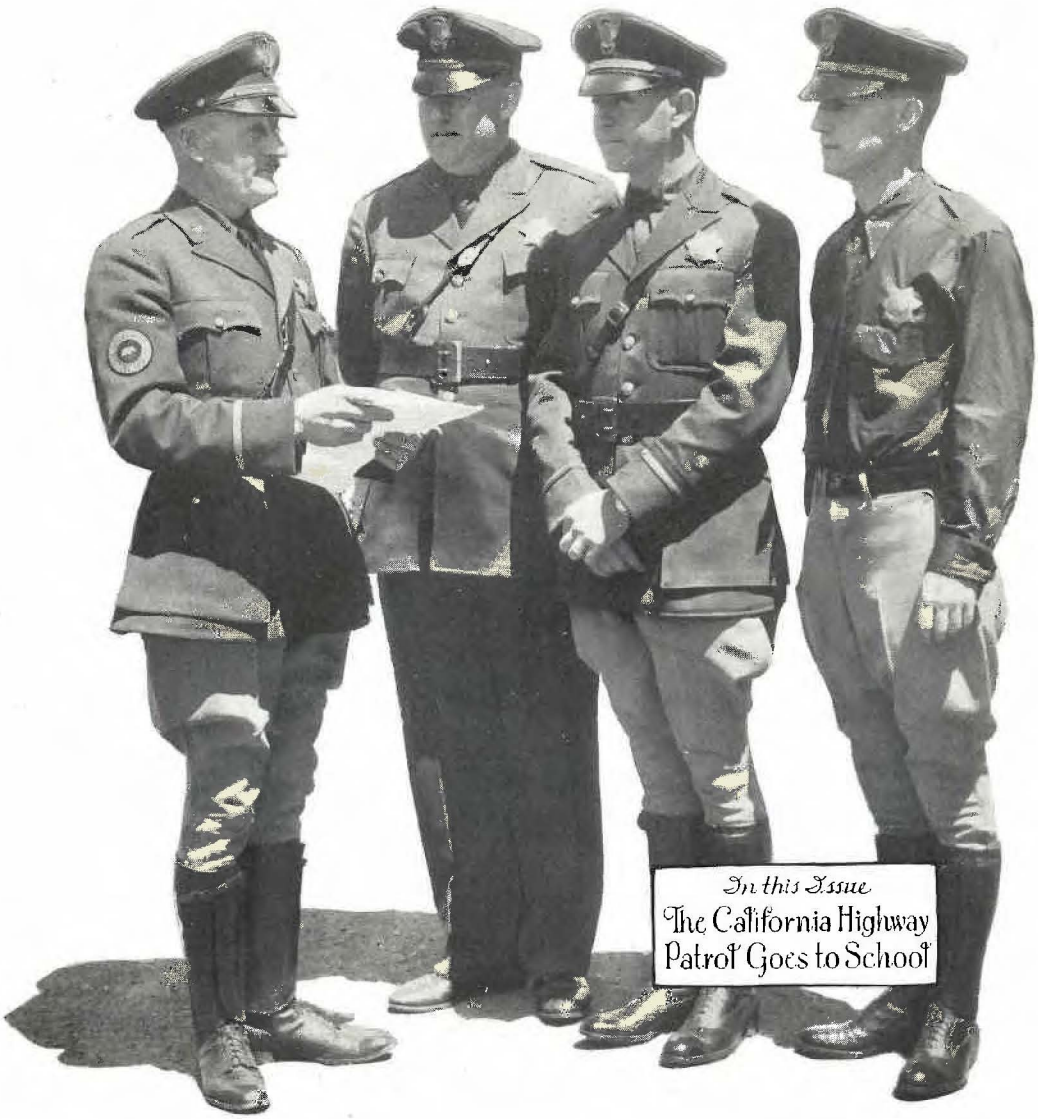
California Highways and Public Works



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The California Highway Patrol Goes to School

Official Journal of the Department of Public Works
State of California

JUNE 1930

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Traffic Officers Go to School

CALIFORNIA'S highway patrolmen are learning to do their jobs better by going to school.

Operated under a new section of the Motor Vehicle Act requiring its establishment, the first of a series of training schools for the officers was opened at the State Fair grounds in Sacramento on May 27th.

Approximately forty inspectors and captains from all parts of the state were chosen for the initial period of three weeks. A second group of fifty was drawn immediately after the officers attending the first school had returned to their regular duties.

The school is being operated along semi-military lines with reveille at 6.30 a.m. and taps at 10.30 p.m. Each day starts with thirty minutes of snappy physical exercise followed by close order drill. Classes start immediately after breakfast, continuing throughout the day and well into the evening.

Rigorous and intensive as this course of study and living seems it is enjoyed by the officers, who realize if they expect to make their living in the exercise of the duties of the traffic officer they must learn what those duties are and how best to perform them.

By a fortunate arrangement made possible through the cooperation of the Department of Finance, the patrol was able to obtain the use of the grandstand building, which is equipped with a complete kitchen and dining room and has ideal facilities for sleeping quarters.

The traffic officers in school

Both schools were preliminary in character and will be a sort of prelude to the regular schools to be established for a three months' period to train patrolmen. Quarters of the United States Air Corps at Mather Field, near Sacramento, will be used for the final school periods, permission to use them having been obtained from the War Department by General James J. Borree, head of the Bureau of Schools and Education of the California Highway Patrol, who is in complete charge of the schools.

The men were thus able to get their meals in the same building in which classes were held, the entire upper floor of the building being taken over by the school.

Although the students were called on at times to do minor fatigue duty, all details of preparing and planning meals were left up to

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Making Our Highways Smooth

By R. M. GILLIS, Assistant Construction Engineer

BECAUSE the public demands above all things that a pavement shall be smooth riding, all of our highway departments are bending every effort in the construction of their roads to secure a surface that will give the fewest possible bumps to the motorist who passes over them. Engineers, contractors and equipment manufacturers are all working to perfect methods and machinery that will make the way of the passing autoist easier.

To have some unit of measure by which the roughness of a road could be accurately gauged, the California highway engineers have tried numerous devices to measure and record the size and number of bumps per mile of surface. In one instance a somewhat elaborate attachment on a car attempted to draw a profile of the road as recorded by the action of the car springs, in another a sled was drawn behind a car and electrical connections rang a bell when high or low spots in the surface were encountered. All of these methods were either inaccurate, cumbersome, or interfered with traffic when operated, and were not entirely satisfactory. In 1926 the Bureau of Public Roads designed an instrument for this purpose which could be attached to any car without marring it, was satisfactorily accurate and was simple in construction. This has been used by California for the past three years.

Briefly described, the "roughometer," as it is called, measures the spring travel of the car as it is driven over the road. A rack fastened by a rod to the front axle of the car engages a pinion fastened to the frame; through a ratchet the pinion drives a speedometer cable which turns a counter on the dashboard. The numbers registered by this counter are taken as units of roughness. A second counter on the dash is connected with the speedometer drive and registers miles to the nearest hundredth. A lever on the dash

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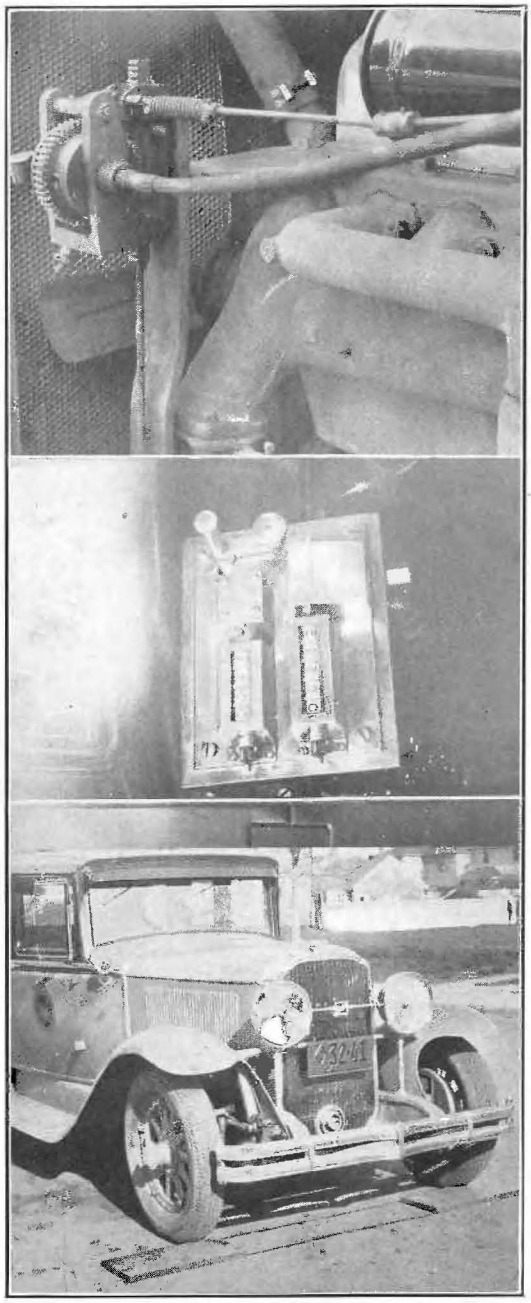

The accompanying picture shows the machinery by which smoothness of California highways is tested. The top picture shows a roughometer attached under the hood of a car. The middle picture shows the counters attached to the dash. The upper dial registers units of roughness and the lower dial shows miles to the nearest hundredth. The lower picture shows the car running over the calibration board.

The Barstow Overhead Crossing

By A. H. Stover, Designing Engineer of Bridges

FOR the past several years the problem of elimination of highway crossings at grade with main line railroads has been one of steadily increasing importance in the construction of safe, high-speed, first-class highways. Hundreds of thousands of dollars have been spent in California by the cities, counties, State Division of Highways, and the railroad companies for the construction of undergrade and overhead structures in order to eliminate grade crossings both on old and new highway construction. A great many of these eliminations have been effected by depressing the grade of the highway for a few hundred feet and supporting the tracks with steel girders resting on concrete abutments; and others, where the railroad may be crossed in a cut, by a few simple concrete spans. However, some of the crossing elimination projects involve major structures, costing two to three hundred thousand dollars. A notable example of the latter class is the overhead crossing and approach fills recently completed over the tracks of the Atchison, Topeka and Santa Fe Railway in the town of Barstow, San Bernardino County. The importance of this project is due both to the geographical location with respect to the state and national highway system, and to the size and cost of the structure.

A. H. Stover

The location is at the intersection of state highway routes 31 and 58. Route 31 is one of the primary roads and extends from San Bernardino to the Nevada line near Jean. It is also a link in the Arrowhead Trail, a continental route extending through Wyoming, Utah and Nevada, on the way to the coast. Route 58 is also a part of the state primary system of roads and extends from Mojave by way of Barstow and Needles to the Arizona line at Topock. This route is a section of the transcontinental highway known as the National Old Trails, which carries a large volume of tourist traffic to and from California by way of Arizona, New Mexico and Colorado. With the large amount of out-of-the-state traffic and the local and commercial traffic on the highway, and a considerable amount of through and yard movement on the railroad, a safe and convenient crossing is of utmost importance for both parties, as well as the local citizens.

The structure itself is of sufficient size to warrant attention. It consists of three 172-foot by 6-inch steel truss spans, two 65-foot deck plate girder spans, one 76-foot deck plate girder span, one 40-foot steel span and approximately 392 feet of timber trestle. The

The New Barstow Overhead Crossing

total length of the bridge is 1193 feet, which, with about 800 feet of fill, involving 24,000 cubic yards of embankment, makes an overall length for the project of nearly 2000 feet.

The three truss spans and the deck plate girder spans are supported on concrete piers with spread footings. The timber spans and the steel beam span are on frame bents with concrete pedestals. All excavation for the footings were made by hand and, due to the fact that the material was very loose and dry and to the proximity of heavy rail traffic, substantial timbering was necessary in all of the pits. Practically all of the excavations were in made ground consisting of sand, rock and cinders; but satisfactory foundation material was encountered in the old stream bed which underlays the railroad fill at this point.

The center steel truss span was erected by cantilevering out from the adjacent spans, as the placing of false-work would have been practically impossible due to the great number of trains passing.

Customary methods of mixing and placing concrete were followed in the construction of the footings and piers, with the exception that certain adjustments were necessary to handle the work without interfering with train and yard operations of the railroad company. An especially smooth finish was obtained on the piers by the use of first-class form material and good workmanship, both in the construction of the forms and in placing the concrete. About 700 cubic yards of concrete were used in this part of the structure.

The 616 tons of structural steel required for the truss and plate girder spans was furnished by the Virginia Bridge and Iron Works, Roanoke, Virginia. The steel arrived at the bridge site on flat cars and was lifted into place by a locomotive crane. Experienced steel workers and riveters were employed and very satisfactory workmanship was obtained.

Since practically all of the steel spans of the structure are over the railroad tracks and yards and will be subjected to the steam and smoke of the locomotives, a black bituminous enamel paint was substituted for the gray aluminum paint ordinarily used on highway bridges in the state. As this paint has not been used extensively, the contractors were not familiar with the best methods of handling it, and had some difficulty at the beginning, but, after securing the services of a representative of the paint company, a very satisfactory job resulted.

The three long steel truss spans and the plate girder spans were necessary to cross the numerous tracks of the Atchison, Topeka and Santa Fe division yards. Twenty-four tracks are now in use under the bridge and provision is made for several additional tracks which may be required at a future date. The 40-foot steel beam span crosses over a city street which accommodates local traffic paralleling the railroad yards. Two stairways from the level of the yards to the bridge deck and a sidewalk from the south end of the bridge to the north end of the plate girder spans are provided for the convenience of the railroad employees and other pedestrian traffic crossing the tracks. The sidewalk is five feet wide, the roadway on the bridge twenty-four feet, and the approach fills are graded to a width of thirty feet.

Bids for this contract were received June 13, 1929. The contract was awarded to the Lynch-Cannon Engineering Co. of Los Angeles. The contract was approved by the attorney for the state on July 16, 1929, but, due to the extreme hot weather and consequent difficult working conditions during the summer months on the Mojave Desert, no work on the bridge was done until October 10th.

Despite the delay in starting, the contractors completed all items of the contract April 28, 1930, nearly three months ahead of the scheduled date for completion.

First-class workmanship characterized the job throughout, and the resulting finished structure is highly satisfactory to the state, the railroad, and the local citizens.

The total cost of the contract was $158,-142.77.

Traffic Officer (reproachfully): "Young lady, do you know anything about the traffic laws of this city?"

Fair Motorist: "Yes, a little. Can I help you?"

Pat Murphy attended a safety meeting. The boys had been given some printed instruction and the safety man wanted to check on results.

"Pat," he said, "Can you give me six good reasons for safety?"

Now Pat wasn't up on his reading but he was rather quick with his comeback.

"Sure," he replied, "The four little Murphys, me wife and meself."—*Mo. Pac. Magazine.*

That he has outroughed "Wild West Bill," the bad man who rode into town on a mountain lion with a rattlesnake for a whip, is the claim of Joe Davis, telephone company employee of Winnemucca. Davis catches wildcats in his overalls.

While en route to Battle Mountain in an automobile he saw a young wildcat cross the highway and dart into a small culvert. He stopped his machine and determined to make a catch.

Removing his overalls, Davis tied the legs and placed the waist end over the culvert. Then he chased the wildcat into the trap. He has it at his home in Winnemucca to support his story.

State Supervision of Dams

By GEO. W. HAWLEY, Deputy in Charge of Dams*

THE continued economic growth and prosperity of California, in common with that of any semiarid region having variable stream flow, is in large part dependent on complete economic utilization of its water resources and the degree of flood protection afforded. The natural stream flow of California will admit of very limited increase over present use and consequently the future water supply will be obtained chiefly by storage.

It is, therefore, axiomatic that dam building will increase rather than diminish both in size and number of dams, and since the most favorable sites, topographically, geologically and economically, are first in order to be developed it follows that as requirements for storage and flood control increase the suitability of the available sites will be less favorable. As a complement of this proposition, the property values and number of lives which might be jeopardized through the failure of any dam or affected by the construction of a dam, are becoming increasingly great. Because of the urgent necessity for constructing additional dams, their increasing magnitude, and diversification of type, it is imperative to safeguard, in so far as is humanly possible, public safety and security against the potential hazards of impounded water. This can be effected only through proper and adequate engineering supervision over the design, construction, maintenance and operation of all dams.

Prior to the enactment of legislation governing the supervision of dams in California there existed in this state, as in many other states, several regulatory agencies with varying degrees of authority and responsibility, exercising jurisdiction in differing degrees from complete control over some dams to partial, ineffective, divided, or no supervision over others. Lack of centralized authority and responsibility can result only in confusion of authority, divided responsibilities, ineffective supervision and a state of insecurity in the minds of interested parties.

Inherent public fear attaches to dams more, perhaps, than to any other engineering work because, no doubt, of the appalling loss of life and property which has been caused by the failure of dams and which it has been felt was in a high degree preventable. Public fear was accentuated by failure of the St. Francis Dam, together with questions as to the integrity and safety of other dams. Safeguarding the life and property of its people is a sovereign duty of the state and authorization to supervise the construction and maintenance of dams has been held to be not only a proper but necessary exercise of the police powers of the state. (Decision of Appellate Court in *Bent Bros.* vs. *Campbell*, published in November, 1930, issue, CALIFORNIA HIGHWAYS AND PUBLIC WORKS.)

GEORGE W. HAWLEY

The last legislature, cognizant of the imperative need of safeguarding life and property and in accordance with the police power of the state, enacted chapter 766, Statutes of 1929, governing the supervision of all dams in California other than those federally owned. This act, perhaps the most complete and far-reaching legislation enacted for a similar purpose by any governmental agency, embodies the salient features of many drafts proposed,

* (Resume of discussion before annual convention of A. S. C. E. Credit to be given transactions A. S. C. E.)

during the formulative stages, by individuals, engineering groups, municipalities, irrigation districts, power companies and outstanding legal authorities. The act, by reason of the thorough analysis of its many phases, conscientious effort directed to its preparation, and the extent gone to in reconciling major differences of opinion, has in general met with the accord of all interested parties as evidenced by the hearty cooperation and invaluable assistance rendered by such interests in their endeavor to make the law effective.

The law places under the jurisdiction of the State Engineer all dams in California, heretofore built or hereafter to be built, other than federal dams, which have a capacity of 10 acre-feet or more or a height of 15 feet or more, regardless of ownership or other supervisory control. The State Engineer is authorized to cooperate with agencies having joint jurisdiction, such as the California Debris Commission, Federal Power Commission and U. S. Forest Service, and is invested with authority and directed to supervise the construction, enlargement, alteration, repair, maintenance, operation and removal of dams for the protection of life and property.

Every owner of a dam completed prior to the effective date of the act is required to file application for approval of the dam, this application to be accompanied by such available and appropriate information concerning the dam as may be required.

The construction of any new dam or the enlargement, repair or alteration of any dam can not be commenced until the owner has obtained approval of the plans and specifications. It is required that the application for approval of plans and specifications for a new dam shall set forth the location, type, size and height of proposed dam and appurtenant works; contemplated use and storage capacity of the reservoir and such other pertinent data as may be required concerning foundation conditions, drainage basin area, precipitation, flood flow and other appropriate data.

During the construction, enlargement, repair or alteration of any dam there is required such inspections, investigations or examinations as may be necessary to secure conformity with approved plans and specifications; and in order to insure safety, the State Engineer has authority to order revisions or modifications in the plans and specifications, or, if conditions are revealed which will not permit the construction of a safe dam, the approval may be refused or revoked.

As soon as practicable after completion of any dam it is inspected, and upon a finding that the work has been done in accordance with the plans and specifications and that the dam is safe for the use contemplated, a certificate of approval is issued. A similar procedure is provided in supervising the repair, alteration or removal of a dam.

Supervision over the maintenance and operation of dams in so far as is necessary to safeguard life and property from injury by the reason of the failure thereof is vested in the State Engineer.

There are at the present time about 650 dams under the jurisdiction of the department, segregated as follows: 400 earth dams, 46 rock fills, 26 timber dams, 97 arch dams and 82 gravity dams. There are some 1000 additional known dam sites, many or most of which must be developed as the needs for additional water demand and warrant.

The dams under jurisdiction vary in height from 15 feet to in excess of 350 feet and in type through the known range of design, namely: earth fill, rock fill, hydraulic fill, gravity and arch masonry types and various composite structures. The reservoirs formed have storage capacities from 10 acre-feet to 1,300,000 acre-feet and spillway capacities up to 120,000 second-feet. These dams are located from sea level to 11,500 feet elevation and are constructed on foundations ranging through the whole geological category. Many heterogeneous types of dams were completed during the early history of California for which no complete authentic records or data are available, and hence all necessary action must be based solely on field examination. It is required by law that a certificate of approval be issued for each dam or that work necessary to make the structure safe be done. Upon completion of this work, certificates of approval are to be issued. This action upon existing dams must be completed prior to August, 1932.

To accomplish the desired objective, namely the determination and establishment of safety of each of these 650 existing dams, in addition to supervising new construction, an experienced and sufficient personnel is being organized to cope with many involved technical and practical problems. The activities of the department are grouped in six general classifications: hydrographic studies, geological examinations, stress and structural analysis, supervision during construction, field examination of existing dams and appurtenant works and supervision of maintenance and operation.

In dams of magnitude or where the technical features involved are such as to require

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California Wins Larger Power Fees

Governor Young has received a telegram from Congressman Englebright in Washington that the Comptroller General has sustained the position taken by the State of California with regard to the distribution of Federal Power Commission fees and that the Power Commission will shortly send the state government of California a check for $108,000 in full payment of back fees under the new method of distribution. The payment due on July 1st under the previous interpretation would have been $7,000 and $8,000, so the state will receive approximately $100,000 more than would otherwise have been the case. Under this decision California will in the future receive from the Power Commission approximately four times the money it would have under the old ruling. These payments may run as large as several hundred thousand dollars a year when the hydroelectric power resources of the state are fully developed.

