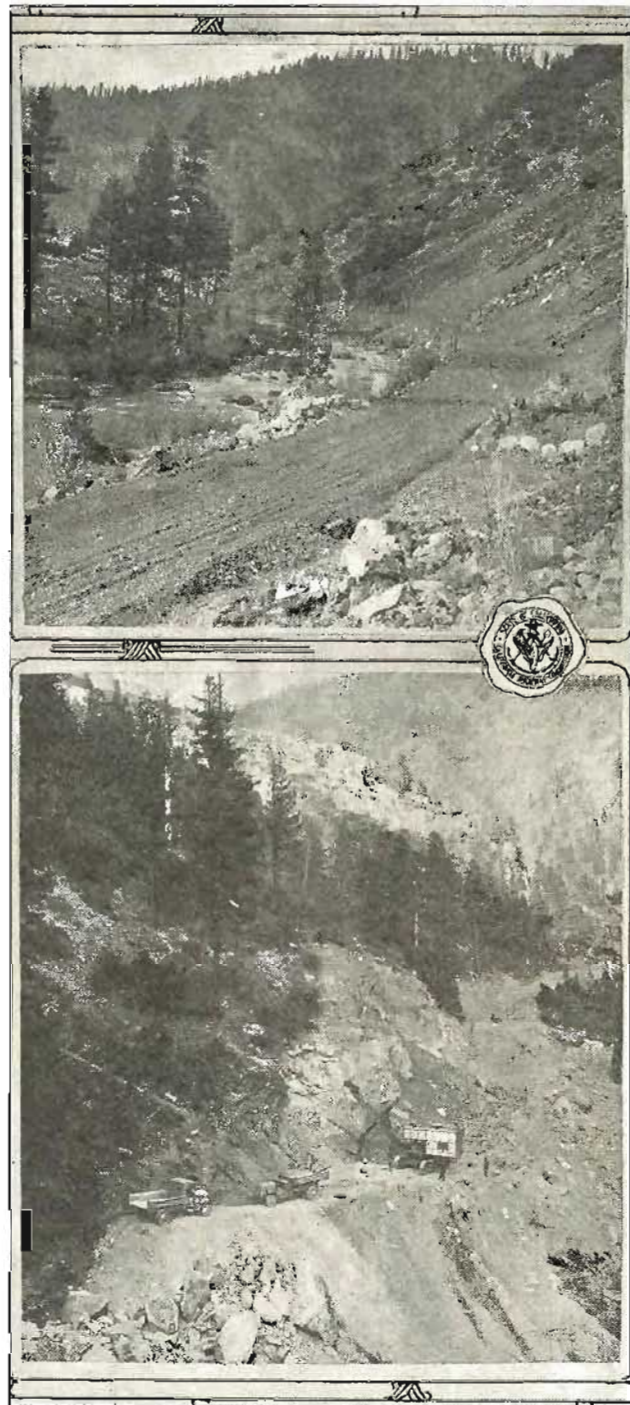
The San Simeon-Carmel highway was authorized by the bond issue of 1919.

MANY ATTEND CONVENTION

AS the Bulletin goes to press, the delegates are gathering in San Francisco for the tenth annual meeting of the American Association of State Highway Officials. Reservations indicate that practically every state in the Union will be represented and that the attendance of highway officials and engineers will exceed two hundred.

Chairman Harvey M. Toy, Commissioners N. T. Edwards and Louis Everding, State Highway Engineer R. M. Morton, Assistant State Highway Engineer T. E. Stanton, the heads of all departments from headquarters, and the ten division engineers were in attendance from California.

Details of the convention will be presented in subsequent issues of the Bulletin.



IN THE TRUCKEE CANYON—Scenes in the Truckee River Canyon where the Nevada trunk line (Victory route) is taking form. Above, the completed grade between Truckee and Boca; below, construction scene opposite Iceland between Boca and Floriston. The highway grade is about seventy feet above the river at this point. (Division III.)

Some Detour.

It rained and in order to keep touring cars moving on one of the detours, Resident Engineer A. N. George, one night, put a stop to truck traffic in order to prevent a complete blockade. An argument ensued between George and a truck driver.