Governor Young said, "I am pleased to note the new decision of the Power Commission and Comptroller General under which California receives an additional $100,000 this year and will receive large payments in the future. I consider this another evidence of the cooperative attitude of the United States in assisting the California water program."

The Federal Power Commission was created in 1920 and since that time has been collecting fees on its power projects throughout the country and distributing these fees to the various states, the Reclamation Bureau and other agencies in accordance with a ruling made by the Commission. In 1928, after an investigation by State Engineer Edward Hyatt of the Federal Power Commission Law and the distribution of fees thereunder, Governor Young reached the conclusion that the state was not receiving its proper share and took the matter up with the Power Commission. After extended correspondence, legal opinions, etc., the question was referred to the Comptroller General, who on February 3, 1930, ruled that the contention of Governor Young and State Engineer Hyatt was correct and that distribution should be made in the future in accordance with California's contentions. Request was then made that this decision be made retroactive and that payment for past years be in accordance therewith.

Snow Survey Shows Extent of Melting

ALTHOUGH the principal snow surveys as a basis for run-off estimates were made in late March and early April, additional surveys have been made in late April and early May at the key snow courses to furnish information for possible modification of earlier estimates and to indicate the extent of melting since April 1st. These later surveys complete the record of monthly surveys, January to May, for the key snow courses and should prove of value, when a sufficient number of years records are available, in relating snow and precipitation data to monthly *distribution* of run-off.

The precipitation to May 1st, in per cent of normal for the major stream basins on the western slope of the Sierra, is shown from the precipitation station data about as follows: Pit, McCloud and Upper Sacramento, 90 per cent; Feather, 100 per cent; Yuba, 85 per cent; American, 80 per cent; Mokelumne to Merced, 70 to 75 per cent, except Stanislaus, where a higher percentage is indicated; and Upper San Joaquin to Kern, 60 to 70 per cent. The similar data for southern California stream basins show about 80 per cent for Santa Ana and 70 per cent for San Gabriel.

The snow surveys at the key courses show a melting of the April 1st pack as measured at the same courses, about as follows: Above 7500 elevation: Upper Sacramento and McCloud (one course, Mt. Shasta), no melting; Pit and Feather (one course, Mt. Lassen), 33 per cent; American (one course, Carson Pass), 17 per cent; Mokelumne (one course, Blue Lakes), 13 per cent; Tuolumne and Merced (average of six courses), 28 per cent; Mono (two courses), 16 per cent; Upper San Joaquin (one course, Kaiser Pass Meadows), 25 per cent; Kings (one course, Sand Meadows, 8100), 61 per cent; Kern (one course, Round Meadow), 35 per cent. Below 7500 elevation, except for five courses in the Yuba Basin which average 45 per cent, most of the courses show a melting from 80 to 100 per cent of the April 1st pack.

The Architect's Part in the State Work

By HARRY W. DEHAVEN, Chief Architectural Draftsman

LIKE any other art, craft, science, business or profession, the architectural practice of the present day is a product of evolution. The appropriation of the title Architect was the result of a gradual process. Today an architect is a professional person whose occupation consists in originating and supplying artistic and scientific data preliminary to and in connection with the construction of buildings, their appurtenances and decorations; in supervising the operations of contractors, and in preparing contracts between owners and contractors.

HARRY W. DE HAVEN

Probably no one man could unite, with any great degree of excellence, all the attributes which could be alleged as essential to the complete architect. This ideal state is attained through the acquisition of an organization of specialists, competent in all the technical requirements of the building industry. Such is the Division of Architecture of the State Department of Public Works.

It is this organization that supplies the architectural service required by fifty different points of activity controlled by the state. Many of these points are institutions, and in effect are small cities with very unusual type of buildings required for their particular need. The accumulation of data on this specialized service renders this office more efficient in the production of the drawings and specifications for subsequent buildings at a much less office expenditure than was charged against the first.

There is an average of approximately $10,000 worth of business produced daily by the Division of Architecture. The method in which part of this business is produced is after this manner:

Executing preliminary studies for all state buildings and developing the problems;

Investigating and selecting materials of construction, both concealed and exposed;

Preparing working drawings in detail, including scale and full-size detail. This method shows the contractor exactly what is required, and permits us to push the contractor to the limit after the contract is awarded and robs him of the usual excuse for delays, "Waiting for Details";

Designing and selecting fixed and movable furniture;

Interpreting building laws, etc.

The following subdivisions are found in the Division of Architecture:

Structural Design, Mechanical Design, Electrical Design, Surveying, Estimating, Specifications, and Superintendents of Construction.

The buildings constructed by the state are mostly of the one- and two-story type, built of reinforced concrete or brick because of their use and the nature of their occupants. State buildings of all kinds are noted as suitable for their purpose—strong, substantial and durable. They are the acknowledged criteria of good construction. This office has always given the first consideration to the importance of these factors.

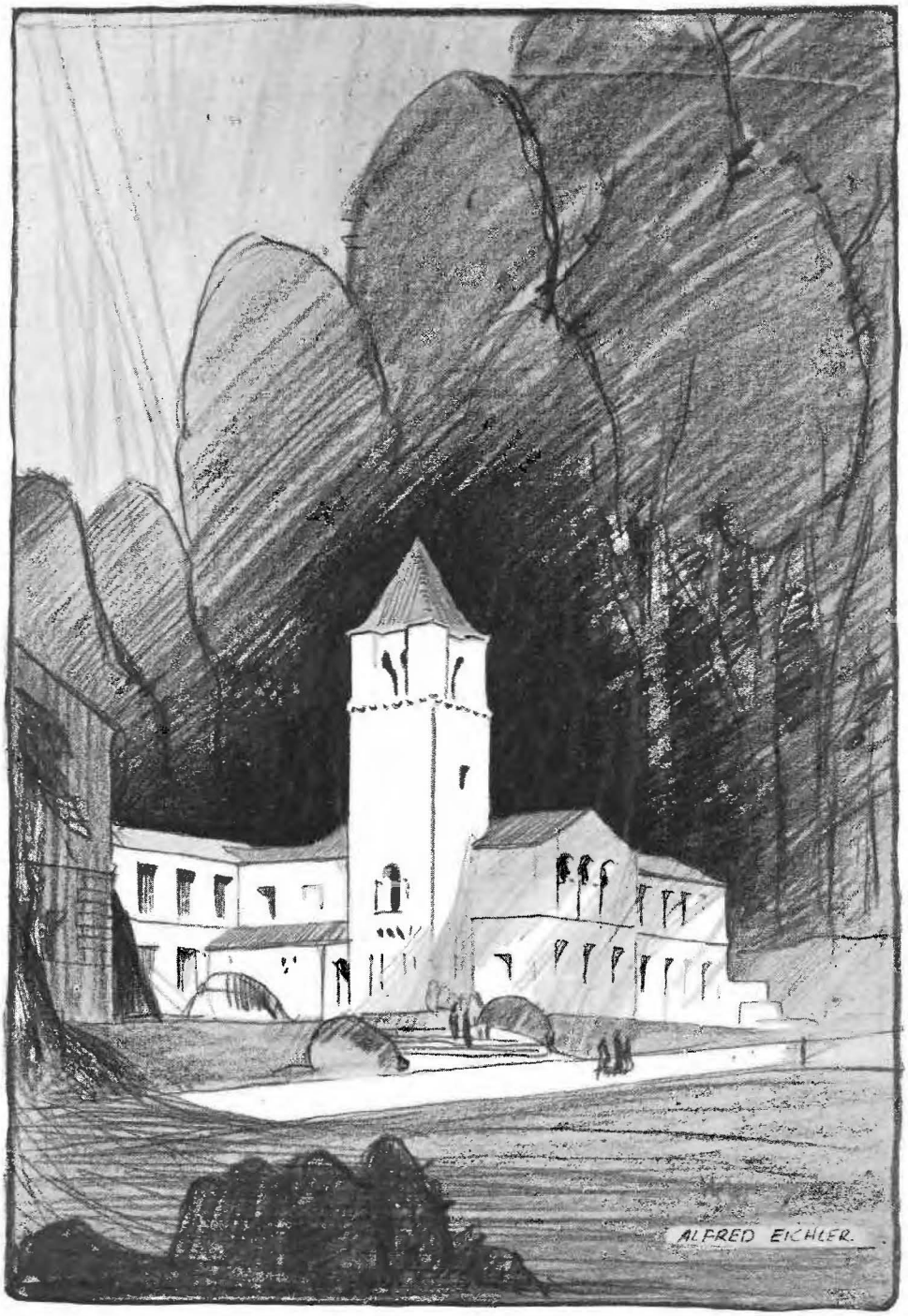
Architecture may be defined as the art of building beautifully and constructing soundly. There is no formula that produces good architecture.

The architectural draftsman plays an important part in making a design a success, as it is he who develops the working drawings. He must be able to interpret in building terms the designer's idea in the form of drawings that the contractor can understand. Each set of drawings are thoroughly checked before being sent out for bids. This eliminates any chance of costly extras due to mistakes or misunderstanding on the part of the contractor as to just what is required.

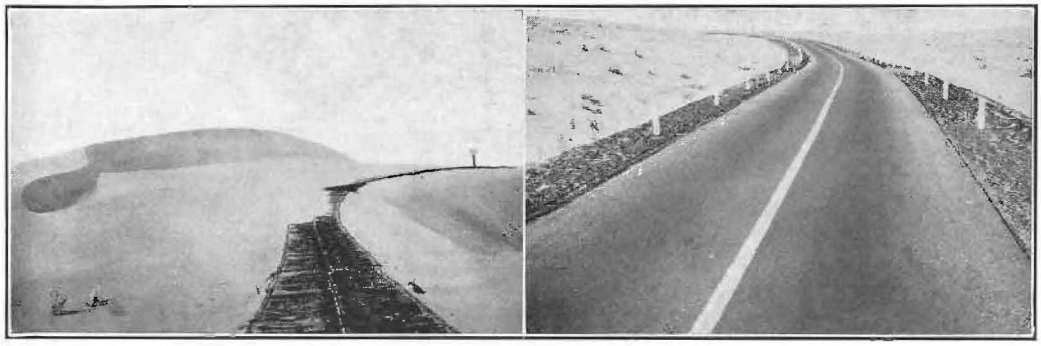
The drawings for most of the buildings are made on tracing cloth in ink, and after all prints have been made, are filed as a permanent record. Should any change be made during construction, it is noted on the original drawings that a change order has been issued. In this way future alterations or additions can be made without making trips to the job and measuring the existing work, which saves considerable time.

(Continued on page 16.)

Scenic Glimpses of State Buildings



Annex to School Building, California School for the Blind, Berkeley



Th Old Plank Road Through the Sand Dunes and the New Highway

Old Plank Road to Be Preserved

By E. Q. SULLIVAN, District Engineer

SEVERAL weeks ago an editorial appeared in the Calexico *Chronicle* by the editor and publisher, Mr. Ranc ail Henderson. The editorial follows:

A plea for the preservation of the old plank road—or what remains of it—which spanned the rolling sand dunes east of Imperial Valley before the paving was installed, is made in a recent issue of the Arizona *Sentinel*.

The *Sentinel* writer recalls some of the obstacles which confronted the state engineers when they undertook to replace the planking with cement. One group of experts declared that if the grade was low the blow sand would cover the highway. Another group insisted that if the road was high the wind would blow the sand from under it.

The State Highway Department solved the problem by placing an engineer on the location for a period of observation. The present highway is the result—and its success has vindicated the judgment of those who made the final decision.

Here is the *Sentinel* writer's comment:

"The old plank road, which for years was the only highway crossing the sand hills, connecting Yuma with Imperial Valley, is being carted away by vandals. Since the coming of the hard-surfaced pavement, the old plank road has not been used; neither has it been forgotten.

Stretched for miles paralleling the highway it is always an interesting sight, not only to the tourist, but to those who have made the tedious trip across its many boards, bound together with iron strips. It is true that the planks are buried in many places, but the manner in which they yet shift with the sands and withstand the ravages of time and elements cause one to marvel at the ingenuity of the men responsible for the building of such a highway.

The name of the 'old plank road' is famous throughout the country. Tourists come this way just to see how we traveled across the sand hills years ago. It is really an interesting sight and should be left just where it is, or until the sands cover it over. It is not in the way and is on no one's property. Let's try and stop further despoliation of one of the southwest's most famous and interesting marks."

Thought had not been given to the preservation of the old plank road, and in fact the Imperial Irrigation District, being a public organization, had been given permission to use such planks as they might desire. The idea of preserving the old plank road as being an object of historical interest seemed good, and a letter was written by the Division of Highways to the Imperial Irrigation District as follows:

I have received a clipping from the Calexico *Chronicle* in which a plea is made for preservation of the old plank road across the sand hills because of its historic value. This is our route Imp-27-B.

You will recall that a number of years ago permission was requested from the Imperial Irrigation District to remove planks from the old road for use of the district. It is my recollection that this permission was granted the district.

I have not noticed that many, if any, of the planks have been removed from the old plank road by the Imperial Irrigation District.

In view of the local suggestion that the old plank road be preserved because of its historic value, please advise if the Imperial Irrigation District still desires to remove planks from the old road.

If it is still desired to use planks from the old plank road, please advise if it will not be satisfactory to remove only such parts of the old plank road as are beyond sight of the new highway.

I have received the following letter from the Imperial Irrigation District:

The district is in accord with the suggestion you make in your letter of April 11th regarding the old plank road across the sand hills. It is true we contemplated using the planks, but found that the cost of taking up and hauling to the valley was not economical. I think it is a fine idea to preserve the plank road, at least that portion in sight of the highway, and we will be glad to cooperate with you in doing this.

Yours very truly,

(Signed) M. J. DOWD,
Chief Engineer and General Superintendent.

Uniform Traffic Laws Termed Problem for States and Cities

FINAL recommendations for nation-wide uniformity of traffic rules and regulations on the municipal and state thoroughfares of the country were adopted by the drafting committee of the national conference on street and highway safety which concluded its three-day sessions May 29 in Washington, D. C. The State Department of Public Works and the California Highway Commission was represented at this meeting by State Highway Engineer C. H. Purcell.

The following account of this important conference is contained in *The United States Daily:*

The Secretary of Commerce, Robert P. Lamont, at the conclusion of the meetings, declared it is now up to the states and municipalities to carry on the recommendations adopted.

"I think the deliberations of the conference," he told the delegation, "are a convincing guaranty that they will have the earnest support of the organizations and associations which have been represented here."

The report of the drafting committee was presented to the conference by George B. Young, delegate from Montpelier, Vt., for the national conference of commissioners on uniform State Laws. The report, it was announced, did not make any material changes in the uniform vehicle code or the model municipal traffic ordinance as they had been originally presented to the conference.

State Highway Engineer C. H. Purcell, who attended National Safety Conference at Washington, D. C.

RAIL SIGNALS MODIFIED

Upon the motion of W. N. Doak, national legislative representative of the Brotherhood of Railway Trainmen, and the concurrence of Dr. Julius H. Parmelee, acting chairman of the committee on railway grade crossings and highway intersections, it was agreed to broaden the language of the code relating to signaling devices and warning signs at crossings so as not to hamper or interfere with the future development and improvement of these mediums of protection.

An effort to remove the provision requiring inspection of automobiles as to mechanical fitness and safety prior to issuance of license tags was met with rejection at the hands of the delegates. The belief that the provision would impose an unduly heavy tax upon the public authorities in connection with the licensing of automobiles and doubt if it could be carried out in his state was expressed by H. B. Myers, chief of police of New Orleans.

Defending the provision, George W. Elliot, general secretary of the Philadelphia Chamber of Commerce, declared that under the statute of the state of Pennsylvania 1000 defective and unsafe automobiles have been removed from the highways of his state in a single year and that defects in 2000 others were remedied.

Mr. Elliot pronounced the Pennsylvania law as one of the strongest factors for safety on the streets and highways in his state, and declared no inconvenience or delay is experienced by motorists in obtaining their annual licenses as a result of the operation of the law. He asserted that it would be a distinct backward step for the conference or for any state or city to refuse to support the proposal for the mechanical inspection of motor vehicles.

SPEED LIMITS FIXED

Included in the recommendations adopted by the conference are provisions fixing a 20-mile-per-hour speed limit in business districts, 25 miles in residential districts and in public parks within cities, and 45 miles outside of business and residential districts.

With respect to slow driving the code declares: "It shall be unlawful for any person

unnecessarily to drive at such a slow speed as to impede or block the normal and reasonable movement of traffic except when reduced speed is necessary for safe operation or because upon a grade or when the vehicle is a truck or truck and trailer necessarily in compliance with law proceeding at reduced speed."

Concerning passing of vehicles proceeding in opposite directions to code requires that drivers "shall pass each other to the right, each giving the other at least one-half of the main traveled portion of the roadways as nearly as possible."

RULES FOR OVERTAKING

Regarding overtaking and passing cars the recommendations provide that the driver of an overtaken vehicle "shall give way to the right in favor of the overtaking vehicle on suitable and audible signal and shall not increase the speed of his vehicle until completely passed by the overtaking vehicle."

It is also required that "the driver of a vehicle shall not drive to the left side of the center line of a highway in overtaking and passing another vehicle proceeding in the same direction unless such left side is clearly visible and is free of oncoming traffic for a sufficient distance ahead to permit such overtaking and passing to be completely made without impeding the safe operation of any vehicle overtaken."

When approaching curves, etc., the code rules against driving to the left side of the center line of a highway "when approaching the crest of a grade or upon a curve in the highway where the driver's view along the highway is obstructed within a distance of 500 feet."

With respect to municipal traffic regulations, the recommendations provide that a left turn at an intersection be made on the green light. The regulation, as contained in the model municipal traffic ordinance, declares that "the operator of a vehicle or street car intending to turn to the left at an intersection where traffic is controlled by traffic control signals or by a police officer with proper care to avoid accident and shall proceed to make such left turn only upon the 'go' signal, unless otherwise directed by a police officer."

The conference expressed its approval of the cooperation of the various public organizations in solving the traffic problem and passed a resolution offered by H. S. Buttenheim, editor of the *American City*, calling upon Secretary Lamont to appoint a committee to consider the establishment of a national foundation for the study of congestion and public safety.

LACK OF DATA HANDICAPS COMMITTEE

The resolution follows in full text:

"Whereas, the various committees of this conference, in their efforts to base their reports not on opinions but on facts, have been seriously handicapped by the lack of authoritative and comprehensive data on many vital phases of the traffic, transportation and safety problems; and congestion in urban communities is of growing importance and complexity, with resultant economic loss conservatively estimated at $2,000,000,000 annually and an appalling annual toll in human lives and suffering; and

"Whereas, there is a close relationship between congestion of vehicles on the city streets and city planning, highway design, land utilization, and the public transit facilities of the community; and

"Whereas, public authorities, civic organizations, property owners, business, financial and insurance interests, transportation agencies, automobile manufacturers and owners of automobiles are interested in the development of measures, both corrective and preventive, for the relief of congestion which shall bring about the greatest possible improvement at minimum costs, equitably distributed; now, therefore, be it

"Resolved, (1) that the third national conference on street and highway safety urgently requests the cooperation of the federal government, through such technical research and fact-finding experimentation as could properly be conducted by the Bureau of Public Roads of the Department of Agriculture, the Department of Commerce, and other governmental offices; and to this end the conference earnestly recommends to the Congress of the United States that necessary legislation be provided to permit the proper governmental agencies to conduct such research and experimentation upon important phases of the traffic and congestion problem, and to cooperate in these matters with municipal and other local authorities.

COMMITTEE FOR NATIONAL ORGANIZATION SUGGESTED

"And (2) That the conference further requests that the Honorable Robert P. Lamont, as its chairman, appoint a committee to consider ways and means of establishing a national foundation, nongovernmental in character, equipped with the funds and manpower adequate to conduct comprehensive studies of such problems of congestion affecting publis safety, the stability of property values and the orderly development of urban communities, as are indicated on the list appended hereto. It is suggested that, in its research on these and similar problems, the proposed foundation use as fully as practicable the cooperation of existing organizations and educational and research institutions in their respective fields.

The conference also expressed in a resolution its gratification to President Hoover for his leadership in the movement for uniform recommendations. The resolution follows in full text:

"Under the inspiration of your appeal to this conference at its opening meeting to promulgate effective measures for the reduction of traffic accidents and congestion, the conference has considered and adopted reports covering every phase of this vital and complex problem, and the members thereof, representing nearly every state and important civic or business group in the nation, return to their communities and to their official, professional and business responsibilities inspired with a deep determination to make the recommendations of this conference effective, so that your confidence in us may not have been misplaced.

SAFETY GREATLY ADVANCED BY UNIFORM STANDARDS

"The uniform standards and recommendations approved by this conference represent, it is confidently believed, a great advance in the principles of safe use of public streets and highways, resulting from the cooperative and cumulative efforts of traffic leaders throughout the nation, made possible by your wisdom and foresight in organizing the national conference in 1924.