In the meantime, an aeroplane flying between San Diego and Los Angeles was forced to land along side said detour and there it sat. Finally, one of the arguing truck drivers spotted the aeroplane hub deep in the mud.

"Boys," he said, "I guess Mr. George is right. If that aeroplane can't get over this detour there is no use us trying it."

WHAT THE DIVISIONS ARE DOING

DIVISION I FIGHTS SLIDES; RAINFALL HEAVIEST IN YEARS

THE rainfall, in many parts of Division I, averaged over ten inches during October, and the downpour has continued during the greater part of November. Maintenance forces have been battling with thousands of cubic yards of slides but have kept the highway open for traffic. The bridge department lost several temporary bridges in the unprecedented floods, but only on one occasion was traffic held up for any length of time. The rainfall to date has bested all records since 1901.

Construction work has been hampered to a considerable extent. The two shovels in northern Mendocino County, engaged in widening and straightening operations, are now working but one shift per day.

The steam hoist and drag line outfit, at the southern approach to the Klamath River bridge, is still in operation and is the only equipment which could be used at this season at this location.

J. F. Knapp, contractor on the Eureka-Arcata paving job, is operating with two shifts whenever the weather permits the laying of concrete pavement.

The heavy storms have not seriously interfered with the work of the prison road camp on Smith River, as the excavation is largely through solid rock.

NEW DIVISION II OFFICE BUILDING NEARS COMPLETION

THE new office building and shops of Division II, located at Redding, are rapidly nearing completion and the moving of the division headquarters from Dunsmuir probably will take place sometime during December. The main shop building has been finished as has the grading and graveling of the lot. Work on the truck sheds and the fencing probably will be finished by the time this is in print.

After many delays, surfacing of the Mineral-Morgan Springs unit of the Susanville lateral, in Tehama County, at last has been completed by state forces. The moving out of the camp took place on the day of the first snowstorm of the season.

Necessary surfacing of various sections of the recently graded unit of the Klamath River highway has been completed along with all culvert work. All active construction on this road has now been suspended.

Contract Modified.

The oil macadam contract of Polk and Polk, east of Susanville, Lassen County, has been modified to a crushed rock surfacing for the easterly 2½ miles. Freezing weather interfered with the completion of the work as originally planned.

Dunn and Baker have a steam shovel at work widening the Pacific highway, north of the Shasta River bridge, on that portion of their widening and straightening contract not finished prior to the period of heavy summer travel.

The Nevada Contracting Company is ahead of its schedule for the widening and straightening of the Pacific highway between Bayha and Halfway Creek, in the Sacramento Canyon. Bids will be opened November 24th for similar work on the next eleven miles.

WORK TO CONTINUE DURING WINTER ON BIG JOBS IN DIVISION III

GRADING on the first unit of the Truckee River route, Truckee to Boca, is about finished and will be completed this winter. The rough grading is done and the finishing work is now in progress.

Work on the second unit, Boca to Foriston, also in charge of Trey and Holden, contractors, is well under way and construction will be continued during the winter months.

About 100,000 cubic yards have been moved on the Colfax-Gold Run contract, out of an estimated yardage of 338,000. Two power shovels are working three shifts a day and good progress is reported.

Rains have delayed the laying of 1.3 miles of asphalt concrete pavement near Chico, on the Chico-Orland lateral. Grading and gravel subbase are completed.

Giddings and White have begun grading operations on their 6.9-mile contract on the Tahoe-Ukiah highway, west of Williams, Colusa County.

W. P. Gay, of Orland, is furnishing material for the grading of approaches to the Stony Creek bridge in Glenn County. The work is in charge of state forces.

The grading contract on the state highway west of Donner Summit, in charge of the United States Bureau of Public Roads and financed with forest funds, is reported 75 per cent completed.

Maintenance Activities.

Division III has recently completed, or has under way, the following maintenance work:

Extension of culverts and removal of unnecessary guard rail on the main line in Glenn and Colusa counties;

Graveling of shoulders between Williams and Colusa;

Surfacing of two wooden bridges over the tracks of the Southern Pacific railroad near Bowan;

A 48 disc scarifier pulled by a Nash quad truck has been used to smooth up asphalt roads, east and north of Sacramento.