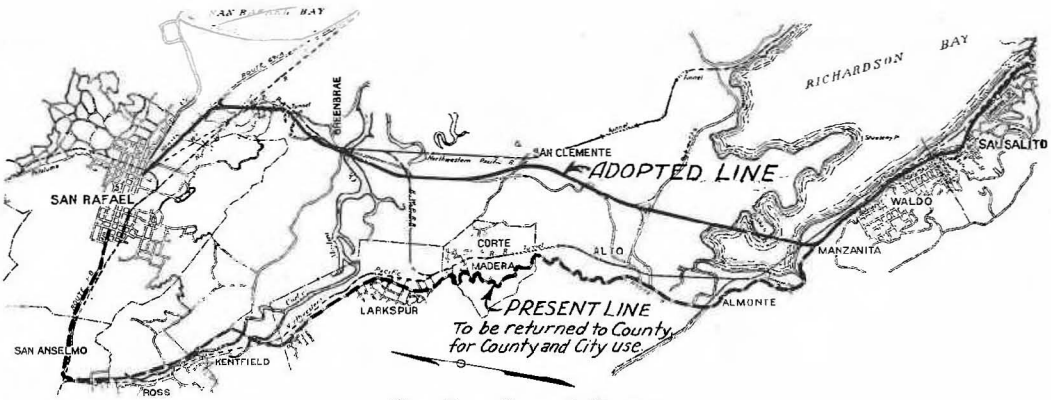
"Before adjourning we wish once more to express our gratitude for your leadership in this movement, and we believe and expect that the future will demonstrate the ability of the American people to solve or at least ameliorate this problem."

Secretary Lamont in addressing the conference at the conclusion of its sessions said:

"The deliberations of this conference have, I think, been impressive in two respects. They have brought into clear perspective the gravity and complexity of the problem with which it has dealt and indicated practical methods by which it must be approached.

(Continued on page 40.)

Improved Routing is Formally Adopted



The old routing and the new

THE recent adoption by the California Highway Commission of the location for state highway from a point near Alto across the head of Richardson Bay into Sausalito, completes the revised routing between San Rafael and Sausalito of the southerly terminal of the Redwood Highway, State Highway Route No. 1. The adopted route shortens the distance between these two towns by four miles over the present traveled road. It will remove a large volume of through traffic from the many congested areas encountered in the various towns through which the present highway passes. It will eliminate the crooked and steep Corte Madera grade and the traffic hazards occurring at the many intersections encountered on the present highway. The superior alignment, grades, and shorter distance will permit of an appreciable saving in time for traffic.

From Manzanita to Sausalito the new route coincides very nearly with the existing road, making provision, however, for revisions which will eliminate the bad curvature and permit of widening this important highway to an adequate width to properly serve traffic. The location from Sausalito northerly will better serve the large volume of traffic and affords the best opportunity for a possible future connection to the proposed Golden Gate bridge.

Grading of the new location has been practically completed from San Rafael to Alto, and a contract has been awarded for the placing of a bituminous pavement on this graded portion. Additional funds are available in this budget program for carrying the construction southerly from Alto across the head of Richardson Bay. Plans for this additional section, including a bridge across the bay, are now being prepared and will be advertised for contract before the end of the year.

SAFETY RULES CITED

Every careful automobile driver realizes, in this modern day, that he is constantly facing the possibility of accidents, either to himself or to some other person.

1. Be sure that your brakes are in good working order. Inspect them frequently.

2. Keep your mind on your driving, and anticipate sudden emergencies.

3. Obey all traffic and parking regulations.

4. Keep to the right, and comply with road markings and signs.

5. Signal for stops and turns. Watch the car ahead.

6. Slow down at crossings, schools and dangerous places.

7. Never pass cars on hills, curves, or crossings.

8. Adapt your driving to road conditions, rain, ice, soft spots and ruts.

9. It doesn't pay to take the "right of way" too seriously.

10. When you drive, remember the other times when you are a pedestrian.

11. Consider the right and privileges of others.

12. Know the law. It was passed for your protection.

Twenty of the forty-eight states of the Union require drivers of motor vehicles to have operators' licenses, the Division of Motor Vehicles has announced as a result of a survey of requirements by the various states. While some of these states issue licenses merely upon application of the prospective driver, most of them require the applicant to undergo an examination of his mental and physical fitness to drive as well as his experience.

Letters Tell of Service Given By Traffic Officers

Despite the little unpleasantries of his calling, the traffic officer receives something frequently from the public besides brickbats.

So much is gleaned from what Roy W. Youngblood, assistant superintendent of the California Highway Patrol, dubs his "bouquet file" containing many letters of thanks from motorists for small favors extended them by the officers in carrying out the patrol's policy of courtesy to the public.

While an irate driver writes in occasionally to complain because he was "clocked" doing 60 miles an hour, the bulk of the letters come from those who received help when they ran out of gas, were assisted in starting a balky engine, in patching or changing a tire or were otherwise helped in one of the numerous little things that is part of the traffic officer's daily grind.

"We are trying to have the public cease to fear the traffic officer and to regard him as a friend," Youngblood explained.

One letter expresses the thanks of a grateful Stanislaus County farmer for assistance offered by the night patrol in putting out a fire in his chicken house. Another tells of an officer who raced for a doctor when a baby of a stranded motorist developed convulsions. Another expresses thanks to an officer who secured help from a distant garage when a bearing went out.

The file contains a letter from Governor C. C. Young indicating the executive is much impressed with the spirit of helpfulness exhibited by the officers toward the public. Governor Young's attention was drawn to this phase of the work recently when he noticed a motorist apparently in trouble along the roadside in Solano County. Two miles farther Governor Young met traffic officer Leo J. Boyle and informed him of the situation.

Without knowing the identity of the Governor, who was traveling in a private car, the officer thanked him for the information and, mounting his motorcycle, went at once to the assistance of the stranded motorist. The officer was surprised to find out later that his informant had been none other than the state's chief executive.

According to present plans the new highway between Laredo, Texas, and Mexico City will be open for traffic by fall of this year.

Here Is Picture of Typical Driver-Victim In Auto Accidents

From the *United States Daily*

In an attempt to answer the question of who is the typical motor vehicle driver causing fatal accidents and who is the typical victim of such accidents, the committee on street and highway safety appointed by the Governor of Massachusetts has analyzed the detailed reports of all automobile fatalities in the state last year and has evolved two composite characters.

The person who caused such accidents in 1929 is identified by the statistics, states the committee, as follows:

He was a physically perfect, sober, alert man, over 25 years old, who had driven an automobile for more than five years. He was driving a passenger car equipped with two-wheel brakes in perfect order, as was also his emergency brake. His lights and other equipment were in good condition. He was driving in daylight, between 6 and 7 o'clock on a beautiful, clear Sunday afternoon, proceeding straight ahead on a straight, smooth bituminous pavement, the surface of which was absolutely dry. There were neither obstructions on the highway nor to the driver's view. On the other hand, there were no traffic lights and there was no traffic officer on duty. The location was a thickly settled residential district, yet the driver was moving at more than 25 miles an hour. He was going too fast for existing conditions and was to blame for the death.

The victim is identified by the committee, likewise, through a study of the statistics, as follows:

He was a physically perfect, sober, attentive man, over 55 years old. He was crossing the street between intersections in the same district through which the "killer" happened to be driving. Aside from the fact that he did not attempt to cross the street at its intersection, he was not otherwise at fault. He died of a fractured skull.

SPEED FOR NIGHT DRIVING

What is the proper speed for night driving?

This question often has been asked and answers are varied, but the Mississippi Supreme Court has just handed down an opinion which, it is believed, will not only insure safety, but will act as a precedent for other court decisions.

The case in question reversed the judgment of the lower court and the decision was that "an automobile driver at night should be able to stop within the range of headlights of the car."

The Connecticut Department of Motor Vehicles' analysis of accidents of the eastern state, shows that automobile accidents are more likely to occur at intersections of good road surfaces, during daylight, in clear weather, on June Sundays.

Highway Use in California Shown To be Greatest in United States

CALIFORNIA leads the nation in the amount of gasoline consumed for highway use, according to statistics compiled by the United States Bureau of Public Roads. The net total of gasoline taxed and used by motor vehicles in California in 1929 was 1,139,736,244 gallons. Pennsylvania came second and New York third.

The 48 states and the District of Columbia collected $431,636,454 in taxes on the sale of 13,400,180,062 gallons of motor fuel in 1929, reports received by the Bureau of Public Roads of the U. S. Department of Agriculture show. This includes a 12-month collection in 46 states and the District of Columbia, a 5-month collection in Illinois and the collections of 8 months in New York. Illinois and New York were the last states to adopt this method for part payment of the highway bill. The pioneer states—Oregon, Colorado, North Dakota and New Mexico—led the way in 1919. Now all the others have followed, but the tax did not become effective in New York until May 1 and in Illinois until August 1.

The average fee per gallon was 3.22 cents as against 3 cents in 1928. In the course of the year 20 states increased the rate of taxation either one or two cents. The highest tax per gallon was 6 cents; the lowest 2 cents. At the close of the year, three states had a 6-cent tax; eight a 5-cent tax; 19 a 4-cent tax; one, Utah, a 3½-cent tax; 10 a 3-cent tax and seven states and the District of Columbia a 2-cent tax.

In 1929 the rate per gallon was increased one cent in Colorado, Florida, Indiana, Kansas, Minnesota, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, South Carolina, Vermont, Washington and Wyoming; 2-cent increases became effective in Georgia, Louisiana, Montana, Nebraska, Tennessee and Texas.

Comparison of the total number of vehicles registered in 1929, with the total tax collected and with the taxable gallonage in all states (except New York and Illinois) and in the District of Columbia shows an average tax revenue of $17.72 per vehicle and an average purchase of 532 gallons of gasoline.

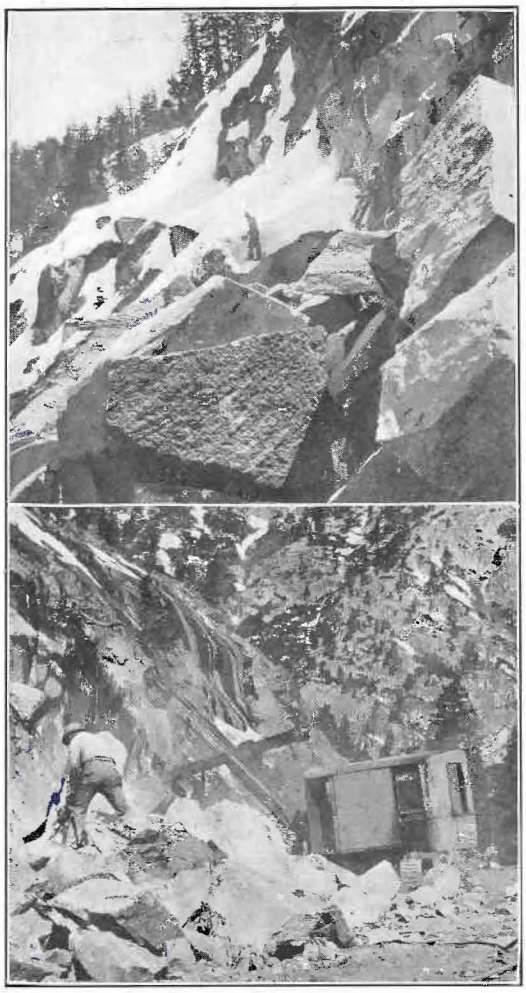
After deducting collection costs, the entire net revenue in 34 states was used for construction and maintenance of rural roads. In the other fourteen states and the District of Columbia, a total of $24,405,207 was used for other purposes. In three states part of the tax money helped support public schools. In eight states, a part of the revenue went to cities for repair and improvement of streets, as did the entire collection for the District of Columbia. In six states, small sums were deposited in general funds; in Mississippi, a special, extra tax was collected in two counties for seawall protection of highways and in New Jersey a small fraction of the receipts was turned over to the Department of Commerce and Navigation.

Of the revenue applied to rural roads, $297,967,756 was used for construction and maintenance of state highways; $85,113,708 for construction and maintenance of local roads; and the remainder, $23,371,785, applied as payments on state and county road bonds.

The following table shows the total number of gallons taxed in the several states:

State	*Net gallons of gasoline taxed and used by motor vehicles*
Alabama	178,162,903
Arizona	63,995,783
Arkansas	133,620,566
California	1,139,736,244
Colorado	141,466,891
Connecticut	202,354,590
Delaware	31,198,248
Florida	223,373,467
Georgia	219,609,473
Idaho	48,658,984
Illinois	388,659,266
Indiana	410,936,759
Iowa	311,859,516
Kansas	288,716,546
Kentucky	154,717,831
Louisiana	176,645,631
Maine	91,610,422
Maryland	157,429,197
Massachusetts	487,940,778
Michigan	710,300,302
Minnesota	338,631,771
Mississippi	140,902,401
Missouri	384,033,575
Montana	57,514,249
Nebraska	208,869,358
Nevada	16,307,535
New Hampshire	56,676,294
New Jersey	498,063,808
New Mexico	45,479,332
New York	962,601,285
North Carolina	260,210,528
North Dakota	71,591,708
Ohio	910,154,885
Oklahoma	314,388,292
Oregon	152,090,900
Pennsylvania	1,047,914,175
Rhode Island	77,826,879
South Carolina	118,038,130
South Dakota	88,644,138
Tennessee	194,497,225
Texas	761,421,692
Utah	56,546,967
Vermont	43,990,554
Virginia	197,898,821
Washington	233,333,570
West Virginia	121,654,788
Wisconsin	374,251,957
Wyoming	34,242,816
Dist. of Col.	71,409,032

WHEN ROCK IS ROCK



These are pictures of solid rock excavation along the new state highway north of Bay View Rest on the Lake Tahoe road in El Dorado County.

Excavation along the entire project is at the rate of 50,000 cubic yards per mile, ranging from 80,000 cubic yards per mile of solid rock, as shown in the photographs, to 21,000 cubic yards per mile of boulders and cemented clay to 50,000 cubic yards per mile of loose rock, boulders and disintegrated granite.

The photographs were taken April 8.

The elevation above sea level of the work photographed is 6500 feet.

BELIEVE IT OR NOT

Mr. W. F. Holbrook, maintenance superintendent of District Four, reports a rather unique adventure.

A short time back, while driving down King's Mountain on the Skyline Boulevard, Mr. Holbrook noticed an extremely large hawk gracefully sailing overhead a short distance in front of him. The hawk suddenly swooped down upon an unsuspecting cottontail rabbit sitting on the top of a heavy cut just ahead.

However, in attempting to escape with his prey the hawk found he had a little more than he could carry, but refused to let go and gradually dropped until he was directly in front of the car in which Mr. Holbrook was driving. The latter, sensing the collision, applied his brakes, but was unable to stop in time. Hawk and rabbit struck the windshield of the car, demolishing it completely.

After bringing the car to a stop and recovering somewhat from the shock, Mr. Holbrook found the hawk returning to consciousness on the front seat of the car beside him, with a death-like grip on the right cuff of his coat sleeve.

The rabbit was found completely shattered between the front fender and the hood of the engine, so tightly imbedded by the impact that it was difficult to remove him.

Mr. Holbrook is still trying to find out how he managed to escape with but three minor cuts from the flying glass of the shattered windshield.

THE ARCHITECT'S PART IN THE STATE WORK

(Continued from page 8.)

In some instances the work is done by day's labor or inmate labor, and the Division of Architecture acts in the same capacity as general contractor, ordering all material. In this case, requisition drawings are made showing shape and quantity of material required for such as millwork, sheet metal, ornamental iron, cast stone, terra cotta, etc., and bids are are taken for each material separately.

The final link in our service to the state is superintendence. We make this a real service.

BRITISH COLUMBIA—Increased amount and speed of traffic is responsible for the construction of highways with wider rights of way in this province.

Control by Roadside Burning Commended.

Railroad to Remove Billboards from Highway Frontage.

Clippings, Letters and Comment

Dealing with State Highways

Condition of Mountain Highways Praised.

Lassen Maintenance Station Beautified.

Palm Planting on Southern Road.

Roadside Burning Is Commended.

C. C. Cottrell, secretary of the Stop Forest Fires Committee of California, writes to Director Meek as follows:

At a meeting of the Stop Forest Fires Committee of California, held in San Francisco last week, I was instructed to write you regarding the activities of your department in the way of destroying for fire prevention purposes the grass, weeds and brush growing along the roadsides.

The committee was of the opinion that notwithstanding some temporary defacements that occur and a few complaints made by certain citizens of the state, that the work was entirely justified. It was stated that what we are all after is to prevent worse and irreparable scars.

The committee instructed me to commend your department for its activities in this direction.

* * * * *

Express Appreciation for Road Improvement.

This letter comes from the Mill Valley Chamber of Commerce:

The Mill Valley Chamber of Commerce, which met on Wednesday, May 28, 1930, wish to commend your appropriation of $80,000 for the development of the Alto-Tiburon highway, as well as your announced intention of immediately proceeding to the completion of that section of road.

* * * * *

Southern Pacific To Remove Billboards from Lands.

The Southern Pacific Railroad in a letter to C. H. Purcell, State Highway Engineer, has promised its full cooperation in the elimination of billboards from its land fronting on the state highways.

The following letter has been received by Mr. Purcell from B. A. McAllaster, land commissioner of the company:

In response to yours of the 21st ult., concerning your finding of many unsightly signboards lining state highways in southern California situated upon lands belonging to Southern Pacific Land Company.

Southern Pacific Land Company has not authorized the construction of any signs upon any of its lands abutting upon state highways in southern California.

The Division of State Highways is hereby authorized to act on behalf of Southern Pacific Land Company in any lawful and appropriate manner in accomplishing the removal of any signs which may exist upon Southern Pacific Land Company lands abutting upon state highways.

This authority, however, applies only to unsold lands of the company. If such signs are found to be upon lands covered by outstanding sale contracts jurisdiction in respect thereto rests with the contract holder.

If any signs are noted as being situated upon Southern Pacific Land Company lands, but at such a distance from the highway as renders them unobjectionable so far as the Division of Highways is concerned, I will be obliged if you will, as such discoveries are made, inform me of the location, character and wording of the sign, and the name of the party who apparently is responsible for its construction or is benefited by its use.

* * * * *

Maintenance of Mountain Highways Is Commended.

Major Evan W. Kelley writes from Washington, D. C., to his boyhood friend, Jack Reid, maintenance foreman on the Downieville lateral, as follows:

Ever since my trip at Christmas time to Downieville and home, I have intended to drop you a line to compliment you on the excellent maintenance work you are doing on the highway leading into our old town.

The standard you have attained is not excelled east, west, north or south, on earth roads; at least I have never encountered a superior demonstration of the art of dirt road maintenance anywhere, and since leaving California it has been my fortune to have covered many thousands of miles of highways and byways in every state of these United States of ours. Again I congratulate you.

* * * * *

Lassen Maintenance Station Beautified.

The Susanville *Mail* records the following improvement:

The maintenance station of the State Highway Commission on the Johnstonville road has undergone an extensive landscape change during the past two weeks, and when the work is completed and the lawns, plants, flowers, trees and shrubbery have grown, the

station will present a very pretty and artistic appearance.

The beautifying of this station fits into the general scheme of the State Highway Commission of landscaping all the highway stations in the state.

The area of the local station is two acres. Trees have been planted around the yard and three lawns have been seeded. Forty Arizona ash trees and thirty native cedars as well as an abundance of shrubbery have been planted. Along the front fence on the north side climbing wild rose has just been put in, and along the east side of the fence yellow jasmine has been planted. A very hardy collection of fine Chinese chrysanthemums have been planted and the natural wild sagebrush hedge that has been put in is the first of its kind ever attempted in this locality.

* * * * *

Snook Outlines License Policy.

No immediate steps will be taken toward cancellation of operators' licenses issued in 1927 and 1928, it was announced here today by Frank G. Snook, chief of the Division of Motor Vehicles.

Such licenses are valid and will remain so until canceled, Snook said.

The motor vehicle chief explained that the files had been brought up to date by the drive made last year against holders of obsolete licenses when several hundred thousand renewals were made.

"It probably will be at least a year before we make any attempt to cancel licenses issued in 1927 and 1928," Snook said.

"We feel there is no particular reason for doing it at this time and that cancellation of these licenses would only be a hardship on the motorists and an expense to the state."

* * * * *

Palms to Adorn Southern Road.

The following is from the San Bernardino *Sun:*

Beautification of the Ocean-to-Ocean highway between Redlands and the Santa Ana River bridge, east of Colton and south of San Bernardino, will be started immediately. This announcement came recently from J. E. Stanton, district maintenance engineer for the State Highway Commission.

Four hundred Washington palms are to be brought from the Coachella Valley to line the Redlands-San Bernardino link of the transcontinental motor highway, said Mr. Stanton. The palms, already potted at Indio and made ready for transplanting, range from two to five years of age.

* * * * *

Drivers Must Obey School Bus Law.

Rigid enforcement of the law requiring drivers of motor vehicles to come to a stop immediately before passing school buses loading or unloading school children was ordered today by Eugene W. Biscailuz, superintendent of the California Highway Patrol.

Pointing out that nearly one-third of the traffic fatalities are children under 9 years of age, Biscailuz instructed inspectors and squad captains to pay particular attention to this phase of enforcement.

The state law requires motor vehicles to stop before passing buses loading or unloading children and to proceed then at a speed not greater than ten miles per hour and with "due regard for the safety of the children."

* * * * *

Publisher Urges Tree Planting on Highways.

Alfred E. Harrell, publisher of the Bakersfield *Californian,* when he gave a talk last week at the Delano Woman's Club, spoke of the planting of trees on the highway between Delano and Bakersfield, says the Delano *Record.*

Mr. Harrell has been an ardent exponent of beautifying the highways of Kern County, and he has spent some time on the tree proposition.

He had recently talked with Bert Meek of the State Highway Department, and where the highway has been widened to 90 feet trees will be planted. The state will select the variety of tree, but they will be paid for by the community through which the road passes. The first year the state will care for the trees for a flat sum of $2.25 per tree. There is a 10-mile stretch now ready for planting.

Speaking of the financial aspects of the tree planting, Mr. Harrell stated it would cost about $2,400, and that he had decided to make himself a committee of one to raise the money.

"If every man, women and child will help, there will be no difficulty in raising funds, and by March of 1931 we can have an historic Arbor Day at Delano. The trees can be continued down the highway, and finally connect with Bakersfield."

* * * * *

Pedestrians' Rights Protected by Courts.

The Division of Motor Vehicles has called the attention of motorists of California to the fact that the courts of this and other states, in recent months, have held almost unanimously that pedestrians have the right of way over motor vehicles.

Desirous of informing the motorists of the need of careful driving where pedestrians are concerned, the division's bulletin pointed out

that court decisions have held that motor vehicles are required to give way to pedestrians and that pedestrians have frequently collected heavy damages from motorists who failed to do so.

"The large number of fatal accidents involving pedestrians and the fact that the courts almost invariably award damages to the pedestrian-plaintiff should be sufficient reason for extreme care in crowded streets and on highways used by pedestrian traffic," the bulletin said.

The bulletin said recent decisions by the courts have produced the following points in favor of the pedestrian:

1. The pedestrian has the right to use all parts of the highway, being chargeable only for the exercise of a due amount of care.

2. The pedestrian hit and injured in the center of the street can not be considered as negligent because he was there instead of on the sidewalk.

3. The pedestrian is not guilty of negligence because he fails to look behind him. The pedestrian is not bound, as a matter of law, to be looking and listening continuously to see if motor vehicles are approaching.

4. The rule of reasonable precaution requires that the driver be certain the pedestrian is aware of the approach of the vehicle at such distance as to avoid running over him.

5. The driver who strikes a pedestrian because he was blinded by the sun or lights can not escape responsibility by offering this as an excuse.

STATE SUPERVISION OF DAMS

(Continued from page 6.)

it or when controversial issues are involved, the State Engineer avails himself of the services and advice of consultants experienced in the particular phase under consideration to report upon these technical matters that a proper and sound solution of the problem may be reached.

It is the aim and endeavor of the department, rigidly adhered to, to require that the personnel refrain from forming conclusions on the basis of local or prejudiced influence, imposing unwarranted or dictatorial conditions beyond the requirements of safety, exerting unnecessary influence over construction, assuming engineering direction, or directing economic considerations such as choice of type, location, etc. It is likewise the desire of the department to minimize inconvenience to the owner, eleminate transgression on the engineering profession and cause a minimum disturbance of economic conditions. On the other hand, the personnel stands, at all times, willing to discuss, informally, with the engineer acting for the applicant controversial problems of design or construction relating to the safety of the dam.

To the end that uncertainty, needless expense and inconvenience to the owner as well as the supervisory agencies may be minimized, an agreement has been effected by the State Engineer with the Federal Power Commission, U. S. Forest Service and the California Debris Commission providing a cooperative procedure for carrying on the activities of the agencies having joint jurisdiction over dams.

An analysis of records discloses that a major number of dam failures has resulted from inadequate spillway provisions and foundation or abutment insufficiencies. Where ordinary care has been exercised in the design or construction of a dam instances of failure within the structure itself have been extremely rare. This indicates not that less thought and effort be directed to technical design, but rather that more thought, and competent thought, be applied to geologic and hydrographic study.

State supervision of dams, if properly and competently administered and if directed aggressively to the proper requirements of safety in dam design and construction merits the support of the engineering profession in maintaining public confidence and advancing the technique of the profession; assures the public of unbiased and uninfluenced engineering opinion; dispels inherent public fear of dams; centralized and makes for uniform coordinated control, and records and makes available in condensed permanent form technical information and data of inestimable value. State supervision of dams should, however, be ever cognizant of the fact that the advancement of any community depends upon the development of its water resources through the construction of dams. Obviously this program must not be retarded through over-cautious and unwarranted functioning of the office having jurisdiction beyond reasonable requirements for assurance of safety.

A HOT ARGUMENT

Never helps develop cool judgment.
Is a poor way to make warm friends.
Seldom settles any real differences.
Can not be conducted in low tones.
Means tongues in high with brains in neutral.
Never smothers any old animosities.
Seldom increases anyone's self-respect.—From *Farm Bureau Monthly.*

The number of motor cars now going to the scrap heap annually is nearly three times the volume of new car production in 1916, when the country's modern road-building program actually began.

CALIFORNIA HIGHWAYS AND PUBLIC WORKS

Official journal of the Division of Highways of the Department of Public Works, State of California; published for the information of the members of the department and the citizens of California.

Editors of newspapers and others are privileged to use matter contained herein. Cuts will be gladly loaned upon request.

B. B. MEEK ..... Director
GEORGE C. MANSFIELD ..... Editor

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Added Care in Vacation Urged on Autoists by Governor

Calling attention to the fact that the approaching end of the school term in California will release thousands of children for play, Governor C. C. Young today urged motorists to be on the lookout for children in the streets and along the highways during the vacation season.

Concurrent with the Governor's statement, orders were issued to members of the California Highway Patrol to enforce strictly provisions of the law limiting speed in residential districts and to spread the warning to drivers to watch for children.

Records of the Division of Motor Vehicles show motor deaths among children are always heaviest during June, July and August.

Governor Young said:

"Every driver of a motor vehicle is asked to exercise the utmost caution during the coming school vacation period. Thousands of children will be playing in and along the streets and unless watched carefully will often get in the path of moving vehicles. Help us reduce this toll of young lives by doing your share."

NEW HAMPSHIRE—In the construction of the new Whitefield-Lancaster road through the White Mountains care was taken to preserve every natural beauty spot. Careful trimming and cutting has, in fact, added to the charm of this road.

A news story tells of a nonstop auto driver collapsing at the wheel of his car, after driving 201 hours. Our hearty sympathy goes out to the driver—we, too, have tried to find a place to park!—*The Garageman.*

Value of Public Work Program Told by Savant

California is witnessing the largest construction program in its history at a time when the need of construction activity is the greatest. The importance of just such a construction program that California is today enjoying was recently discussed by Dr. John M. Gries, chief of the construction division of the Department of Commerce, in an address before a conference on construction in connection with the annual meeting of the Chamber of Commerce of the United States.

Here are some of the things that Dr. Gries said:

During business depressions, when domestic industry, commerce and trade are at a low ebb, we may look in two directions for possible relief or stimuli, namely: (1) foreign trade, and (2) construction. Foreign trade is of great importance and every effort should be made to stimulate such trade, but if the depression is world-wide, it is difficult to enlarge or expand this important safety valve or spillway.

The annual expenditure for construction and upkeep in the United States amounts to about $10,000,000,000. This is equal to about three-fourths of the total value of all farm products or to more than the value of all our imports and exports.

During depressions, many of our domestic industries, even if financially able, can not produce for stock to any great extent, for their products are more or less perishable or subject to market depreciation or obsolescence. The products of construction, however, are more durable, and in some lines we are many years behind our needs; for example: in grade eliminations, railroad crossings, highways, waterworks, flood control, river improvements, etc.

If we were to pick out a single industry whose increased activity would stimulate the largest number of other industries, that industry would be construction, for construction is the major market for the products of more than 20 important domestic industries, such as iron and steel, cement, lumber, brick, sand and gravel, hollow tile, copper, hardwood, terra cotta, millwork, plumbing equipment, lighting equipment, heating equipment, sanitary ware, paint, slate, granite, stone, etc. To increase the volume of construction means increased activity in all these industries and others that supply these industries. It means increased employment, increased sales, increased purchasing power and enlarged markets.

And among the groups the census takers should not overlook are the residents of drug store telephone booths.—*Judge.*

BUSINESS NOTE

"And now," said the teacher, "will someone please give us a sentence using the word 'candor'?"

"Please, 'm," said the bright little boy in the front seat, "my papa had a pretty stenographer, but after ma saw her he candor."

Big Volume of Work Is Under Way

Projects Completed and Accepted

State Highway Work During May

C. H. PURCELL, State Highway Engineer, Chief of Division

Many Highway Improvements Made Possible Through Work Now Undertaken

The following report summarizes progress in state highway work during the month of May:

Work placed under contract	$823,900
Contracts pending and advertised	2,564,700
Work in progress, anticipated to be advertised during the coming month	3,702,400
Total	$7,091,000

WORK COMPLETED, ACCEPTED

During this period among the contracts which have been completed and accepted are the following:

BARSTOW OVERHEAD

The overhead grade separation over the tracks of the Santa Fe Railroad at Barstow, in San Bernardino County, is now an accomplished fact. This large structure spans the yards of the railroad and consists of three 172½-foot steel truss spans, two 65-foot deck girder spans, one 76-foot deck plate girder span, one 40-foot steel beam span and approximately 392 feet of timber trestle, making the total length of the overhead 1155 feet. This improvement fills a long-felt need in this vicinity and serves a threefold purpose, as it is on a section of the state highway which is common to the road from Los Angeles and San Bernardino to southern Nevada, the route from Mojave to Barstow, and the road toward Needles and Arizona. The cost of the structure was $163,200.

CAJON BRIDGE

Another structure to be completed in San Bernardino County is the 60-foot reinforced concrete slab bridge near Cajon station on the Cajon Pass road. This bridge was constructed at a cost of $18,500 and eliminates a big dip in the highway. It has a clear roadway width of 34 feet.

MOJAVE TO OWENS VALLEY

The 14 miles between Freeman and the northerly boundary of Kern County have been graded to a width of 36 feet and surfaced with oil-treated crushed rock. This work was on a portion of the highway from Mojave to the Owens Valley or the easterly side of the Sierras. It is a link in the improvement of this arm of the state highway system upon which traffic is rapidly increasing. The road not only serves those living in the Owens Valley, but each year carries more and more recreational traffic from southern California to the mountains in the summer and to the desert in the winter. By the end of this year there will be approximately 200 miles of continuous and modern surfaced highway on this route. The cost of this project amounted to $147,900.

WIDENING VALLEY ROUTE

The general program of widening the main Valley Route between Los Angeles and Sacramento has received impetus by the reconstruction of over twelve miles of this road between the southerly boundary of Tulare County and Pixley. This improvement has given a 36-foot roadway, and an asphalt concrete pavement 20 feet wide has been placed, using the old 15-foot Portland cement concrete as a base. The cost was $316,500.

FEATHER RIVER LATERAL

At a cost of $184,000, the first link of the all-year Oroville to Quincy highway along the North Fork of the Feather River has been completed. The project covered the four miles in Butte County between Oroville and the Feather River, where the road will cross both the Western Pacific tracks and the river on the beautiful reinforced concrete open spandrel arch bridge which is now under construction. At present motor travel to the city of Quincy and much of Plumas County is cut off for five or six months each year due to the heavy snowfall in the passes, and the completion of this new route will give to that locality an all-year highway.

BRIDGE LANDMARK REPLACED

The passing of one of California's landmarks is seen by the replacing of the old suspension bridge across the North Fork of the American River near Auburn. The old bridge connecting Placer and El Dorado counties at this point was erected in the early sixties and was next to the oldest bridge in the state highway system. It was in very poor condition and has been replaced by a 322-foot steel suspension span, having a 12-foot roadway width. The selection of this type of bridge was governed by the fact that the permanent location of this river crossing is dependent upon the building of a dam below the present site and that the loss will be held to a minimum when the permanent structure is erected. The bridge was erected at a cost of $27,800 and is located near the northerly end of the interesting Mother Lode Highway.

COTTONWOOD BRIDGE

Another old and dilapidated bridge has gone the way of all faithful servitors of public convenience, and the worst portion of the Pacific Highway between Sacramento and Redding is eliminated. This improvement is the construction of a bridge, consisting of twenty 60-foot reinforced concrete girder spans on concrete piers and pile foundation, across Cottonwood Creek between Tehama and Shasta counties. The new bridge is constructed on an improved alignment, the roadway portion of which has just been advertised for bids in connection with the construction of a new reinforced concrete subway under the tracks of the

Southern Pacific Railroad in the town of Cottonwood. The bridge was built at a cost of $167,800, and the subway and the Portland cement concrete pavement are estimated to cost $163,500.

BID OPENINGS

Some of the more important projects for which bids were opened during the past four weeks include:

APPROACHES TO VICTORVILLE BRIDGE

A project for the construction of the roadway approaches to the new bridge, upon which construction is just starting, across the Mojave River near Victorville in San Bernardino County. This work, which will cost $19,800, comprises 0.8 of a mile of 36-foot graded roadbed on an improved alignment of the state highway from San Bernardino to Barstow. The present bridge was constructed by the county some twenty years ago and was placed on an inferior standard of alignment. The new structure with its approaches will give a river crossing of modern standards of alignment and grade.

MOKELUMNE RIVER BRIDGE

In San Joaquin County an important improvement is to be made on the Los Angeles to Sacramento artery on that portion of this important route between Stockton and Sacramento, where it crosses the Mokelumne River at Lodi. A 162-foot reinforced concrete girder bridge with 665 feet of timber trestle approaches, together with three-quarters of a mile of roadway approach, is to be constructed as a crossing over the Mokelumne River. The bridge will replace the existing steel truss bridge with its timber approaches which was erected by the county in 1898, and will have a clear roadway width of 34 feet. The roadway approaches will be graded 36 to 40 feet wide and be surfaced with untreated crushed gravel or stone. They will be the first stage in the construction of a Portland cement concrete pavement on this section of the road. The present construction of the high fills necessary to the bridge approaches will allow ample time for settling before the placing of the pavement during the next biennium. The total cost of this improvement will be $112,200.

TAHOE-UKIAH SECTION

A new alignment of a portion of the Tahoe-Ukiah lateral will be made on approximately 13 miles of this route between Bear Creek and five miles west of Williams in Colusa County, to be constructed at a cost of $152,700. This project will replace with wide curves and easy grades the existing steep and crooked unimproved dirt road, from the mountains near Clear Lake to the Sacramento Valley. Its construction will mark a new link in the building of another improved highway across the state from the Sierras to the sea.

PACIFIC HIGHWAY

Another project just being started in Colusa County is the construction of a 39-foot graded roadbed between Williams and Maxwell, at a cost of $67,900. This 8.3 miles is a portion of the West Side Road and is the first stage of the ultimate improvement of this section of the Pacific Highway. The roadbed is to be constructed to the west of the existing pavement so that the center line of the ultimate pavement will coincide with the center line of the recently acquired 100-foot right of way. The placing of a gravel base for the new pavement will be done later in the summer and paving will be laid during the next biennium. Particular care has been taken on the present project to secure adequate drainage, as the road passes through irrigated rice fields.

REDWOOD HIGHWAY PROJECT

At Scotia and from Fortuna to Loleta in Humboldt County a 20-foot Portland cement concrete pavement is to be placed on 4½ miles of the scenic Redwood Highway. This work will increase the Portland cement concrete in Humboldt County on this route to some 33 miles. The grade and alignment of these two portions are excellent. Their cost will be $164,250. Adjoining this improvement on the north, 2.5 miles of screened gravel surfacing, 22 feet wide, is to be placed on the recently constructed graded roadbed, and the 2.7 miles north of this improvement is to be graded and similarly surfaced to a new and modern gradient and alignment. This 5.2 miles of Redwood Highway improvement will cost $56,500.

WORK ADVERTISED

Work advertised for bids during the past month includes the following projects:

FOOTHILL BOULEVARD

Widening of the roadbed to 56 feet and placing an asphalt concrete pavement 30 feet wide on the Foothill Boulevard from Azusa to Glendora in Los Angeles County. This project is in line with the general improvement of this heavily traveled road from Los Angeles to San Bernardino. This construction will give a three-lane pavement with wide shoulders over this mile of highway.

CUYAMA LATERAL

In Santa Barbara and San Luis Obispo counties, the Cuyama lateral is to be graded and surfaced with oil-treated crushed gravel or stone for a distance of 26 miles. The work will extend from the third crossing of the Cuyama River to the Kern County line, and proposes to straighten several curves and iron out the wrinkles of the present choppy gradient. The Cuyama lateral connects the San Joaquin Valley with the Coast Route at Santa Maria; it serves as an outlet for the Maricopa oil fields to the coast as well as connecting the valley artery with Route 2.

COAST ROUTE IMPROVEMENT

An important improvement to the Coast Route, between Los Angeles and San Francisco, is noted by the advertising for bids on the construction of a new bridge across the Salinas River at Bradley in Monterey County, about 21 miles north of Paso Robles. The present structure, which was built by the county in 1888, is in very poor condition, dangerously narrow, and is approached by two vicious curves. The new structure will be built on a new and sane alignment; it will consist of six 140-deck truss spans, with a concrete deck, resting on concrete piers, placed on pile foundations, and 810 feet of reinforced concrete girder spans on concrete bents placed on pile foundations. The clear roadway width will be 24 feet.

WORK SOUTH OF PALO ALTO

Another portion of the important Coast Route which runs from Los Angeles to San Francisco is to be reconstructed just to the south of Palo Alto. From San Antonio avenue in Palo Alto to Sunnyvale, five miles of the part of this road extending down the

peninsula from San Francisco is to be widened to a 50-foot roadbed and paved with asphalt concrete, over the existing 20-foot pavement, widened with Portland cement concrete to a minimum width of 30 feet. The paving of this portion of this heavily traveled highway will fill the last gap in the reconstruction of this route from Palo Alto to Santa Clara.

BIG BASIN PROJECT

In Santa Cruz County, Route 42, which traverses Big Basin, one of the state's most attractive recreational spots and known as "California Redwood Park," is to be graded and surfaced with waterbound macadam, with bituminous surface treatment 20 feet wide, for a stretch of over 2½ miles between Waterman Switchback and Saratoga Gap. The recently completed construction on the Skyline Boulevard and its lateral connections makes this Redwood forest accessible to one and one-quarter million people with less than three hours driving over roads of unusual scenic attractions.

SAUSALITO TO SAN RAFAEL

Another advertisement calls for bids on a bituminous macadam pavement 30 feet wide on the 4½ miles of the graded roadbed just being completed on a portion of the new alignment of the Redwood Highway between Sausalito and San Rafael. This work adds another link to the steady improvement of this scenic and popular highway. The new road will be nearly level and considerably shorter than the existing route.

WORK EAST OF TRACY

Reconstruction on two miles of the Santa Cruz to Stockton lateral has been advertised. The portion to be improved is located just east of Tracy from the South Banta road to the East Banta road, and is a link in the heavily traveled routes from San Jose to Stockton and from Oakland to Stockton. The work consists of widening the present 20-foot roadbed to 36 feet and placing an asphalt concrete pavement 20 feet wide over the existing narrow 15-foot Portland cement concrete pavement.

MOTHER LODE IMPROVEMENT

The replacing of the existing old and rattling light steel bridge with its serpentine approaches, which carries the Mother Lode Highway across the Cosumnes River from El Dorado County to Amador County, is estimated to cost $32,700. The old structure was erected by the counties in 1895 and will be replaced by a timber bridge 291 feet long and located on a straightened alignment at this crossing.

SNOW LIFTING ENABLES WORK TO PROCEED

With the lifting of the snow from the Sierras comes a series of important improvements on the transcontinental highway which crosses the summit between Sacramento and Reno. This highway, while closed in the mountains for five or six months a year, carries a large tourist travel into the state each year and is also used by thousands of vacationists seeking recreation at Lake Tahoe and other points in the high Sierras. The work on this road advertised this period consists of:

Surfacing with crusher run base and untreated crushed gravel or stone, 22 feet wide, 10.8 miles from the South Fork of the Yuba River to Soda Springs in Nevada and Placer counties. This surfacing is being placed on the roadbed constructed on a new alignment last season.

YUBA RIVER BRIDGE

At the westerly end of the surfacing a bridge 100 feet long and consisting of two reinforced concrete girder spans is to be constructed across the South Fork of the Yuba River.

DANGEROUS GRADE CROSSING ELIMINATED

The construction of an overhead grade separation over the tracks of the Southern Pacific Railroad on the new alignment of this road at Yuba Pass in Nevada County will eliminate the use of the present dangerous grade crossing at Crystal Lake. While there have been only a few fatal accidents at the existing crossing, it is potentially one of the most dangerous blind crossings in California. The steep and tortuous mountain road makes an "S" curve across the double tracks of the railroad between a 100-foot opening in the snowsheds. During the summer months, when the highway is open to travel, 83 trains pass over this crossing daily, so it can easily be seen that the new grade separation will be a safety factor greatly appreciated by the traveling public using this road.

EMIGRANT GAP

Another grade separation on this route is to be an underpass consisting of a steel girder span on concrete abutments at Emigrant Gap in Placer County. The structure will be built on the site of the existing grade crossing, which likewise crosses the railroad between two right-angle turns.

GRADING ON FEATHER LATERAL

A short portion of two miles of heavy grading is to done on the new routing of the Oroville to Quincy lateral from Bardees Creek to the proposed bridge across the Feather River at Pulga in Butte County.

REDDING-ALTURAS LATERAL

In Shasta and Lassen counties 18 miles of the Redding-Alturas lateral is to be graded to 24 feet and surfaced with untreated crushed gravel or stone. This section extends from Fall River Mills to Big Valley and is located on an entirely new alignment. The new road will supplant the existing county road, which largely follows the section lines with the many attendant right-angle turns, and is of varying widths and has a badly broken gradient. The present alignment is located on an excellent alingment of large radius curves, long tangents, and easy grades.

ACCEPTANCE OF HIGHWAY CONTRACTS DURING MAY

PACIFIC HIGHWAY

TEHAMA AND SHASTA COUNTIES—Contract for the construction of a bridge across Cottonwood Creek at an approximate cost of $159,000 has been satisfactorily completed and accepted. Bodenhamer Const. Co. of San Diego was the contractor.

PLACER AND YUBA COUNTIES—Surfacing with bituminous and widening with oil treated gravel between Roseville and Andora Subway in Placer County, and in Yuba County between Dry Creek and Morrison's Crossing, 2.9 miles, at an approximate cost of $18,600. J. E. Johnston of Stockton was the contractor.

REDWOOD HIGHWAY

MENDOCINO COUNTY—Contract for surfacing with untreated crushed gravel or stone between two

miles south of Arnold and the Sherwood-Laytonville road, about 8.7 miles, at an approximate cost of $46,300, satisfactorily completed, etc. Hemstreet & Bell of Marysville, contractors.