Surveys Under Way.

Surveys are under way on the Slippery Ford grade, on the Placerville road to Lake Tahoe, looking to its elimination. It is hoped sufficient gasoline tax funds may be allotted the division to accomplish this improvement next summer.

Funds have been given the division with which to make final surveys for rights of way for the state highway between Tallac and Tahoe City, at the south end of Lake Tahoe.

Plans are being prepared for grading 11.8 miles of the Placerville route from Sportsmen's Hall to Riverton.

DIVISION V NOW WITHOUT SINGLE GOING CONTRACT

WITH the completion of the big Pollock contract south of the Big Sur River on the Monterey coast, Division V cleaned up its last going contract and is now without a single contract under way. Except for a few specific maintenance jobs in connection with gravel shoulders and widening of the roadway, the activity of the division is now largely limited to general maintenance.

RECONNAISSANCE TRIP MADE OVER PROPOSED PIUTE PASS

A RECONNAISSANCE trip over a portion of the route of the proposed Piute Pass highway, which would connect Fresno, in the San Joaquin Valley, with Bishop, in Inyo County, was made October 15th and 16th by pack train from Bishop to Florence Lake. The following were in the party: Division Engineers J. B. Woodson and F. G. Somner, Assistant Highway Engineer W. S. Caruthers and W. C. Crosby, representative of the Automobile Club of Southern California. Piute Pass has an elevation of 11,409 feet.

County Aids Bridge.

Following a presentation of the matter by Division Engineer J. B. Woodson and Harlan D. Miller, acting bridge engineer, the Madera County board of supervisors voted \$10,000 toward the construction of a new bridge over Chowchilla River on the San Joaquin Valley trunk line. Plans for the structure have been prepared and bids called for.

Two rock crushing plants have been established on the Mariposa-Briceburg section of the Yosemite Valley lateral to provide material for the surfacing of this unit. An effort is being made to complete the work before heavy winter rains.

MORE CONTRACTS FINISHED IN SOUTHERN CALIFORNIA

POURING of concrete on the Coast highway between Corona Del Mar and Huntington Beach, Orange County, Division VII, has been completed. This section of the ocean front road will be open to traffic upon the completion of the bridge across Santa Ana River, now under construction by Orange County under state

DIVISION ACTIVITIES

inspection. This bridge is taking on the appearance of a real structure. The new pavement is twenty feet wide.

Grading between Corona Del Mar and Laguna Beach, on the same route, is progressing rapidly. Over two miles of the rough work has been finished and a third of the culverts installed.

Widening Work Finished.

The contract for widening the roadway and extending culverts on 9.4 miles of the state highway in Orange County, south of Capistrano, also in Division VII, has been completed and accepted. The pavement already has been widened to twenty feet on this section.

The day labor camp on the Malibu Ranch, coast route, Los Angeles County, has been moved from Solstice Canyon to near Winter Canyon, that it may be nearer the grading operations.

By the time this is in print, it is probable the Jahn and Bressi contract for the widening and reconstruction of the highway between San Diego and Oceanside will have been completed. Numerous line changes have been made to improve the alignment. Two railroad crossings already have been eliminated and a third elimination has been provided for as soon as an overhead crossing over the tracks of the Santa Fe railroad can be built.

Special Maintenance Jobs.

A Division VII day labor crew, camped at Irvine, Orange County, is widening embankments and installing two large box culverts for the improvement of cross country drainage. Ditches connecting with the culverts are being built by owners of adjacent ranches.

Between Fullerton and Whittier, Los Angeles County, a special maintenance crew has been lengthening culverts and widening shoulders.

In San Diego County, a crew under the direction of Maintenance Foreman E. G. Brassington is paving with oil macadam two long fills, a part of line changes on the Jahn and Bressi contract. Paving with concrete will not be undertaken until after settlement of the new embankments.

**NEW UNDERPASS IN USE ON
NATIONAL OLD TRAILS ROAD**

DIVISION VIII reports the new underpass under the tracks of the Santa Fe Railroad north of Oro Grande, on the National Old Trails route (Barstow-Needles), is now in use although not yet finally completed. The railroad track is supported on temporary bents which will be replaced by steel girders in the near future.