HUMBOLDT COUNTY—Contract for surfacing with untreated gravel or stone between Dean Creek and Fish Creek, for about 7.3 miles, at an approximate cost of $35,300, has been completed and accepted. Engelhart Paving and Construction Co. of Eureka, contractors.

MOTHER LODE HIGHWAY

TUOLUMNE COUNTY—Contract for placing screened gravel surfacing between one mile northwest of Shaw's Flat and the Columbia-Sonora road, for about 1.6 miles, at an approximate cost of $6,300, satisfactorily completed, etc. Adams Company of Angels Camp, contractors.

PLACER AND EL DORADO COUNTIES—Contract for the construction of a suspension bridge across the North Fork of the American River near Auburn, at an approximate cost of $26,500, satisfactorily accepted. Smith Bros. of Eureka, contractors.

TAHOE-UKIAH HIGHWAY

LAKE COUNTY—Contract for furnishing and applying fuel oil between Middletown and the Old Williams Road, for about 23 miles, at an approximate cost of $6,100, satisfactorily accepted. Basalt Rock Company of Napa, contractor.

HAYWARD-NILES LATERAL

ALAMEDA COUNTY—Contract for constructing a graded roadbed and placing Portland cement and asphaltic concrete between Hayward and Niles, for about 8.7 miles, at an approximate cost of $350,200, has been satisfactorily completed in accordance with the plans and specifications. Hanrahan Company of San Francisco, contractor.

VALLEY ROUTE

MADERA COUNTY—Contract for constructing a bridge across Cottonwood Creek, at an approximate cost of $30,400, has been satisfactorily completed, etc. Geo. G. Wood of Fresno, contractor.

COAST ROUTE

VENTURA COUNTY—Contract for constructing oil-treated crushed rock borders from 3.8 miles east of Camarillo to Camarillo, 3.8 miles distance, at an approximate cost of $12,000, satisfactorily completed. Southwest Paving Company of Los Angeles, contractor.

CHOLAME PASS LATERAL

KERN COUNTY—Contract for constructing a graded roadbed and placing a bituminous macadam surfacing between 5 miles and 7 miles east of Lost Hills, on the Cholame Pass route, distance of about 2 miles, at an approximate cost of $44,100, satisfactorily completed and accepted. Hartman Construction Company, Bakersfield, contractor.

LOS ANGELES-OWENS VALLEY-BISHOP LATERAL

KERN COUNTY—Contract for constructing a graded roadbed and placing oil-treated crushed gravel or stone surfacing between Freeman and the northerly county boundary, and covering a distance of 13.9 miles, at an approximate cost of $143,700, has been satisfactorily completed, etc. Bartlett & Mathews of Pasadena, contractor.

CLAREMONT-RIVERSIDE LATERAL

RIVERSIDE COUNTY—Contract for constructing a graded roadbed and placing a Portland cement concrete pavement at the Wineville Subway, for about 0.5 of a mile, at an approximate cost of $44,500, has been satisfactorily completed and accepted. Matich Brothers of Elsinore, contractor.

DIVISION OF ARCHITECTURE REPORTS

GEORGE B. MCDOUGALL, Chief

In line with the administration's determination that the state shall use every available means to relieve present unemployment conditions, the Division of Architecture is urgently pushing forward its program of work so as to get all authorized building construction projects under way in the field at the earliest possible time.

Contracts awarded during May were on projects at the following state institutions: Pacific Colony; Patton State Hospital; Agricultural Park, Sacramento; Whittier State School.

ARCHITECTURAL AWARDS
For Month of May

PACIFIC COLONY, Spadra. Contract for construction of Assistant Physician's Cottage, awarded to A. R. McMurray of Los Angeles for $5,530.

PATTON STATE HOSPITAL, Patton. Contract for construction of Assistant Physician's Cottage, awarded to A. R. McMurray of Los Angeles for $6,150.

STATE FAIR GROUNDS, Sacramento. Contract for general work on Restaurant Building, awarded to Guth & Fox of Sacramento for $18,626.

Contract for plumbing and ventilating work on above building awarded to Latourrette-Fical Company of Sacramento for $1,853.

Contract for electrical work on the above building, also awarded to Latourrette-Fical Company for $1,132.

WHITTIER STATE SCHOOL, Whittier. Contract for general work on Ward Building and Shop Building, awarded to H. E. Kerr & Son of Los Angeles for $46,190.

Contract for electrical work on the above buildings awarded to the American Electric Construction Company, Los Angeles, for $2,575.

Contract for plumbing and heating work on above buildings awarded to Pacific Pipe and Supply Company of Los Angeles for $11,218.

HIGHWAY MAINTENANCE STATION BUILDINGS in District VII, southern California. Contract awarded to A. R. McMurray of Los Angeles for construction of several groups of buildings at three maintenance stations for $31,000.

STOCKTON STATE HOSPITAL. George M. Clark of Stockton awarded contract for drilling and testing water well at the Stockton State Hospital Farm for $5,400.

Hoover-Young Water Board Meeting.

Progress Report of Water Study Investigations

Review of May Activities

In the

Division of Water Resources

EDWARD HYATT, Chief of Division

Adjudication of Water Rights

Irrigation and Water Storage Districts

WATER RESOURCES INVESTIGATIONS

MOJAVE RIVER INVESTIGATION

Levels were run to obtain elevation at wells in the lower part of the valley and measurements of depths to ground water were begun. The river ceased to flow in quantities sufficient to cross the percolating area of the upper basin during the month.

SANTA ANA INVESTIGATION

Field work has begun looking toward determination of what should be done toward conservation and flood control at Cucamonga, San Antonio, Day, Deer and Lytle Creeks. The field work on rainfall penetration was continued throughout the month in the regular way as was also the work on evaporation from seeped areas.

LOS ANGELES BASIN

A report was prepared at the request of the Conservation Association of Los Angeles County setting forth lines of research and investigation which should be conducted in Los Angeles Basin to permit conclusions as to the best method of utilizing local and imported waters.

NAPA COUNTY INVESTIGATION

In addition to the maintenance of the regular gaging stations on Napa River and Conn Creek several series of meaurements were made on each stream at intermediate points in an effort to establish the location and extent of rising water and percolation losses.

SANTA CLARA INVESTIGATION

A base map is in course of preparation upon which to show well locations, gaging stations, underground water contours, etc. In the field, information was obtained with which to spot the wells which are being measured, and records of earlier surveys with respect to these wells were obtained. Some progress was also made in the computations of stream flow and percolation rates.

SAN JOAQUIN VALLEY INVESTIGATION

Ground Water Investigation: A geological study of potential underground reservoirs initiated last month has been completed and report rendered thereon. Maps have been prepared delineating the ground water elevations in Kern County for each year for the period 1924 to 1929. Similar maps are in preparation for Tulare, Kings, Fresno and Madera counties. These maps will be used to estimate the volumetric changes in the underground water supplies for the past several years and also for determining the underground storage available in working out a plan for the maximum utilization of the water resources of the southern San Joaquin Valley in conjunction with the plan for importation of a supplementary supply from the Sacramento River Basin. A survey is now under way to determine the location, extent and capacity of these underground reservoirs as well as to determine the rate at which water can be introduced into them.

Main Supply Canals: The location survey of a canal which would divert from the San Joaquin River at elevation approximately 470 feet has been completed from that river to the Kings River. This canal would permit water to be diverted from the San Joaquin River by gravity to the Kern River without exchange of supplies at the Kings River. Office studies, preliminary designs and cost estimates have been made of several plans of exporting water from the Sacramento River Basin to the San Joaquin River Basin, namely:

1. A gravity route extending from the main streams in the Sacramento River Basin to the Kern River.
2. A gravity canal from the American River to Mendota on the San Joaquin River in conjunction with an exchange gravity canal extending from the San Joaquin River, elevation 470 feet, to the Kern River.
3. A dam and pump system up the main channel of the San Joaquin River to Mendota in conjunction with the gravity exchange canal under Item 2.
4. A pump and canal system paralleling the San Joaquin River on the west side from tide level to Mendota in conjunction with gravity exchange canal under Item 2.
5. A pump and canal system from tide level by the most direct route to the base of the hills, elevation 200 feet, and a gravity canal, thence to Mendota in conjunction with gravity exchange canal under Item 2.

With these studies as a basis the most economic plan will be selected for the importation of water from the Sacramento River Basin to the San Joaquin River Basin.

Geological Investigations: Geological examinations have been made and reports rendered on the Temperance Flat and Friant Dam sites on the San Joaquin River, Pine Flat Dam site on the Kings River, Ward Dam site on the Kaweah River and Pleasant Valley Dam site on the Tule River. Field examinations have been made also on the Bakersfield Dam site and Isabella Dam site on the Kern River.

SACRAMENTO VALLEY INVESTIGATION

Land Classification: A field classification has been completed on 8,750,000 acres, 750,000 acres being covered since the last report. Summaries have been completed of these lands by classes and the crops raised thereon for the year 1929. The areas of the irrigated lands for the years 1927 and 1929 have been compiled,

segregated by counties and also by source of water supply.

Surveys: Surveys of the Upper Narrows Dam site on the Upper Yuba River and an extension of the surveys on the Coloma Dam site have been completed.

SALINITY INVESTIGATIONS

The work on the salinity investigations has been directed toward the preparation of plates which delineate the history of the incursion of salinity into the upper bay and delta regions as well as to the relationship of stream flow into the delta and tidal action to the incursion of salinity. These graphs are based on analytical studies which have been made, utilizing the data that have been collected during the past ten years.

SALT WATER BARRIER INVESTIGATION

The survey of the industries and public water supplies has been continued through the past month, and at this time it is 75 per cent completed. Surveys of agricultural and reclamation developments within the delta area on the Sacramento and San Joaquin rivers are also completed.

Cooperative work arranged by this office with the state and federal agencies has been in active progress. The State Bureau of Sanitation of the Department of Public Health has been actively engaged in a field and office study of sewage pollution and industrial waste as related to the proposed salt water barrier. The Division of Highways is engaged in a very extensive study of the possibilities of utilizing the salt water barrier for a highway crossing over the bay at the several proposed sites. Additional geological studies of all the proposed sites for the barrier and surrounding areas have been started by Professor C. F. Tolman, consulting geologist. The geological examinations and reports are to be completed by the middle of July.

HOOVER-YOUNG COMMISSION

The sixth meeting of the Joint Legislative Water Committee and Hoover-Young Commission convened at Hotel Oakland, Oakland, May 7, 1930, with an excellent attendance by members of both the committee and commission. There were present, in addition, numerous interested public parties.

A. M. Barton, engineer of the American River Flood Control District, appeared and described the relationship between the proposed American River Flood Control Project and the contemplated Folsom Dam. An aerial survey map was used in presentation.

Edward Hyatt, State Engineer, explained the possibilities of a combined system embracing the Auburn, Coloma and Folsom reservoirs on the American River and gave the comparative investments in the American River system with the Kennett Dam.

F. I. Green and Dr. J. L. Rollins presented briefs and oral discussions of their respective projects on the American and Bear Rivers.

In the afternoon, under the direction of Mr. H. S. Gilman, president of the Angeles Forest Protective Association, there appeared eight professional engineers and government authorities speaking in behalf of the "Influence of California Forests and Water Conservation." This proved a subject of particular moment for consideration by the committee and commission.

IRRIGATION AND WATER STORAGE DISTRICTS

The El Dorado Irrigation District was visited in connection with the proposal of the district to increase its water supply by additional storage.

On April 26 the State Engineer rendered a report to the Board of Supervisors of Butte County approving an election on the organiaztion of the Richvale Irrigation District, subject to the authorization of the board on final hearing of petition. The Richvale District contains about 18,000 acres in southern Butte County and obtains its present irrigation supply from the Sutter-Butte Canal Company.

On May 5, under authority vested him by the Water Storage District Act, the State Enigeer issued an order excluding certain lands which had been petitioned for exclusion from the Tulare Lake Basin Water Storage District.

REQUESTS APPROVED

The following requests by various districts were approved by the California Bond Certification Commission upon recommendation of the State Engineer:

Rescission of a previous order by the commission approving expenditures requested in the amount of $14,805, and the approval of a new order for expenditures by the El Dorado Irrigation District in the amount of $11,345 for development of the project.

The West Stanislaus Irrigation District was authorized to sell at private sale $50,000 par value of their bonds at 93 per cent.

The Banta-Carbona Irrigation District was granted approval of an expenditure for development of the project for $5,760 and authorized to sell at private sale $6,000 par value of bonds of the district at 96 per cent.

FINANCING STUDIES

On May 16 the commission appointed by Governor Young to investigate and study the financing and refinancing of irrigation and reclamation districts in California, of which the State Engineer is a member, met at the office of the Superintendent of Banks in San Francisco and effected a preliminary organization preparatory to holding hearings and proceeding with their inquiries.

There have been several meetings held during the past month in connection with the distribution of the waters of Kings River. The State Engineer has been appointed as referee in the matter of the distribution of water in the Kings River, which is a problem of major importance in the area affected, and has now under consideration a schedule providing for the administration of this stream when the water is at certain stages. Another meeting on this subject is to be held in the near future at which it is expected that a decision agreeable to all parties in interest may be arrived at.

CELEBRATE COMPLETION OF WORK

On April 26 the West Stanislaus Irrigation District celebrated the completion of its irrigation system. This district includes 21,000 acres lying on the west side of the San Joaquin River in Stanislaus County. The event was marked by a very interesting program consisting of historical pageantry, music and speeches. Through the pageant was traced the progress of development of the west side from the various stages of range lands and dry farming to the present era of intensive irrigated agriculture. Introductory talks

were made by President Cox of the district and Senator Dennet, attorney for the district, followed by Governor Young, Attorney General Webb and Bank Superintendent Wood, congratulating the district upon the successful culmination of its efforts. The Division of Water Resources was represented by Mr. Hyatt, State Engineer, and A. N. Burch and E. N. Bryan, assistants. The setting for the fete was a beautiful grove of oaks on the banks of the San Joaquin River, near the intake works of the district.

By invitation, on the evening of May 6 State Engineer Hyatt and his assistant, Mr. Burch, attended a meeting of land owners of the Woodbridge Irrigation District. The Woodbridge District, located in San Joaquin County, has an area of 13,000 acres, a large portion of which was highly developed before the district was organized. The district has just completed the rehabilitation of the old irrigation system which it took over from the Stockton and Mokelumne Canal Company. The officials of the district were holding "open house" in the newly built and equipped office in Woodbridge. Early in the evening a meeting of landowners was held in the Woodbridge hall, at which the officials of the district gave a report on the progress of the work planned, with an explanation of costs and a statement of the financial condition of the district. It was shown that the construction program had been efficiently and economically carried out; that the district is financially sound, and its future prospects excellent. Mr. A. L. Cowell, attorney, spoke on the various phases of the water rights of the district. Other matters pertaining to the welfare of the district were discussed by district officials, the State Engineer and others.

DAMS

APPLICATIONS RECEIVED FOR APPROVAL OF DAMS BUILT PRIOR TO AUGUST 14, 1929

Twenty-four applications were received for approval of existing dams, bringing the total of such applications to 638. There remain about 50 dams for which applications have not been received. These lie mostly in the higher altitudes, where inspection is impossible at present.

APPLICATIONS RECEIVED FOR APPROVAL OF PLANS AND SPECIFICATIONS FOR ENLARGEMENTS AND ALTERATIONS

Dam	County	Owner	Estimated cost
Mulholland	Los Angeles	City of Los Angeles	$293,488

PLANS APPROVED

Dam	County	Owner	Estimated cost
Lake Madrone	Butte	George C. Mansfield and Duncan C. McCallum	$20,000
Mary Joe	San Diego	H. F. Schnell	30,000
Mulholland	Los Angeles	City of Los Angeles	293,488

Application was made by the city of Los Angeles and approved by the State Engineer for the placing of an earthen embankment against the downstream face of the Mulholland Dam, as well as making provision for restricting the water level in the reservoir to approximately 35 feet lower than its present height. This is designed to increase the stability of the structure as well as improve its general appearance.

Orders Authorizing Use have been issued pending issuance of certificates of approval of the following dams:

Dam	County	Owner
Juncal	Santa Barbara	Montecito County Water District
Silver Lake	Amador	Pacific Gas and Electric Company
Lower San Fernando	Los Angeles	City of Los Angeles
Burbank No. 5	Los Angeles	City of Burbank

OFFICE PROGRESS

Spillway discharge curves have been completed for practically all dams in the state. Maximum flood flows have been submitted by the Water Resources Investigations branch of the Division on the 95 dams in Modoc and Lassen counties. The spillways in these two counties have been analyzed on the basis of 1 in 100 years maximum flood. This study has lead to the conclusion that 34 of these spillways will need to be enlarged.

Methods and formulae for tabulating stresses in *gravity dams* have been prepared.

Curves and formulae for computing and tabulating stresses in *arch* and *multiple arch dams* have been made, and 38 arch and two multiple arch dams have been analyzed.

INSPECTIONS

An inspector and assistant have been assigned to Modoc and Lassen counties for the summer months. They are making a second and intensive inspection of the dams in this vicinity and will order all necessary work on spillways, outlets and repairing of slopes to make the dams safe.

All other dams in the state have been assigned to inspectors and by next fall the first inspection will have been completed for each dam.

FLOOD CONTROL AND RECLAMATION

Maintenance of Sacramento and San Joaquin Drainage District: Flood control project maintenance work during this period has been mostly routine, and consisted of repairs to structures, cutting weeds, making firebreaks and irrigating willows. No construction work is under way. Two dragline excavators have been engaged throughout the period in cleaning the canals of the drainage system.

Flood Control Project Maintenance, Bank Protection: Repairs have been completed to three current retards in the Sacramento River near Princeton in cooperation with Levee District No. 3. Bank protection work on the left bank of the Sacramento River opposite Rio Vista in cooperation with Brannan Island District No. 2067 has been completed at a cost of $4,650. This consisted of quarry rock revetment. Call has been made for bids to be opened on June 5 for the construction of a sand fill and levee pavement at Isleton, to complete the work for which a bulkhead was driven a short time ago. This work is in cooperation with the Division of Highways. Work is under way on the construction of two current retards on the right bank of the Sacramento River near Princeton, in cooperation with Reclamation District No. 2047. The estimated cost is $6,000.

Sacramento Flood Control Project: The work of clearing timber in the Sutter By-pass has continued with a force of approximately 80 men, 55 of whom are operating out of two camps, one of which was established about May 1st on our floating equipment in Sacramento Slough. A contract for clearing 100 acres in the lower Sutter By-pass has been completed. A number of reports on applications have been prepared for the Reclamation Board, and one meeting of the board was attended by the Deputy in Charge

of Flood Control and Reclamation. Also, the Deputy in Charge of Flood Control and Reclamation attended a meeting of the construction committee of the Flood Control Association, and accompanied the committee on the field examination of the levees in the lower Yolo By-pass. The five contracts for clearing timber in the Feather River overflow near Marysville are practically completed, except some portions of the area where work can not be resumed at present on account of the overflow water. Surveys of brush and timber areas have been made in the lower Sutter By-pass and in the Feather River near Marysville.

Russian River Jetty: Driving of piles and the construction of the timber portion of the jetty have continued throughout the period with a force of eleven men. The end of the structure is now approximately 80 feet beyond the shore line. The quarry and railroad have not been operated during this period.

Navarro River Jetty: Call has been made for bids, to be opened on June 5, for the construction of a rock jetty at the mouth of the Navarro River in Mendocino County. This jetty will be 190 feet long and contain 2000 yards of quarry rock. During the period from April 15 to May 15 an average of 131 employees have been engaged on the above work, exclusive of contractor's employees.

SACRAMENTO-SAN JOAQUIN WATER SUPERVISOR

Compilations for the 1929 report are practically complete and the report is being stenciled for mimeographing. This is the usual annual report covering all diversions of water, stream flow measurements, results of return flow measurements, the salinity investigation, delta duty of water study, delta crop census, etc.

Field work was started the latter part of April with one engineer in charge on the river from Sacramento to Meridian, one from Meridian to Redding and a third covering the lower San Joaquin River, the Delta and the Feather, Yuba and American rivers.

All material for Bulletin No. 23 has now been submitted to the printer. This bulletin presents all data and records secured in the five-year period, 1924 to 1928, inclusive.

Continued field work on the salinity investigation has comprised the maintenance of regular observations at thirty-four delta stations.

A study and compilation of the Sacramento River riparian lands and use of water on them, both for normal and flood flow conditions, is nearing completion.

WATER RIGHTS

ACTION ON APPLICATION TO APPROPRIATE WATER

During the month of April, 50 applications to appropriate water were received, 31 were acted upon, 9 permits were revoked, and 6 licenses were issued.

PIT RIVER INVESTIGATION

Routine field work was continued throughout the month. Nineteen new gaging stations have been established for the purpose of obtaining more accurate data of the irrigation diversions and consumption during the current season. A meeting of the Permanent Committee with representatives of the Division of Water Resources was held at Bieber on April 15th.

ADJUDICATIONS

Shasta River (Siskiyou County): The Long Bell Lumber Company's exception relative to water rights on Beaughan and Boles creeks, the only matter not yet submitted to the court, has been set for hearing in the Superior Court of Siskiyou County for June 13, 1930.

Whitewater River (San Bernardino and Riverside Counties): Still pending in the Superior Court of Riverside County awaiting developments in regard to the Proposed All American Canal from Colorado River.

North Cow Creek (Shasta County): Submission of referee's final report still being withheld pending negotiations now in progress towards settlement of one of the important issues.

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

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

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

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

Davis Creek (Modoc County): A stipulation for consent judgment is being circulated among the parties who were not present at the water users' meeting held at Davis Creek on

Mill Creek (Modoc County): The trial schedule of distribution proposed by the Division of Water Resources is being administered by a water master during the current season.

Deep Creek (Modoc County): The field investigation of water supply and use of water was continued throughout the month. A plane table survey of the irrigated lands was commenced on May 6.

WATER DISTRIBUTION

Davis, Emerson, Mill, Owl and Soldier Creeks (Modoc County): Watermaster service on these streams was continued throughout the month.

Little Shasta River (Siskiyou County): Watermaster service on this stream was continued throughout the month.

Pit River (Modoc and Lassen Counties): Supervision over diversions from Pit River in Big Valley was continued throughout the month by the resident engineer on the Pit River investigation.

Hat and Burney Creeks (Shasta County): Watermaster service was commenced on these streams for the 1930 season on May 1st, and involves the distribution of water to approximately 5000 acres of land.

NEW YORK—In Monroe County a traveling library, mounted on a specially constructed motor truck, loaned over 60,000 volumes last year. Over 1,000,000 people are to be served throughout the state by this service according to present plans.

MOTOR VEHICLE DIVISION REPORTS

FRANK G. SNOOK, Chief

REGISTRATION COMPARISONS

A comparison of total registrations as of April 30, 1930, has been made against the total as of April 30, 1929. It is interesting to note that a gain has been made in every type of vehicle registered with the exception of solid tire truck equipment and in the number of transfers handled. The following table reflects the gain and loss as to classification:

	As of April 30, 1929	As of April 30, 1930	
Automobiles	1,675,832	1,776,444	100,612 gain
Pneumatic trucks	52,502	69,588	17,086 gain
Solid trucks	19,021	14,136	4,885 loss
Motorcycles	7,332	7,428	96 gain
Trailers, pneumatic and solid	33,453	37,464	4,011 gain
Exempt autos	28,159	30,306	2,147 gain
Exempt motorcycles	435	764	329 gain
Exempt trailers	3,245	3,735	490 gain
Transfers	166,661	154,402	12,259 loss

On April 30, 1930, the division had issued 16,424 more chauffeurs' licenses than for the same period in 1929.

NONRESIDENT PERMITS

Records indicate that nonresident motorists have secured 5466 more permits up to April 30, 1930, than to April 30, 1929. On April 30, 1930, we had issued 16,131 nonresident permits.

On April 30, 1930, the division had collected $8,539,316.77 in fees, which is $297,263.08 less than for the same period in 1929. This loss in revenue is accounted for chiefly in the reduction in weight fee on commercial vehicles weighing between 3000 and 6000 pounds, which was reduced from $15 in 1929 to $8 in 1930. There is also a reduction in chauffeurs' fees from $2 to $1, and a change in the definition of a transfer.

BRAKE TESTING

During the month of April the California Highway Patrol inaugurated brake testing in several southern California cities. Between six and eight men worked on this detail with the assistance of local police. Within a period of four hours between 650 and 700 cars were checked.

An active program has been started in checking the conditions of the official headlight adjusting stations throughout the state. This work is being done in order to assure the public adequate service at these stations.

ENFORCEMENT PROGRAM

A campaign of enforcement during the summer months has been planned and a program has been worked out with officials of a number of the largest cities to include their cooperation with and independent of the California Highway Patrol.

During April, headlight enforcement drives were held in San Francisco, Oakland, Berkeley, Piedmont, Alameda, San Leandro and Hayward with very satisfactory results. The police departments of these cities cooperated to the fullest extent.

HIGHWAY PATROL APPOINTMENTS
For Month of May

The following officers have been appointed members of the California Highway Patrol in the following counties:

San Joaquin County—Milo L. Hewitt, Earl Foster, Emile E. Denuit, Jr; George Ellis, Jr.

Kings County—Wm. L. Morton, Loren C. Rosenfeld.

Tulare County—L. H. Kober, Austin W. Reynolds.

San Mateo County—Manfred J. H. Walzberg.

Stanislaus County—Chas. A. Brink.

Solano County—Coy F. Long, C. Elmer King.

Tehama County—John B. Shaffer, Edward W. Washburn, Paul R. Hobson, Donald M. Phillips, clerk.

Riverside County—Chas. D. Gandy, E. Gene Henderson, Jas. O. Linthicum, Ora E. Townsend.

San Diego County—Ralph B. Sutton.

Imperial County—Lewis Mitchell, J. Leroy Wells.

Kern County—Edgar J. Combs, Rex S. Hunter, Jas. C. Lane, Harold E. Nichols.

San Diego County—Herbert N. Coates, John V. Park, Joe Piper.

Orange County—H. E. Inge, John H. Turton, Chas. V. Wolfe.

Santa Barbara County—Fred T. Graves, Orville H. Ellis.

Ventura County—Dan Rentle, Jos. E. Waite, Raymond Mayhew.

San Bernardino County—Clyde D. Beach, Chas. D. Castle, Clifford L. Long.

Madera County—Wylmer W. Warner, L. D. Row.

Sonoma County—Irving H. Rohner, Geo. N. Nardi.

FOR THE WANT OF A HORSESHOE NAIL

For the want of a nail, the shoe was lost;
For the want of a shoe, the horse was lost;
For the want of a horse, the rider was lost;
All for the want of a horseshoe nail.

To which Herman Jerrett, right of way agent of District III, adds the following stanza, dedicating it to state highway engineers in general:

For the want of a tie, the line was lost;
For the want of a line, the land was lost;
For the want of the land, the ownership was lost;
All for the want of a proper tie.

Officers of the California Highway Patrol are expected to look smart and snappy, but not to swelter in heavyweight uniforms during summer weather. So much is indicated in a bulletin issued by Eugene W. Biscailuz, superintendent of the patrol, instructing officers that they may appear in lightweight uniforms during the coming summer season if they desire. Coats, breeches and caps must be of the same material and colors as the regulation uniform, except lighter in weight.

MAKING OUR HIGHWAYS SMOOTH

(Continued from page 2.)

throws both counters in or out of gear as desired.

In order to standardize the instrument the car is run over a short stretch of pavement and the units of roughness between two marked points are noted. A set of five boards is then laid across this same stretch at regular intervals, each set of boards being 10 inches wide and exactly one inch thick. The car is driven over the boards and the units of roughness between the marked points again noted. The additional units of roughness caused by driving the car over the five boards are then considered as being equal to 10 inches of roughness. With the calibration factor secured in this way the car is driven over any piece of road to be measured and the "inches of roughness per mile" figured from the units of roughness indicated for each mile by the counter on the roughometer. Since the instrument measures the travel of the springs only in compression, the calibration test records the spring compression when the car hits a board and again when it drops off. Different makes of cars and different cars of the same make will give entirely different results in units on the roughometer counter when driven over the same road. The use of the boards furnishes a correction factor for the dial readings so that results secured by different cars are standardized to a common basis and comparable results secured.

Since so many factors enter into the spring action of a car it has been found advisable to make a calibration run each time that the roughness of any section is to be measured. To operate the instrument properly it is of course necessary that the front snubbers be detached. Experience has shown that uniform results will be difficult to get until after a car has been run about 10,000 miles to get the stiffness out of the springs, and all spring connections must be thoroughly lubricated. Both in testing and making records the speed of the car is held as nearly as possible at 20 miles per hour. The inflation of tires is checked each time to a pressure of 50 pounds. On any given section of road, readings are taken at half-mile intervals on each side of the pavement and the average of the two sides used as the record for the job.

California now has two cars in the Construction Department equipped with roughometers, and readings are taken on all paving contracts as they are thrown open to traffic. At the end of the year a compilation of the figures for all state contracts is made and the results are published. In 1927 the average of all asphaltic concrete contracts was 22.1 inches per mile; in 1928 it was 14.7 inches per mile; and in 1929 it was 10.5 inches per mile. In 1927 the average of all portland cement pavements laid with joints at the end of every half day was 7.2 inches per mile; in 1928 with joints every 60 feet and dummy joints spaced 20 feet the average was 9.3 inches per mile; in 1929 with joints the same as in 1928 the average was 8.2 inches per mile. These results show the steady progress that has been made in getting smoother pavements each year. The smoothest asphaltic concrete pavement in 1929 was laid by the Peninsula Paving Co. of Redwood City on the section between Salinas and Chualar which tested 7.9 inches per mile. On the portland cement concrete work in 1929 the Griffith Co. of Los Angeles made the record of 4.4 inches per mile on their contract between Santa Ana and Anaheim.

By the use of these instruments the California engineers have been given a yardstick to measure the smoothness of the highways as they are built.

Dowell Bill Signing Is Commented Upon

State Highway Engineer C. H. Purcell is in receipt of the following letter:

AMERICAN ASSOCIATION
OF
STATE HIGHWAY OFFICIALS

In signing the Phipps-Dowell Bill President Hoover used two pens. These pens were presented by the American Association of State Highway Officials and the President, after signing the bill, gave one of the pens to Mr. L. C. Phipps, chairman of the Senate Committee on Post Offices and Post Roads and the other one to Mr. C. C. Dowell, chairman of the House Committee on Roads.

The ceremony in connection with the signing of the bill took place in the President's offices in the presence of all of the members of the Senate Committee and the House Committee having charge of this legislation.

There is a striking contrast in the fact that the first authorization of the Federal Government was $5,000,000 in 1917 while the authorization in this bill carries $125,000,000. This is also very substantial proof that the Federal Government is recognizing its increased responsibility in the construction of interstate highways.

Very sincerely,

W. C. MARKHAM,
Executive Secretary.

Civilizing Influence of Highways

By SAM TATE, Chairman Highway Board, State of Georgia

EDUCATORS have proven long ago that in the ultimate analysis education does not cost anything. It costs a great deal more for a state to remain in ignorance than it does to provide for the education of its citizens.

Ignorance, not intelligence, is the expensive thing. Precisely the same is true of good roads. There is a very real sense in which good roads do not cost anything. It is estimated that it costs 1 to 3 cents per mile more to travel over unpaved than on paved roads.

But after all, that is putting the matter at its lowest level; the cost of not having good roads will be a heavier toll in still other fields. It would be very instructive to have some one write for us the history of the influence of roads on civilization. Wherever nature has created or man has built a highway of travel, civilization has grown up along that highway.

The influence of great rivers on civilization has been tremendous. A river is a natural highway, and wherever nature has placed a highway, civilization has invariably followed. It was up the Mississippi Valley that civilization first pierced our own west.

The story of civilization begins with the story of a road. That is no accident. A road is a symbol of civilization.

Wherever there is a road it means that people have interests and dealings with others, and after all civilization itself is just a large group of people who have learned how to live with each other in a helpful and mutually profitable way.

It is the savage that lurks in the jungle; whenever a man ventures out of the jungle and joins with others in building a highway, however crude that highway may be, he has already learned the value of cooperation and has begun to ascend the scale of civilization.

Civilization and highways are always found together, and the one promotes the other. There is no road of which we have authentic information more ancient than the road that ran from Assyria to Egypt entering Palestine at Damascus and leaving it at Gaza.

Over this ancient route, even before the day of Moses, poured the stream of camel caravans that bore the wealth of Assyria to exchange it for the products of Egypt. It was to such a caravan that Joseph's brethren sold him and he was carried a slave into Egypt over this ancient highway, which event not only shaped the destiny of Egypt but paved the way for the training, preservation and ultimate liberation of that race that has for centuries exercised such a mighty influence on the world.

No people have exerted an influence on civilization equal to that of ancient Israel.

A people can not live beside a road over which the commerce and culture of the world passes without feeling its force.

The Persian empire rose to its power and dominance because its kings were farsighted enough to see that no empire could be held together that did not build roads over which its soldiers and commerce could be quickly transported.

The ancient road from Susa to Sardis, 1500 miles long, was the backbone of the Persian empire, and it is but to recite a fact to say that the empire could not have existed without that great highway with its many branches.

It was nothing short of genius that gave young Rome the insight to build roads for her commerce and soldiery and to see to it that all these roads led to Rome.

Rome's first venture in road building was but the beginning of a system that finally reached from the highlands of Scotland across Europe to the frontiers of ancient Persia.

These roads went out from Rome like the spokes of a great wheel, and it is not even debatable that the Roman empire would have been impossible without this gigantic system of communication and transportation.

Over this great highway system sped not only soldiers and commerce, but ideas and customs. In short, the culture of one side of the empire came ultimately to belong to the other side, until the life of the empire was fused into a unity that would have been impossible without these roads.

From the time of the Caesars up until the nineteenth century, man did not essentially improve his method of communication. Through all these centuries the horse remained his swiftest means of travel.

One of the Roman emperors, by means of fresh relays of horses along his route, traveled a distance in one day that remained the world's record for speed until the day of our own grandfathers when the steam locomotive broke the record.

All thoughtful men know that civilization, material progress, and the higher values of life go hand in hand with the swiftness and certainty of the means of travel and communication.

It was no accident, therefore, but precisely what we would have expected, that the great burst of modern progress and material welfare should have come with the perfection of the steam locomotive. The beginning of our great wave of modern prosperity and material blessings goes back just about 100 years to the beginning of the great era of railroad construction in this country.

Whenever in history methods of communication and travel have been improved, there has invariably resulted an increase of man's material, intellectual and cultural wealth.

State Highway Progress Reports

ALAMEDA COUNTY

The Hanrahan Company, contractors on the construction of 8.7 miles of highway between Hayward and Niles, have fully completed their work.

The original roadway on this project had an effective width of about 34 feet, being an 18-foot width of 4½ inches Portland cement concrete with 8-foot earth shoulders on either side. The construction just completed provides a 50-foot roadbed width with 30-foot pavement throughout within a 100-foot right of way. The original pavement was utilized in so far as possible as a base for asphalt concrete surface, widening being effected by construction of the additional lane of Portland cement concrete 8 to 10 inches in thickness.

Three important line changes were made under the present construction, the most outstanding being that at the underpass of the Southern Pacific Railway at Niles, where an approach consisting of a 700-foot radius curve 150 feet in length, reversing on a 250-foot radius curve 180 feet long extending nearly through the structure, was replaced by a 500-foot radius curve 430 feet in length, making direct approach.

Right of way problems on this project were extremely complicated due to the heavy urban settlements along the highway with more than 200 ownerships being involved. It was necessary to move and rehabilitate all residences and buildings on both sides for several blocks on the Hayward end of the job.

The construction cost of this project was approximately $350,000, exclusive of right of way and rehabilitation of buildings.

COLUSA COUNTY

Construction of 13 miles of new state highway between Bear Creek and a point 5 miles west of Williams, on the Ukiah-Tahoe Highway, has been contracted for by Le Tourneau. The completion of this work will result in the abandonment of the present traveled way which is a tortuous narrow road between Abbott Mine and Freshwater Creek near the Williams end of the new project.

A 24-foot graded roadbed is planned from Bear Creek to the mouth of Salt Creek Canyon and from there to the junction with the present highway a 36-foot graded roadbed is planned. Completion of the work is estimated to be in April, 1931. Surfacing of this project is planned to begin some time prior to the middle of next year.

The work between Williams and Maxwell, consisting of construction of a 39-foot new grade alongside the present 15-foot concrete pavement, the details of which are noted in the April issue of THE JOURNAL, has been awarded to Frederickson-Watson Construction Co. It is expected to complete the project this coming fall. No inconvenience will be experienced by the traveling public, who will have full use of the present pavement at all times while construction is under way.

DEL NORTE COUNTY

The Holdener Construction Company's contract for stockpiling crushed rock screenings over 35 miles of the Redwood Highway between Elk Valley and the Oregon line have engaged Smith Bros. to complete the work, and the material is now all in stockpile.

Smith Bros. have just been awarded a contract for furnishing and placing additional crushed rock surfacing at various locations along the Redwood Highway between Elk Valley and Patrick's Creek. It is expected that they will be ready to begin work within the next two weeks.

EL DORADO COUNTY

Construction of a new roadbed between Bay View Rest and one mile north of Eagle Falls is 30 per cent complete. Nate Lovelace, the contractor, has speeded up his progress during the past month and it is now expected that the work will be completed in December of this year, the scheduled time of completion.

GLENN COUNTY

The concrete paving project between Logandale and Willows, the details of which were noted in the April issue of THE JOURNAL, has been contracted for by Basich Bros. Construction Co., Inc., and is expected to be under way by the middle of May. The work, which is scheduled for completion before the end of the current year, will not inconvenience public traffic, which will use the old pavement alongside during construction of the new pavement and the west shoulders and will then have the use of the new pavement.

HUMBOLDT COUNTY

The work of producing and stock piling bituminous macadam rock along the Redwood Highway for a 20-foot by 2-inch bituminous macadam pavement between a point one mile south of Orick and the northerly Humboldt County line is now more than half complete, and the contractor, Heafey-Moore Company, who have the contract for placing the bituminous macadam, have started setting side forms and expect to start the laying of the macadam rock within another two weeks.

Heafey-Moore Company will also probably complete this week the placing of a 2-inch by 20-foot bituminous macadam pavement on the 10.7 miles between Arcata and Little River.

The Englehart Paving and Construction Company have been awarded the contract for grading and surfacing a new connection between the Arcata-Blue Lake road and the Redwood Highway at a point approximately one mile north of Arcata. The contract

involves grading and surfacing in the amount of approximately $10,000.

Mercer-Fraser Company, who have the contract for the construction of the new Trinity River bridge near Willow Creek, now have a portion of the steel on hand and expect to begin erection in the near future.

Bids were received on May 21 for furnishing and placing crushed rock surfacing over the newly graded roadway between Loleta and Beatrice station and for extending the grading and placing of surfacing on an additional 1.8 mile of roadway at the northerly end of the same project.

Contractor J. B. Galbraith of Petaluma has just been awarded the contract for the construction of a concrete pavement between Fortuna and Loleta. It is expected that he will begin work within the next two weeks.

The E. C. Coats contract for grading and surfacing a 28-foot standard roadway on that portion of the Redwood Highway between Fish Creek and Stephens Grove in the vicinity of Miranda is more than 60 per cent complete, and it is to be expected that there will be very little interference with traffic during the touring season.

The Engelhart Paving and Construction Company has completed the producing and placing of crushed rock surfacing on approximately 7.3 miles of the Redwood Highway between Dean Creek and Fish Creek, approximately 6 miles south of Miranda.

H. H. Boomer, who has a contract for grading and surfacing a portion of the state highway, approximately 1.2 miles in length immediately north of Garberville, is approximately 40 per cent complete, and it is expected that his operations will not interfere with traffic during the summer.

Chigris and Sutsos were awarded the contract for grading and surfacing 1.4 miles of the Redwood Highway between the southerly Humboldt County line and Richardson Grove. They began work about March 25 and are now approximately 25 per cent complete.

LAKE COUNTY

State forces will commence by the middle of May to oil treat 10.6 miles of 20 feet wide crushed stone surfacing recently placed, by contract, on a new graded highway between Lucerne and Clear Lake Oaks. The work, it is estimated, will require two months to complete.

Widening of the roadbed to 24 feet between Sweet Hollow Summit and Abbott Mine is 95 per cent complete. Another month will see the completion of this work.

From Abbott Mine to Bear Creek, Colusa County, the construction of a new 24-foot graded roadbed is being carried on with sufficient force and equipment to insure the completion concurrently with or prior to the completion of the graded highway to the east now under contract for construction.

The Basalt Rock Company, working in conjunction with state maintenance forces, has completed its contract for the application of light fuel oil on Route 49 between Middletown and old Williams road, a distance of 23 miles. This work, which connects with Route 15 to Lakeport and Upper Lake, will insure much comfort and pleasure to the many tourists visiting this "Switzerland of America" this coming season.

Route 15, between Upper Lake and Ukiah, which passes the beautiful Blue Lakes, is being improved by the application of about 6 miles of armor coat over the existing pavement by state maintenance forces. This work will be completed about the middle of June.

LOS ANGELES COUNTY

A contract has been awarded to Ben F. Dupuy for oiling shoulders on the Roosevelt Highway between the westerly boundary of Los Angeles County and Santa Monica. It is expected that this contract will be completed by July 1, 1930.

The contract for a line change immediately north of the Newhall Tunnel has just been completed by McCray Co. This contract is approximately one mile in length and is on much better alignment than the old highway.

The first contract on the La Canada-Mt. Wilson highway for grading 2.6 miles of roadbed was awarded to H. W. Rohl Company on August 14, 1929. Work is rapidly nearing completion and it is expected that this contract will be completed by July 1, 1930.

The second contract on the La Canada-Mt. Wilson highway for grading one and one-half miles of highway was awarded to T. M. Morgan Paving Company on January 27, 1930. This extends northerly from the end of the H. W. Rohl contract. This contract will probably require more than a year to complete.

A contract for paving the Newhall Alternate with Portland cement concrete, 30 feet wide, has been awarded to Jahn & Bressi. Grading of this section has just been completed by LeTourneau & Lindberg. The new location is on greatly improved alignment and eliminates Saugus, Newhall and the Newhall Tunnel from the Ridge Route. This section is 8.6 miles long. Paving will probably be completed by August 1st.

A contract for grading and paving a line change near Liberty School, four miles west of Calabasas, was awarded to the Will F. Peck Company January 18, 1930. This line change eliminates several bad curves and improves the grade. Grading work is now in progress. It is expected that this contract will be completed next September.

A contract for grading a 38-foot roadbed on the first section of the Alternate Ridge Route from Castaic School to Canton Creek was awarded to H. E. Doering, von der Hellen and Pierson on February 25, 1930. This section is 7 miles in length and will probably require more than a year to complete.

Surveys are in progress on the rest of this route which will be a saving of more than 7 miles in distance over the present Ridge Route.