The commission has authorized the taking over of the Mecca-Blythe route for maintenance, and equipment is now being assembled at Desert Center where a camp has been established. The work will be under way by the time this is in print.

Residents of San Bernardino and Riverside counties are pleased with the action of the commission in advertising for bids for the paving of the 7.10-mile gap between Redlands and Beaumont. It is probable the work will be under contract by the time this bulletin is issued.

**DIVISION X WIDENING
CONTRACT IS COMPLETED**

WIDENING of the highway between Rockville and Fairfield, Solano County, Division X, has been completed and will be open to traffic by the time this is in print. Flush concrete shoulders have increased the width of the highway to twenty feet.

The two asphalt widening contracts in Division X, in Solano and San Joaquin counties, have been delayed due to wet weather, but are nearing completion. On the Banta contract, in San Joaquin County, the contractors have laid as much as 450 tons of asphalt concrete per day.

Grading on the Suisun-Denverton section of the Rio Vista lateral, Solano County, is well under way and the county is preparing to place a water bound macadam surface in accordance with an agreement between the county and the state.

A maintenance crew expects to begin grading operations shortly between Jackson and Pine Grove, Amador County, in accordance with a recent cooperative agreement.

Electrical sirens for fog signals and an improved signal system for traffic are being installed on the Sacramento River bridge at Rio Vista.

BRIDGE DEPARTMENT NEWS

CONSTRUCTION activity at the Douglas Memorial Bridge across the Klamath River near Requa, in Del Norte County, is now under way on a large scale. Because of the importance of the work, Harlan D. Miller, acting head of the bridge department, is giving much attention to developments and has personally investigated the condition of the foundations, excavations for which are well under way. Nearly all of the foundation piles (almost 1000 in number) have been cut and delivered. F. Rolandi, the contractor, has installed an orange-peel dredger and an 8-inch dredger pump for excavation material from the cofferdams. Steel sheet piling and wooden sheet piling are being driven and at one pier the driving of foundation piles soon will be begun. Excavation at the south abutment is about complete.

Stewart Mitchell is resident engineer in charge at Requa. His assistant is J. C. Wilson. Both men have been in charge of large construction work before coming to California and are a valuable asset to the bridge department.

Progress at Van Duzen.

Albert Lernhart, resident engineer at the Van Duzen River crossing in Humboldt County, reports the bridge fast developing from the abstract to concrete. Concrete in the three arches has been placed.

W. H. Johnson, resident engineer on the six bridges in Tehama County, now completed, has been placed in charge of the construction of three bridges east of Susanville in Lassen County. The distance between two of these bridges is seventy-seven miles, which keeps Johnson busy.

Llewellyn DeCew, recently in charge of painting bridges in San Joaquin County, is assisting Johnson.

Kern Bridge Started.

G. W. Thompson has been placed in charge of the construction of the Cottonwood Creek bridge, east of Bakersfield, Kern County. This bridge will have a reinforced concrete girder deck on high two-post reinforced concrete bents.

Harry Carter, resident engineer on the San Lorenzo Creek bridge at King City, Monterey County, is now in charge of the building of seven wooden bridges and a weir in northern Lassen County, on the Alturas lateral.

H. M. Sturges has relieved Howard D. Lee in charge of the painting of the Petaluma Creek bridge in Marin and Sonoma counties. Lee has been transferred to headquarters in Sacramento.

Combination Crossing Under Way.

Up in the high Sierra, the department is building a bridge across the Truckee River and the Southern Pacific Railroad near Polaris, Nevada County, known as the Polaris overhead crossing. It will be a beautiful bridge, so situated as to show to good advantage. The main structure will be a 152-foot arch with a 38-foot rise across the river; at one end of this arch is a 60-foot two-girder span across the railroad tracks and a 38-foot approach span. At the other end of the arch are four 30-foot approach spans connecting with a roadway embankment 20 feet high. Work on this structure has been discontinued for the winter months. V. A. Endersby is resident engineer.

Contractor Charles L. East has completed the painting of seventeen wooden bridges on the Redwood highway in southern Humboldt and northern Mendocino counties. The clean white appearance of the structures is a marked improvement over the dull unpainted timber.

Work has been started on the 150-foot reinforced concrete bridge across the Cherokee drainage canal, on the Eastside highway, in Butte County. Butte County has contributed \$5,000 towards cost of the structure. Charles W. Jones is resident engineer.

Smoothing the Way.

A Houston road-sign painter suggests the following signs for railroad crossings:

"Come ahead. You're unimportant."

"Try our engines. They satisfy."

"Don't stop. Nobody will miss you."

"Take a chance. You can get hit by a locomotive only once."—

Houston Post.

There is a wide margin between a living wage and a flivving wage.—*Columbia Record.*

DIVISION IV TRIES NEW CROSSING WARNING

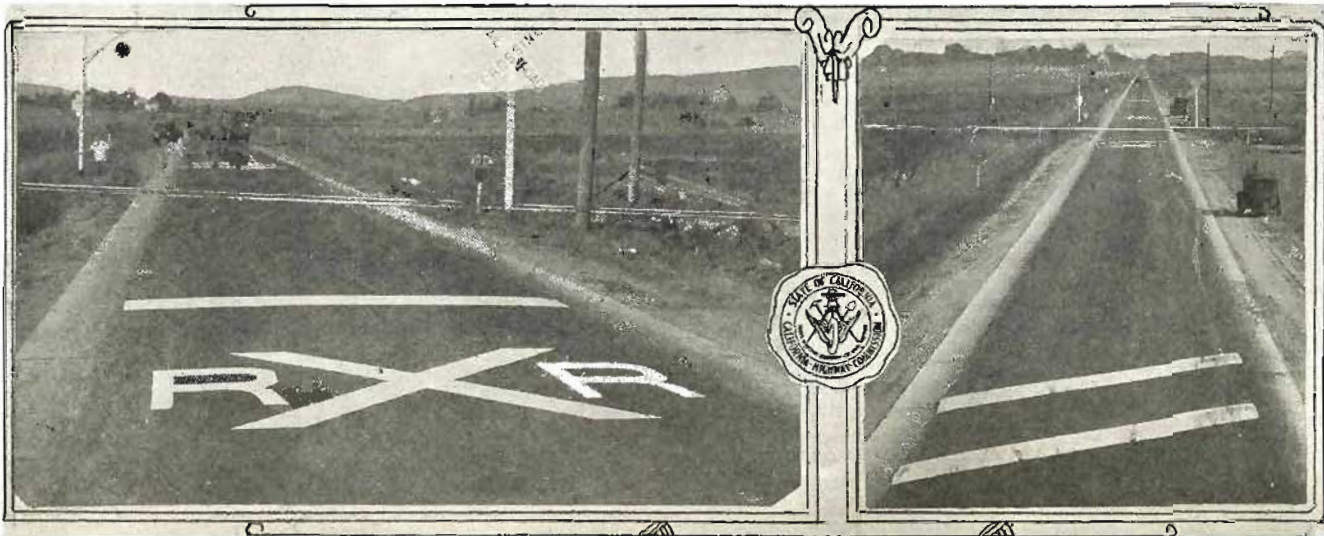
By HARRY W. SCHREIBER, Maintenance Superintendent, Division IV.

DIVISION IV is trying out a new grade crossing warning at the Santa Rosa electric railway crossing on the Redwood highway in Sonoma County. It consists of two raised stripes placed 250 feet from the crossing and a larger R X R and a wider stripe painted on the pavement 50 feet from the railroad tracks.

The feature of the warning is the raised stripes which are

built up with an asphaltic mix and are about three-quarters of an inch in thickness and eighteen inches wide. If passed over at high speed, these diagonal stripes are designed to give sufficient warning to the careless driver to place him on the alert that he may see the crossing warning in time. The two Rs are four feet long and the X eight feet.

The highway at this point is surfaced with asphalt and the stripes have been made with white traffic paint.



GRADE CROSSING WARNING IN DIVISION IV—The eighteen-inch white stripes, shown at the right, were built up to a height of approximately three-quarters of an inch with asphaltic mix before painting and are located 250 feet from the crossing. Fifty feet from the rails are located the four-foot letters R X R.