MARIN COUNTY

The grading contract of Granfield, Farrar & Carlin for constructing the 4.4 miles section of new highway between San Rafael and Alto has practically been completed. This section of highway, which will supersede the original location through the towns of San Anselmo, Ross, Kentfield, Larkspur and Corte Madera, with a net present saving in distance of 2½ miles to Alto and an ultimate saving of 3¾ miles to Manzanita, has been advertised for bituminous macadam surfacing 30 feet in width. Proposals are to be taken on June 4th. The present project involves some 475,000 cubic yards of roadway excavation.

Three important major structures are nearing completion on this section of the highway. The first of these—an overhead crossing over the tracks of the

Northwestern Pacific Railroad near Greenbrae—consisting of one 38-foot and two 21-foot concrete girder spans, has been practically completed under contract of Siemer & Kendall and F. J. Main. The second major structure under contract with the Butte Construction Company over the Corte Madera Creek at Greenbrae, consisting of a bascule span over a clear channel of 40 feet and approximately 855 feet of timber trestle approach on pile bents, is progressing nicely, foundations for bascule span and trestle approaches having been completed. The third structure consists of one 150-foot steel truss span on concrete piers, one 41-foot and one 28-foot steel beam span on steel frame bents, and approximately 700 feet of timber trestle, is also progressing nicely under contract with the Frederickson and Watson Construction Company and Frederickson Brothers. One of the main span trusses has been set and the other is now in process of erection.

All work on the section between Alto and San Rafael was planned so that the date of completion of the structure and of the surfacing contract shortly to be let would practically coincide in order to open this section to provide for the heavy late summer and fall traffic.

Granfield, Farrar & Carlin also have the contract for grading and paving that 1.8 mile section of Route 1, between San Rafael and Gallinas Creek, upon a revised location which will net a saving of ¼ mile in distance.

This project, which is approximately 50 per cent completed at this time, calls for grading a 40-foot roadbed for 1.3 miles and a 50-foot roadbed for 0.5 mile, with 0.6 mile of 20-foot concrete pavement 7 to 9 inches in thickness, 0.4 mile of 30-foot concrete pavement, and 0.7 mile of 20-foot bituminous macadam and 0.1 mile of 30-foot bituminous macadam.

A major structure under contract to Rocco and Colletti over the Northwestern Pacific Railroad's Forbes Station in this section of highway, which consists of one 46-foot steel beam span and 190 feet of timber trestle approach on pile bents, is progressing nicely. This work should be completed at approximately the same time as surfacing and structure contracts between San Rafael and Alto, giving the public the use of the new highway from Alto to Ignacio by late summer. The section of the Redwood Highway from Forbes to Ignacio was graded and paved with a 20-foot width of Portland cement concrete by the Hanrahan Company in 1929.

MARIN AND SONOMA COUNTIES

Another major length of Route 1, the Redwood Highway, extending from Ignacio in Marin County to Petaluma in Sonoma County, a distance of 11.9 miles, is progressing rapidly under contract with the Hanrahan Company, the work being approximately 60 per cent complete. This project calls for some 350,000 cubic yards of roadway excavation upon revised location, which shows a net saving of approximately ⅝ mile in distance from that of the original highway. It is being graded to a 40-foot roadway width with pavement 20 feet in width, 2.2 miles of which over the heavier newly graded portion is bituminous macadam, the balance being Portland cement concrete. Approximately 0.8 mile of the section to be paved with bituminous macadam has been set aside for experimental section for the purpose of trying out new methods expected to give a smoother and better riding pavement than it has been possible to obtain heretofore with this type. The date of completion for this work has been set at September 25, 1930, and present indications are that the contractor will complete this work within the time limit specified. Its completion will give a major paved highway from Alto to Cloverdale.

One major structure across San Antonio Creek, under contract with McDonald and Maggiori, has been completed and accepted within the past month. This structure consisted of three 40-foot reinforced concrete girder spans, and cost $30,400.

MENDOCINO COUNTY

Von der Hallen and Pierson expect to complete within another week the construction of approximately 425 feet of rubble masonry retaining wall at approximately 9 miles south of the Mendocino-Humboldt County line.

The contract for placing a 4-inch thickness of crushed gravel surfacing on portions of the Redwood Highway between a point two miles south of Arnold and the Sherwood-Laytonville road has been practically completed by contractors Hemstreet and Bell, and they are starting on their second contract of producing additional crushed rock screenings and stock piling the same in the vicinity of Long Valley Creek bridge.

Route 1, the Redwood Highway, between Cloverdale and Willits, is being resurfaced by state maintenance forces through the application of an armor coat over the present pavement, a total distance of approximately 20 miles, 8 miles being between Ukiah and Forsythe Creek, and 12 miles between Hopland and Cloverdale. Primary application of the light fuel oil on the present roadway has been fully completed, and armor coating is well under way and should be completed early in July in time to take care of the heavy summer tourist traffic on the main artery to the Redwood Empire.

The Basalt Rock Company, in conjunction with state maintenance forces, is applying light fuel oil under contract on 38 miles of Route 48, McDonald-to-the Sea Highway. This work should be completed by June 1st and will offer a delightful side trip from Route 1 for tourists and sportsmen during the coming season.

MONTEREY COUNTY

The new subway under the Southern Pacific Railroad at Spence, five miles south of Salinas, has just been opened for traffic. This structure eliminates a dangerous grade crossing.

Satisfactory progress is being made on the new bridge at San Ardo. Ben C. Gerwick is the contractor on the bridge under the supervision of the Bridge Department. Frederickson & Watson and Frederickson Brothers are the contractors on the approaches.

On the San Simeon-Carmel Highway, construction work is in progress with convict labor. Two camps are maintained. At Little Sur a crew of fifty men and two power shovels are working, and between Villa Creek and Willow Creek, seventy men and three power shovels are working. About 7.4 miles of graded roadway have been completed.

Surveys for the location of the road are in progress between the two camps.

A timber bridge is being constructed across Alder Creek under the supervision of the Bridge Depart-

ment. The Dean Construction Co. of Berkeley is contractor.

Bids are being received for a new bridge across the Salinas River at Bradley. This will be under the supervision of the Bridge Department.

NEVADA COUNTY

Grading between Nevada City and one mile west of Washington road on the Ukiah-Tahoe Highway has been completed, oil treated stone surfacing is 80 per cent complete, and the entire project will be finished, it is estimated, by next July. C. R. Adams has the contract for both the grading and the surfacing.

ORANGE-LOS ANGELES COUNTIES

A contract for oiling shoulders between Galivan and Irvine and from Fullerton to Leffingwell Ranch in Los Angeles County has been awarded to G. M. Duntley. It is expected that this contract will be completed by July 1st.

ORANGE COUNTY

A contract for widening the roadbed between Sunset Beach and Newport the entire width of the 90 to 100-foot right of way, and the placing of an additional 10-foot strip of Portland cement concrete has been awarded to the Macco Construction Company. When this work is completed the pavement will be 30 feet wide for the entire distance. It is expected that this work will be completed by next September.

PLACER AND NEVADA COUNTIES

Resumption of 20 miles of grading after the winter shutdown on the highway between Airport and Soda Springs, a part of the Dutch Flat-Donner Lake wagon road, has been made by both T. E. Connolly, who has the contract for the first 9½ miles, and by Callahan Construction Co., who have the contract for the last 10½ miles. Seven miles of the Callahan job, between Big Bend Rangers Station and the end of the work has been completed and is ready for the surfacing which has been programmed for the entire length of the new grade. All of the grading is scheduled for completion by this coming fall and the surfacing is estimated to be completed by the summer of 1931.

SAN BENITO COUNTY

A survey is in progress for the relocation of the state highway between Salinas and San Juan Bautista by way of Prunedale. This will completely eliminate from the Coast Highway the present San Juan grade, which is one of the worst sections on this highway. This change is partly in Monterey County and partly in San Benito County.

SAN DIEGO COUNTY

A contract for grading the Rose Canyon road between Balboa avenue and Torrey Pines road has just been completed by the R. E. Hazard Contracting Company. This section is 5.4 miles long and is a 46-foot graded roadbed.

A contract for 4.5 miles of 38-foot graded roadbed between La Posta Creek and Miller Creek on the San Diego-El Centro highway has just been completed by the Nevada Contracting Company.

A contract for grading 2.9 miles of 36-foot roadbed from Kitchen Creek to La Posta and paving with 20 feet by 7 inches Portland cement concrete was awarded June 25, 1929, to Basich Brothers. This section is on the San Diego-El Centro highway. Work on this section is rapidly nearing completion. It is expected that this contract will be finished by July 1, 1930.

A contract for grading a 30-foot roadbed between Miller Creek and Tecate Divide on the San Diego-El Centro highway was awarded to Monarch & Breen on August 17, 1929. This work is rapidly nearing completion and should be finished by July 1, 1930.

A contract for oiling the shoulders on various stretches aggregating approximately 35 miles between San Diego and Myers Creek Bridge on the San Diego-El Centro highway was recently awarded to the Gilmore Oil Company. It is expected that this contract will be finished by July 1.

Another contract for oiling the highway shoulders between Oceanside and the Orange County line has been completed by G. M. Duntley, contractor.

A contract for widening the roadbed and paving with Portland cement concrete 30 feet wide across San Mateo Flat, between San Onofre and San Clemente, has been awarded to Matich Bros., contractors. The new pavement will be 0.57 of a mile long.

SAN LUIS OBISPO COUNTY

Work is nearing completion on the construction of a 20-foot asphaltic concrete pavement between Atascadero and Paso Robles. Steele Finley is the contractor.

Street improvements, including a half mile of state highway, in the town of Atascadero is complete. The work was handled by a local improvement district. M. J. Bevanda was the contractor.

On the Coast Highway between Santa Maria River and Los Berros Creek, a distance of 7.2 miles, the road is being reconstructed with a 36-foot roadbed and a 20-foot Portland cement concrete pavement. Grading work is complete and rapid progress is being made on the pavement. J. F. Knapp is the contractor.

Plans have been completed for the proposed reconstruction of the Coast Highway between San Luis Obispo and Cuesta Grade, a distance of about three miles, and this work will soon be advertised.

SAN MATEO COUNTY

Construction of the first link of the Bayshore Highway, which has been located as an express road to facilitate fast moving traffic between the cities of San Francisco and San Jose, is nearing completion under contract with the H. W. Rohl Company. This project would have been completed some time ago but for the occurrence of heavy slides near Visitacion. The slide material has been utilized in improving the grades and in further widening of the roadway. Between Visitacion and Sierra cut a 4 per cent grade has thus been eliminated, being replaced by a 1 per cent grade. This project, which extends from the San Mateo County line at the city limits of San

Francisco to the north city limits of the city of South San Francisco, a distance of 3½ miles, involves over 1,000,000 yards of grading.

Another major link of the Bayshore Highway extending 7.3 miles between the towns of San Mateo and Redwood City, under contract with Frederick & Watson Construction Company and Frederickson Bros., is now about 35 per cent completed. This project extends across the marshes and salt ponds along the westerly side of San Francisco Bay and involves some 630,000 cubic yards of grading quantities, about 40 per cent of which is composed of hydraulic fill between previously constructed levees. The balance of this material is being taken from Belmont Hill, some 250,000 yards having been placed at the present time between Belmont and San Mateo.

With a paving contract of 40 feet width concrete between the cities of South San Francisco and Burlingame and another grading contract between Redwood City and Palo Alto shortly to be advertised for bids, this highway will assume its portion of the traffic from the overburdened Peninsula Highway. This should develop much industrial property along the shores of San Francisco Bay.

Under state maintenance forces 11 miles of Route 55, Skyline Boulevard, between Tanforan road and La Honda road, work has just been completed on the placing of an armor coat. Heavy traffic is expected on this road during the summer months, particularly on holidays. An additional 14 miles of the Skyline Boulevard, between La Honda Road and Saratoga Summit, is being given a light oil seal coat at the present time by state maintenance forces.

Due to the fact that Route 55 follows the ridge along the county line, this section lies within three different counties, San Mateo, Santa Clara and Santa Cruz, swinging back and forth across the boundary line in numerous places. This work should be completed by the middle of June.

SANTA BARBARA COUNTY

On the Coast Highway between Wigmore and Zaca, a distance of 4 miles, the road is being reconstructed with a 36-foot roadbed and a 20-foot Portland cement concrete pavement. Placing of pavement is progressing. The Cornwall Construction Company is the contractor.

On the Cuyama lateral the road is being oiled from Buckhorn Canyon to the second crossing of the Cuyama River. The Gilmore Oil Company is the contractor.

On the Coast Highway from the Elwood overhead to Goleta, and from Carpinteria to the Rincon cut-off, the shoulders are being oiled. The Bradley Truck Company is the contractor.

Bids will be opened on June 11 for the grading and surfacing with oiled crushed gravel or stone of the Cuyama lateral from the third crossing of the Cuyama River to the Kern County line, a distance of about 26.2 miles. A portion of this project is located in San Luis Obispo County.

SANTA CLARA COUNTY

Contract of the Hanrahan Company for grading and paving from San Francisquito Creek through the towns of Palo Alto and Mayfield to San Antonio road, a distance of 4.4 miles, has passed the preparatory stages and paving operations are to be commenced immediately. This project calls for graded roadbed 56 feet in width with 40 feet width of pavement Portland cement concrete and asphalt concrete for the first 2.2 miles, being that part through the towns, the balance being a graded roadway width of 50 feet with 30 feet width of pavement.

Right of way is being widened to 100 feet throughout and, due to the urban nature of the territory through which this project passes, it calls for the solving of many complicated problems.

Paving operations are being started at the south end of the project.

The present construction is an important link on Route 1, "El Camino Real," between San Francisco and San Jose.

The 4.9 miles section of this highway adjoining the present project on the south has been advertised, bids being called for on June 11, 1930.

SANTA CRUZ COUNTY

Contractor Jack Casson, working with state maintenance forces, has just completed the application of a light fuel oil seal coat on Route 42 on Saratoga Summit to and through California Redwood Park, a distance of 23 miles.

VENTURA COUNTY

A contract has been awarded to California Road Oil Service for oiling shoulders from Camarillo to Ventura and from Ventura to Seacliff. It is expected that this contract will be completed by July 1st.

YUBA COUNTY

A 20-foot Portland cement concrete pavement on partly new alignment through Wheatland has been contracted for by C. W. Wood. Minor drainage structures and grading recently begun are to precede the pouring of the concrete pavement. Rock borders, 3 feet wide on each side of the pavement, will be constructed after the concrete is all poured. It is contemplated that the entire project will be completed by next August.

LIST OF HIGHWAY BIDS
For Month of May

ALPINE COUNTY—Oiling 8.6 miles between Hangmans Bridge and Woodfords. Dist. X, Rt. 23, Secs. C. D. Basalt Rock Co., Napa, $3,312. Contract awarded to Skeels & Graham Co., Roseville, $3,264.

DEL NORTE COUNTY—Between Smith River and Patricks Creek, 15.2 miles to be surfaced with untreated gravel or stone. Dist. I, Rt. 1, Secs. C, D. Ticslau Bros., Berkeley, $39,217; Hemstreet & Bell, Marysville, $40,810. Contract awarded to Smith Bros., Eureka, $32,650.

COLUSA COUNTY—Between Williams and Maxwell, 8.3 miles to be graded. Dist. III, Rt. 7, Secs. B, C. Lord & Bishop, Sacramento, $85,504; M. J. Bevanda, Stockton, $69,500; Isbell Construction Co., Fresno, $89,377; T. M. Morgan Paving Co., Los Angeles, $74,944; Kennedy-Bayles Construction Co., Biggs, $71,052; A. Teichert & Son, Sacramento, $78,-

918; Geo. Pollock Co., Sacramento, $74,736; The Utah Construction Co., San Francisco, $62,297; Hemstreet & Bell, Marysville, $72,735; C. W. Wood, Stockton, $68,650; J. P. Holland, Inc., San Francisco, $87,871; Yglesias Bros., Inc., San Diego, $74,595. Contract awarded to Frederickson & Watson Const. Co., Oakland, $58,269.

COLUSA-GLENN COUNTIES—Between Hunter's Creek and ½ mile north of county boundary line, constructing 1.9 miles drainage ditch. Dist. III, Rt. 7, Secs. C, A. Hemstreet & Bell, Marysville, $8,091; Freeman & Murch, Willows, $6,906; J. R. Reeves, Sacramento, $8,004; J. P. Holland, Inc., San Francisco, $7,703; Fredrickson-Watson, Oakland, $9,379; M. J. Treaster, Sacramento, $6,666. Contract awarded to Lilly, Willard & Biasotti, Stockton, $6,421.50.

HUMBOLDT COUNTY—At Scotia and between Fortuna and Loleta, 4.3 miles to be graded and paved with Portland cement concrete. Dist. I, Rt. 1, Secs. E, G. Engelhart Paving and Construction Co., Eureka, $158,653; M. J. Bevanda, Stockton, $159,352; C. W. Wood, Stockton, $166,209; N. M. Ball, Porterville, $165,998. Contract awarded to J. V. Galbraith, Petaluma, $148,707.40.

HUMBOLDT COUNTY—Between Loleta and 2 miles north of Beatrice, 5.2 miles to be surfaced with river run gravel, of which 2.6 miles is to be graded. Dist. I, Rt. 1, Sec. G. Geo. Pollock Co., Sacramento, $69,155; W. C. Colley, Berkeley, $64,723; Hemstreet & Bell, Marysville, $69,698; Engelhart Paving and Construction Co., Eureka, $71,200; Larsen Bros., Galt, $74,859; Jasper-Stacy Co., San Francisco, $79,952; C. W. Wood, Stockton, $63,409; E. C. Coats, Sacramento, $59,200. Contract awarded to J. P. Holland, Inc., San Francisco, $51,480.70.

LASSEN-SIERRA COUNTIES—Between 2 miles west of Milford and state line, 52.2 miles to be oiled with heavy fuel oil furnished and applied as dust layer. Dist. II, Rt. 29, Secs. A, D, E, F. Basalt Rock Co., Napa, $12,652. Contract awarded to Jack Casson, Hayward, $12, 594.

MENDOCINO COUNTY—Near Longvale and Long Valley Creek Bridge, furnishing and stockpiling untreated crushed gravel or stone surfacing and screenings. Dist. I, Rt. 1, Sec. G. Hemstreet & Bell, Marysville, $9,750.

MONO COUNTY—Between the summit of Sherwin Hill and Devil's Punch Bowl, 24 miles furnishing and applying heavy fuel oil as dust layer. Dist. IX, Rt. 23, Secs. B, C, D, E. California Road Oil Service, Wilmington, $17,149; Basalt Rock Co., Inc., Napa, $13,289; Gilmore Oil Co., Los Angeles, $14,558; G. M. Duntley, Los Angeles, $16,264; Ben F. Dupuy, Los Angeles, $17,058. Contract awarded to Leonard C. Pulley, Long Beach, $11,464.63.

MONO COUNTY—Between Devil's Punch Bowl and Leevining and Ft. Bridgeport, 16.3 miles to have furnishing and applying of heavy fuel oil as dust layer. Dist. IX, Rt. 23, Secs. F, G, I. G. M. Duntley, Los Angeles, $11,981; Gilmore Oil Company, Ltd., Los Angeles, $11,681; California Road Oil Service, Wilmington, $12,017; Basalt Rock Company, $10,596. Contract awarded to Leonard C. Pulley, Long Beach, $8,987.40.

MONTEREY COUNTY—Timber bridge across Alder Creek, about 29 miles north of San Simeon, consisting of sixteen 19-foot spans on frame bents with concrete pedestals. Dist. V, Rt. 56, Sec. A. H. C. Whitty, $25,495; M. B. McGowan, San Francisco, $25,880; Smith Bros., Eureka, $27,510; R. B. McKenzie, Red Bluff, $24,346; Granite Construction, Watsonville, $25,508; Theo. M. Maino, $26,804. Contract awarded to Dean Construction Co., Berkeley, $24,246.

RIVERSIDE COUNTY—Between Indio and Oasis, furnishing and spreading fuel oil on shoulders for about 8.5 miles. Dist. VIII, Rt. 26, Sec. F. Leonard C. Pulley, Long Beach, $7,713; G. M. Duntley, Los Angeles, $8,355; California Road Oil Service Co., Los Angeles, $8,527; Basalt Rock Co., Inc., Napa, $9,169; Ben F. Dupuy, Los Angeles, $9,384. Contract awarded to Gilmore Oil Co., Ltd., Los Angeles, $7,670.15.

SAN BERNARDINO COUNTY—Bridge across Mojave River, 3 miles north of Victorville, consisting of one 270-ft. through steel truss span, five 51-ft. concrete girder spans and one 48-ft. concrete girder span on concrete piers and bents. Dist. VIII, Rt. 31, Sec. D. Torson Const. Co., Long Beach, $149,122; Carpenter Bros., Beverly Hills, $131,806; H. W. Rohl Co., Los Angeles, $136,203; Lynch-Cannon Engineering Co., Los Angeles, $143,664; Gist & Bell, Arcadia, $144,908; Rocca & Caletti, San Rafael, $126,704; Lord & Bishop, Sacramento, $152,698; Whipple Engr. Co., Monrovia, $132,300. Contract awarded to J. F. Knapp, Oakland, $118,460.50.

SAN BERNARDINO COUNTY—Between Fawnskin and county road, 7 miles to have furnished and spread fuel oil on roadway. Dist. VIII, Rt. 43, Sec. D. Ben F. Dupuy, Los Angeles, $2,478; G. M. Duntley, Los Angeles, $2,836. Contract awarded to Gilmore Oil Co., Ltd., Los Angeles, $2,283.44.

SAN BERNARDINO COUNTY—At Mojave River, 0.8 of a mile to be graded, approach to new bridge. Dist. VIII, Rt. 31, Sec. D. J. F. Knapp, Oakland, $21,891; Triangle Rock and Gravel Co., San Bernardino, $16,149; Bert Calvert, Los Angeles, $18,630; General Engineering Corp., Ltd., Los Angeles, $28,187. Contract awarded to C. G. Willis & Sons, Inc., Los Angeles, $15,019.