ENGLAND PLANS TO BUILD WIDER ROADS AND STREETS

COUNTRY roads and city streets to be laid out in Great Britain will have a right of way 120 feet wide in most instances and 100 feet wide as a minimum, if present plans of the government are carried out. Because motor traffic has made it obvious that the old narrow country roads are not in these days safe, public enthusiasm in England has greeted the official plan for the widening of existing roads and the establishment of the 120-foot width as the official standard for the future.

Long before the war the highways of England had become rivals of the railways through the use of motor trucks and steam traction engines, often hauling several trailers, each with a capacity of tons. The roads bore this traffic well and their splendid maintenance has enabled these highways to stand up under a much heavier traffic than 90 per cent of American roads receive. The plans of the British government will involve a total of several thousand miles of additional new construction destined to make London the center of the most adequately roaded section in the world.

The United States, just embarking with governmental assistance upon the construction of an interstate, nation-wide, primary highway system, will do well to consider the conclusions which an infinitely greater experience has forced upon British highway authorities. While few of our roads need a right of way 120 feet in width at the present time, that our growing traffic requirements now demand a much greater width is certain.—*Highway Engineer and Contractor.*

NOTE.—The California Highway Commission, as a policy, has adopted eighty feet as the minimum width of rights of way for state highways.

IT WAS SOME PARTY

THAT'S the opinion of everyone lucky enough to have been present at the dancing party in Elks' hall on the evening of November 14th, attended by folks from headquarters, Divisions three and ten, the shops, and the laboratory, and their friends.

To Tom Wright of the headquarters drafting room goes the credit for initiating the affair. He made good with a five-piece orchestra, cards, punch, decorations and everything that goes to make up a good time.

Having put over the dance, Tom says it is now up to Mr. Mixon and Clay Chipman to arrange for a Christmas tree

Horrors!

An Irishman coming out of ether in the ward after an operation exclaimed audibly:

"Thank God that's over."

"Don't be too sure," said the man in the next bed. "They left a sponge in me and had to cut me open again." And the patient on the other side said: "Why, they had to open me, too, to find one of their instruments."

Just then the surgeon who had operated on the Irishman stuck his head in the door and yelled: "Has anybody seen my hat?"

Pat fainted.—*Exchange.*

Murder!

"You say his wife wants to get rid of him? How do you know?"

"She told him she had read a decision which gives the pedestrian the right of way over automobiles, and she is insisting that he stand on his rights."—*Houston Post-Dispatch.*

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. DURKOE Editor
P. O. Box 1103, Sacramento, California.

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JUST AMONG OURSELVES



HIGHWAY NEWS NOTES

HIGHWAY ENGINEER NAMED.

TO IMPORTANT POSITION

J. O. MARSH, office engineer, Division VII, has resigned to accept the position of chief engineer of the Public Utilities Department of the city of Los Angeles to which he was recently appointed. He assumed his new duties November 1st. Mr. Marsh has had wide experience in engineering work in various lines which fits him to undertake the task of working out a plan for a metropolitan transportation system for Los Angeles. The forces of Division VII extended best wishes for his success in the new position and presented him with a handsome brief case.

E. J. Saldine, assistant resident engineer on the Jahn and Bressi contract, has been transferred to the headquarters of Division VII in Los Angeles. He has been succeeded by W. J. Nelson.

J. B. Hodges, resident engineer, has been transferred from Division VII to the bridge department. He has charge at the Santa Ana River bridge in Orange County.

Roy S. Wright, draftsman in Division I, has resigned to accept a position with the city of Oakland.

Broken Cable Results in Death.

GEORGE W. RICE, foreman in Division II, was killed November 3d while superintending the moving of a rock crusher near Castella, Shasta County. A broken cable resulted in Mr. Rice being struck by a flying tackle block. He died shortly after in a Dunsmuir hospital. Robert J. Streif, an employee of the commission, was injured in the same accident. Foreman Rice was 48 years of age and is survived by a widow.

F. E. Davis, M. E. Wilson, and Eli Dallas, draftsmen in Division II, brought in a 3-pointer and two 4-pointers following a hunting trip in Shasta County prior to the closing of the season.

Dan Wise has returned to Division II as senior clerk.

L. H. Williams has sold his property in Dunsmuir and will move to Redding when the new division headquarters are opened.

Among engineers and employees who have purchased property in Redding in anticipation of the moving of the division office are: E. J. Bassett, F. Heard, J. G. Standley, and E. N. Babb.

R. W. Van Stan has been transferred to division headquarters following completion of the Redding paving contract.

F. C. Macaulay has been transferred to Redding as maintenance superintendent.

Changes in Division III.

T. H. DENNIS, assistant division engineer, has been assigned additional duties and is now in charge of all maintenance work

of the division. A considerable part of his time is spent in the field.

J. C. North, assistant maintenance engineer, has been placed in charge of specific betterments and day labor maintenance jobs in Division III, several of which are now in progress.

W. G. Remington, assistant resident engineer, and C. E. Thompson, field draftsman, on the Donner Summit grading contract, have been temporarily assigned to the division office. W. C. McNeely, draftsman, also is back in the office from the same job.

William Eichel, for several years in charge of Route 17, north of Auburn, as maintenance foreman, passed away recently. The work is temporarily in charge of Superintendent D. D. Bruening.

W. A. Smith, office engineer, is the proud possessor of a new Jewett sedan.

Cities Get Division V Men.

I. B. Ramseier and W. E. Barney, until recently draftsmen in Division V, are now connected with the city engineering offices of Los Angeles and Pasadena, respectively.

Conforming to the usual custom, Douglas Patton, of the Division V accounting department, passed around the cigars upon the arrival of a seven-pound boy, R. D. Patton, Jr., on the morning of October 29th.

G. A. Tilton, Jr., Division V resident engineer, has been transferred temporarily to Division VI to act as chief of party on location work in the Kern River Canyon.

O. H. Rordorf, draftsman, also has been transferred to Division VI, taking up the duties of field draftsman.

It's a Girl.

Carl Nelson, maintenance foreman at Mariposa, Division VI, announces that number four is a daughter.

O. D. Gaston has been appointed acting maintenance foreman at Coalinga, replacing W. B. Reed, who is now at Briceburg in charge of surfacing operations.

A representative of the Los Angeles Times was an interested visitor recently at the prison road camp in Kern River Canyon.

Z R 3 Brings Letter.

MISS DELLA BITTKE, of the Division VIII office force, is the proud possessor of a letter brought from Germany by the Z R 3 on its recent history-making trip across the Atlantic. The postage amounted to 80 cents and the stamps are of a special design made especially for the occasion by the German government.

R. C. Wright, draftsman, has resigned from the Division VIII staff to become a deputy United States immigration inspector at El Centro.

R. L. Young, assistant division engineer, and H. S. Payton, resident engineer, have returned to Division VIII after performing special services for Division VII during the repaving of the Whittier boulevard.

N. H. Tatspugh, maintenance foreman at Waterman Canyon, has been transferred to Coachella and C. R. Taylor, foreman at Coachella, is now stationed at Waterman Canyon.

Howard Noble and survey party have been transferred to Fawnskin, on Big Bear Lake, in connection with relocation surveys.

Bag Four Pointers.

Two hunters in Division X were among the successful nimrods of the season. A. M. Nash and R. W. McCrea each bagged a four pointer before the season closed.

E. C. Dozier, with the California Highway Commission for eleven years, took unto himself a wife during the latter part of October and went east on a honeymoon.

Headquarters News.

Miss Kathryn B. Melarkey, of the Department of Prison Road Camps, enjoyed a short vacation recently visiting relatives in Reno, Nevada.

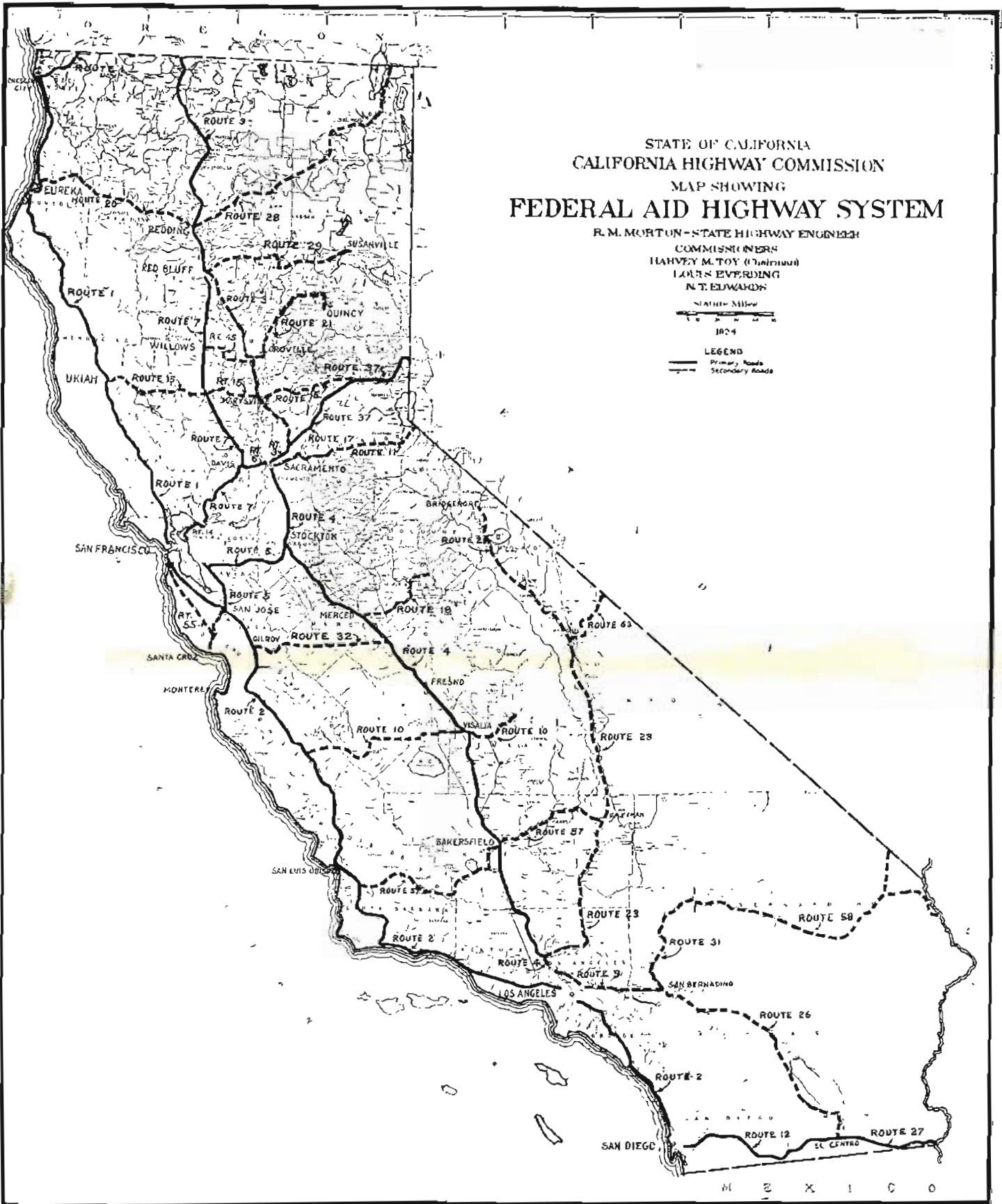
Miss Fern Dunkeson visited in San Francisco and Dunsmuir while on her vacation.

Mrs. Martha Anderson, personnel clerk, is another of the office force who visited San Francisco during her vacation.

Miss Beulah Francisco, secretary to Assistant State Highway Engineer T. E. Stanton and formerly headquarters personnel clerk, is in San Francisco on a leave of absence.

Sam Puts One Over.

Sam Potasknick, designer in the bridge department, gave the boys quite a surprise on the day before election by announcing his marriage to Miss Ray Berman of Los Angeles. He passed out cigars and candy in celebration of the event before leaving on his honeymoon.



The map above does not show all of the state highways in California but only those included in the federal aid system, representing approximately 7 per cent of the total road mileage of the state, outside of cities.