SAN DIEGO COUNTY—Between San Onofre and San Clemente, 0.9 of a mile to be graded and paved with Portland cement concrete. Dist. VII, Rt. 2, Sec. D. Watson & Sutton, San Diego, $41,314; Robinson, Roberts Co., Los Angeles, $46,963; Sander Pearson, Santa Monica, $41,255; Bruce Bros., Inc., Huntington Beach, $42,125; R. E. Hazard Const. Co., $46,961; Macco Const. Co., Clearwater, $38,675; Bert Calvert, Los Angeles, $40,582. Contract awarded to Matich Bros., Elsinore, $38,118.80.

SAN JOAQUIN COUNTY—Between Lodi and ¼ mile north of Mokelumne River, 0.7 of a mile to be graded and surfaced with untreated crushed gravel. Dist. X, Rt. 4, Sec. C. J. P. Holland, Inc., San Francisco, $28,840; Frederickson & Watson Const. Co., Oakland, $23,718; C. W. Wood, Stockton, $25,263; Lilly, Willard & Biasotti, Stockton, $22,327; T. M. Morgan Paving Co., Los Angeles, $26,118; A. Teichert & Son, Sacramento, $26,441; Larsen Bros., Galt, $28,309; Pereisa & Reed, Tracy, $29,744; W. C. Colley, Berkeley, $34,545. Contract awarded to D. McDonald, Sacramento, $22,147.10.

SAN JOAQUIN COUNTY—Bridge across Mokelumne River near Lodi, consisting of 3 54-ft. reinforced concrete girder spans on concrete piers with pile foundations and 35 19-ft. timber approach spans with concrete deck on pile bents. Dist. X, Rt. 4, Sec. C. Ward Engineering Co., San Francisco, $92,552; Healey-Tibbitts Const. Co., San Francisco, $110,781; M. B. McGowan, San Francisco, $96,644; A. W. Kitchen, San Francisco, $113,509; Jacobs & Pattiani, Oakland, $88,703; Lord & Bishop, Sacramento, $94,-

$22; Bodenhamer Const. Co., San Diego, $105,201; The Utah Const. Co., San Francisco, $103,732; Butte Construction Co., San Francisco, $103,249; Fredrickson & Watson, Oakland, $89,297. Contract awarded to J. S. Metzger & Son, Stockton, $84,379.50.

WATER APPLICATIONS AND PERMITS

Permits to appropriate water issued by the Department of Public Works, Division of Water Resources, during the month of May, 1930.

INYO COUNTY—Permit 3470, Application 6368. Issued to Pacific Sulphur Corp., Bishop, May 7, 1930, for 0.11 c.f.s. from Last Chance Springs in Sec. 2, T. 8 S., R. 39 E., M. D., for mining, milling and domestic. Water will not be returned to stream.

TUOLUMNE COUNTY—Permit 3471, Application 6541. Issued to Joseph Brown, Chinese Camp, May 12, 1930, for .025 c.f.s. from Smarts Gulch in Sec. 18, T. 1 S., R. 15 E., M. D., for domestic and stock watering. Estimated cost $550.

HUMBOLDT COUNTY—Permit 3472, Application 6429. Issued to C. M. Salyer, Salyer, May 15, 1930, for 125 c.f.s. from Campbell Creek in Sec. 20, T. 6 N., R. 5 E., H. M., for mining. Estimated cost $91,000.

SAN BERNARDINO COUNTY—Permit 3473, Application 6566. Issued to Christian Baumann, Phelan, May 19, 1930, for 0.035 c.f.s. from 4 unnamed springs in Sec. 31, T. 4 N., R. 7 W., S. B. M., for domestic and recreational. Estimated cost $2,500.

LOS ANGELES COUNTY—Permit 3474, Application 6520. Issued to Candido Herrere, San Fernando, May 20, 1930, for 0.037 c.f.s. from Muerte Canyon (underground water) in Sec. 34, T. 3 N., R. 14 W., S. B., for irrigation and domestic on one acre. Estimated cost $2,000.

LOS ANGELES COUNTY—Permit 3475, Application 6565. Issued to I. A. Sharp, Palmdale, May 20, 1930, for 0.025 c.f.s. from Deer Spring in Sec. 14, T. 6 N., R. 14 W., S. B., for irrigation and domestic on 2 acres. Estimated cost $425.

DEL NORTE COUNTY—Permit 3476, Application 6567. Issued to Frank Symns, Crescent City, May 21, 1930, for 0.01 c.f.s. from unnamed creek in Sec. 30, T. 17 N., R. 2 E., H. M., for domestic purposes. Estimated cost $200.

EL DORADO COUNTY—Permit 3477, Application 6549. Issued to L. T. Butts, Placerville, May 23, 1930, for 0.12 c.f.s. from Emigrant Ravine Creek in Sec. 5, T. 10 N., R. 11 E., M. D., for irrigation on 10 acres. Estimated cost $500.

AMADOR COUNTY—Permit 3478, Application 6576. Issued to E. T. Bamert, Clements, May 23, 1930, for 1.25 c.f.s. from Mokelumne River in Sec. 4, T. 4 N., R. 9 E., M. D. M., for irrigation on 100 acres. Estimated cost $4,000.

CONTRA COSTA COUNTY—Permit 3479, Application 6587. Issued to Henry R. Vail, Oakland, May 24, 1930, for 37 c.f.s. from Old River, Dredger Cut and Italian Slough in Secs. 6, 7, 18, T. 1 S., R. 4 E., M. D. B. & M.,; Sec. 13, T. 1 S., R. 3 E., M. D. B. & M., for irrigation on 2359.90 acres. Estimated cost $10,000.

LOS ANGELES COUNTY—Permit 3480, Application 5406. Issued to Big Rock Ranch Co., Los Angeles, May 28, 1930, for 6000 acre-feet per annum from Big Rock Creek, surface and underground, in Secs. 6, 8, T. 4 N., R. 9 W., S. B. M., for irrigation and domestic on 2520 acres. Estimated cost $150,000.

EL DORADO COUNTY—Permit 3481, Application 6383. Issued to Pacific Gas and Electric Co., San Francisco, May 28, 1930, for 15 c.f.s. from Alder Creek in Sec. 36, T. 11 N., R. 14 E., M. D. M., for power purposes. Estimated cost $25,000.

SAN JOAQUIN COUNTY—Permit 3482, Application 6588. Issued to American Trust Co., San Francisco, May 28, 1930, for 1.75 c.f.s. from Stanislaus River in Sec. 21, T. 2 S., R. 8 E., M. D. M., for irrigation in 140 acres. Estimated cost $2,560.

SAN JOAQUIN COUNTY—Permit 3483, Application 6539. Issued to H. R. Russell, Modesto, May 28, 1930, for 1.91 c.f.s. from drainage or waste ditch of Oakdale Irrigation district draining through natural depression in Sec. 17, T. 1 S., R. 9 E., M. D. M., for irrigation on 153 acres. Estimated cost $50.

INYO COUNTY—Permit 3484, Application 4214. Issued to Burnham Chemical Co., Westend, May 29, 1930, for 0.02 c.f.s. from 2 springs in Sec. 22, T. 23 S., R. 42 E., M. D. M., for domestic and mining. Estimated cost $50,000.

INYO COUNTY—Permit 3485, Application 4498. Issued to Burnham Chemical Co., Westend, May 29, 1930, for 0.09 c.f.s. from Homewood Spring in Sec. 31, T. 23 S., R. 43 E., M. D. M., for domestic and mining. Estimated cost $35,000.

INYO COUNTY— Permit 3486, Application 5955. Issued to Burnham Chemical Co., Westend, May 29, 1930, for 0.065 c.f.s. from 2 springs and 12 underground water developments in Parsons and Burnett Canyon in Secs. 32, 33, 34, T. 23 S., R. 42 E., M. D. M., for domestic and mining. Estimated cost $10,000.

INYO COUNTY—Permit 3487, Application 5932. Issued to American Potash and Chemical Corp., Trona, May 29, 1930, for 0.0337 c.f.s. from Avalon Springs in Sec. 1, T. 24 S., R. 42 E., M. D. M., for industrial, domestic and mining. Estimated cost $10,800.

INYO COUNTY—Permit 3488, Application 5933. Issued to American Potash and Chemical Corp., Trona, May 29, 1930, for .011 c.f.s. from Avalon Wash in Sec. 1; T. 24 S., R. 42 E., M. D. M., for industrial, domestic and mining. Estimated cost $960.

INYO COUNTY— Permit 3489, Application 5934. Issued to American Potash and Chemical Corp., Trona, May 29, 1930, for .011 c.f.s. from Pot Hole Spring in Sec. 12, T. 24 S., R. 42 E., M. D. M., for industrial, domestic and mining. Estimated cost $840.

INYO COUNTY—Permit 3490, Application 4973. Issued to Engineers Exploration Corp., Los Angeles, May 31, 1930, for .006 c.f.s. from Bainter Spring in Sec. 18, T. 24 S., R. 43 E., M. D. M., for domestic and mining. Estimated cost $1,500.

INYO COUNTY—Permit 3491, Application 5998. Issued to Nellie E. Dean, Pasadena, May 31, 1930, for .025 c.f.s. from Sweepstakes Spring in Sec. 26, T. 23 S., R. 42 E., M. D. M., for mining and domestic. Estimated cost $3,000

Applications for permit to appropriate water filed with the State Department of Public Works, Division of Water Resources, during the month of May, 1930.

MODOC COUNTY—Application 6665. Cedarville Civic Club, c/o Mrs. Ray Hill, president, Cedarville, for 0.75 c.f.s. from Quail Creek Spring tributary to Deep Creek to be diverted in Sec. 2, T. 42 N., R. 15 E., M. D. M., for domestic and municipal purposes. Estimated cost $10,000.

TRINITY COUNTY—Application 6666. Morris Group Gold Mining Company, c/o H. W. Brannan, Burnt Ranch, for 10 c.f.s. from Clark Creek tributary to Etterpom Creek, South Fork Trinity River, to be diverted in Sec. 20, T. 4 N., R. 7 E., H. B. M., for mining and domestic purposes. Estimated cost $2,500.

SAN DIEGO COUNTY—Application 6667. Hallam C. Stone, Box 584, El Cajon, for 0.5 c.f.s. from Campo Creek, also underground water tributary to Tecate River to be diverted in Sec. 19, T. 18 S., R. 5 E., S. B. M., for irrigation and domestic purposes on 70 acres. Estimated cost $5,000.

EL DORADO COUNTY—Application 6668. A. Carlson, Camino, for 0.5 c.f.s. from waste and seepage water tributary to North Canyon, tributary to South Fork American River, to be diverted in Sec. 6, T. 10 N., R. 12 E., M. D. M., for irrigation and domestic purposes on 70 acres. Estimated cost $2,000.

SAN BERNARDINO COUNTY—Application 6669. Geneva Catherine Baxter, Victorville, Lucerne Valley, for 0.26 or approximately 10¾ miners inches from Deep Creek Canyon and six unnamed springs tributary to Mojave Desert to be diverted in Secs. 16 and 10, T. 3 N., R. 1 W., S. B. M., for irrigation and domestic purposes on 20 acres.

SUTTER COUNTY—Application 6670. H. S. Fasig and W. H. Saylor, Knights Landing, for 3.46 c.f.s. from Sacramento River tributary to Suisun Bay to be diverted in Sec. 14, T. 13 N., R. 1 E., M. D. M., for irrigation purposes on 276.81 acres. Estimated cost $4,000.

BUTTE COUNTY—Application 6671. Charles M. Lee, Rt. 1, Box 197 A, Oroville, for .5 c.f.s. from Cottonwood Creek tributary to Sacramento River to be diverted in Sec. 33, T. 20 N., R. 3 E., M. D. M., for domestic and recreational purposes. Estimated cost $25.

COLUSA COUNTY—Application 6672. Colusa Development Co., a corporation, c/o Thos. Rutledge, Colusa, for 9.87 c.f.s. from Sacramento River tributary to Suisun Bay to be diverted in Sec. 26, T. 14 N., R. 1 E., M. D. M., for irrigation and domestic purposes on 787.7 acres. Estimated cost $20,000.

RIVERSIDE COUNTY—Application 6673. Motor Transit Terminal Corp., 1005 S. Mateo St. Los Angeles, for 0.75 c.f.s. from a pond for irrigation purposes on 30 acres. Estimated cost $200.

MONO COUNTY—Application 6674. L. L. Alauzet, 3925 W. 23d St., Los Angeles, for 200 gallons per day from Lower Rock Creek tributary to Owens River to be diverted in Sec. 33, T. 4 S., R. 30 E., M. D. M., for domestic purposes. Estimated cost $250.

SIERRA COUNTY—Application 6675. Charles E. Herron, c/o Geo. F. Taylor, Downieville, for 25 c.f.s. from Goodyear Creek tributary to North Fork of Yuba River to be diverted in Sec. 9, T. 20 N., R. 10 E., M. D. M., for mining purposes.

SAN BERNARDINO COUNTY—Application 6676. The Mojave River Irrigation District, c/o Meserve, Mumper, Hughes & Robertson, 615 Richfield Bldg., Los Angeles, for 30,000 acre-feet per annum from Deep Creek and West Fork Mojave River tributary to Mojave River to be diverted in Secs. 17 and 18, T. 3 N., R. 3 W., S. B. M., for irrigation purposes on 26,875.36 acres.

MODOC COUNTY—Application 6677. Russell M. Bushey, Canby, for .12 c.f.s. from unnamed stream tributary to Pit River watershed to be diverted in Sec. 7, T. 41 N., R. 9 E., M. D. M., for irrigation and domestic purposes on 10 acres. Estimated cost $5.

SACRAMENTO COUNTY—Application 6678. G. H. Moreland, Rt. 6, Box 4320, Sacramento, for 0.3 c.f.s. from Dry Creek tributary to Sacramento River to be diverted in Sec. 32, T. 10 N., R. 5 E., M. D. M., for irrigation purposes on 24.4 acres. Estimated cost $500.

EL DORADO COUNTY—Application 6679. Sierra Camps, Inc., Frank Kleeberger, president, of University of California, Berkeley, for 0.1 c.f.s. from Palston Creek tributary to Upper Echo Lake to be diverted in Sec. 34, T. 12 N., R. 17 E., M. D. M., for recreational and domestic use. Estimated cost $200.

EL DORADO COUNTY—Application 6680. H. V. Madden, Placerville, for .25 c.f.s. and 8 acre-feet per annum from Emigrant Ravine tributary to Hangtown Creek and South Fork American River to be diverted in Sec. 4, T. 10 N., R. 11 E., M. D. M., for irrigation purposes on 35 acres. Estimated cost $2,000.

MODOC COUNTY—Application 6681. C. C. Jones, Cedarville, for 1.62 c.f.s. from Steamboat Creek tributary to Middle Alkali Lake to be diverted in Sec. 10, T. 41 N., R. 16 E., M. D. M., for irrigation purposes on 130 acres.

LAKE COUNTY—Application 6682. Martin Judge, Jr., and Company, Crocker First National Bank Bldg., San Francisco, for 250 c.f.s. and 175,000 acre-feet per annum from North Fork Cache Creek tributary to Cash Creek to be diverted in Sec. 4, T. 14 N., R. 6 W., M. D. M., for industrial and domestic purposes. Estimated cost $3,000,000.

LAKE COUNTY—Applicatnon 6683. Martin Judge, Jr., and Company, Crocker First National Bank Bldg., San Francisco, for 175,000 acre-feet per annum from North Fork of Cache Creek tributary to Cache Creek to be diverted in Sec. 4, T. 14 N., R. 6 W., M. D. M., for irrigation purposes on 50,000 acres. Estimated cost $1,000,000.

FRESNO COUNTY—Application 6684. Sherley DeVine, Dunlap, for .01 c.f.s. from an unnamed spring tributary to Mill Creek, thence Kings River, to be diverted in Sec. 4, T. 14 S., R. 27 E., M. D. M., for irrigation and domestic purposes on 1 acre. Estimated cost $250.

EL DORADO COUNTY—Application 6685. J. S. Goldie, 1500 39th St., Sacramento, for 400 gallons per day from an unnamed creek tributary to South Fork of American River, to be diverted in Sec. 19, T. 11 N., R. 16 E., M. D. M., for domestic purposes. Estimated cost $200.

MONO COUNTY—Application 6686. Clifford E. Brodie, 750 Central Ave., Los Angeles, for 200 gallons per day from Rock Creek tributary to Owens River, for domestic purposes. Estimated cost $175.

SAN BERNARDINO COUNTY—Application 6687. Stanley Visel, 145 N. Broadway, Suite 200, Los Angeles, for 446 gallons per day from an unnamed spring to be diverted in Sec. 9, T. 2 N., R. 3 W., S. B. M., for domestic purposes. Estimated cost $300.

MONO COUNTY—Application 6688. E. A. Montgomery, c/o Fred R. Smith, Bishop, for 0.065 c.f.s. from an unnamed spring tributary to an unnamed watershed, thence Hammil Valley, thence Owens River, to be diverted in Sec. 11, T. 3 S., R. 31 E., M. D. M., for mining, milling and domestic purposes.

NEVADA COUNTY—Application 6689. South Yuba Company, Ltd., 552 Holbrook Bldg., San Francisco, for 50 c.f.s. from South Yuba River tributary to Yuba River to be diverted in Sec. 8, T. 17 N., R. 11 E., M. D. M., for mining purposes. Estimated cost $10,000.

DAM APPLICATIONS, APPROVALS AND PLANS

Applications for approval of dams built prior to August 14, 1929, filed with the State Department of Public Works, Division of Water Resources, during the month of May, 1930.

NEVADA COUNTY—Lake Olympia Dam No. 313. Thurston & Beaulieu, Grass Valley, owner; concrete, 5½ feet above streambed. Situated on no stream in Sec. 24, T. 16 N., R. 8 E., M. D. M., for storage purposes for recreation use. Estimated cost $5,000.

PLUMAS COUNTY—Greenbower Dam No. 280. H. J. Greenbower, Meadow Valley, owner; rock and earth, 25 feet above streambed. Situated on dry gully tributary to Middle Fork Feather River in Sec. 6, T. 22 N., R. 7 E., M. D. M., for storage purposes for debris use. Estimated cost $1,585.

LASSEN COUNTY—Coon Dam No. 249. W. W. Long, Johnstonville, owner; earth and rock, 6 feet above streambed with a storage capacity of 150 acre-feet. Situated on Coon Creek tributary to Horse Lake in T. 33 N., R. 13 E., M. D. M., for storage purposes for irrigation use. Estimated cost $3,000.

LASSEN COUNTY—Fredonia Dam No. 249–2. John K. Long, Susanville, owner; earth, 21 feet above streambed with a storage capacity of 300 acre-feet. Situated on creek tributary to Pine Creek in T. 33 N., R. 13 E., M. D. M., for storage purposes for irrigation use. Estimated cost $1,800.

LASSEN COUNTY—Branham Dam No. 249–3. W. W. Long, Johnstonville, owner; earth, 20 feet above streambed with a storage capacity of 600 acre-feet. Situated on Branham Creek tributary to Horse Lake in T. 33 N., R. 13 E., M. D. M., for storage purposes for irrigation use. Estimated cost $2,000.

MONO COUNTY—Black Reservoir No. 538. Schacht & Settelmeyer, Gardnerville, owners; earth, 15 feet above streambed with a storage capacity of 250-acre-feet. Situated on Black Creek tributary to West Walker River, located in Sec. 29, T. 6 N., R. 23 E., M. D. M., for storage purposes and irrigation use.

LASSEN COUNTY—Mitchell Dam No. 243. David S. Mitchell, Susanville, owner; earth, 8 feet above streambed with a storage capacity of 65 acre-feet. Situated on no stream in Sec. 13, T. 35 N., R. 11 E., M. D. M., for storage and diversion purposes for irrigation and stock use. Estimated cost $750.

SAN DIEGO COUNTY—Miles Dam No. 843. Harriet S. Miles, Grossmont, owner; earth, capacity of 1½ acre-feet. Situated on flume, for storage purposes for irrigation use.

MERCED COUNTY—Crocker Diversion Dam No. 58. Merced Irrigation District, Merced, owner; concrete, 12 feet above streambed. Situated on Merced River in Sec. 7, T. 5 S., R. 15 E. M. D. M., for diversion purposes for irrigation use. Estimated cost $71,660.

LASSEN COUNTY—Nelson Dam No. 231—F. S. Benedict, Likely, Modoc County, owner; earth, 10 feet above streambed with a storage capacity of 400 acre-feet, situated on Dry Creek tributary to Pit River in Sec. 24, T. 38 N., R. 12 E., M. D. M., for storage purposes for irrigation and stock water use.

MONO COUNTY—Upper Twin Lake Dam No. 531. C. E., J. H. and L. S. Day, Bridgeport, owners; rock fill, 8⅔ feet above streambed with a storage capacity of 2800 acre feet. Situated on Robinson Creek tributary to East Walker River, for storage purposes, for irrigation, stock and domestic use.

MONO COUNTY—Lower Twin Lake Dam No. 531–2. Hunewill, Plymouth Land and Stock Co., Simpson & Day, Bridgeport, owners; rock fill, 20 feet above streambed with a storage capacity of 4000 acre-feet. Situated on Robinson Creek tributary to East Walker

River, for storage purposes, for irrigation, stock and domestic use.

VENTURA COUNTY—Lake Eleanor Dam No. 765–2. Elsie L. Canterbury, Hollywood, owner; arch, 30 feet above streambed with a storage capacity of 104 acre-feet. Situated on Eleanor Creek tributary to Triunfo in Sec. 27, T. 1 N., R. 19 W., S. B. M., for storage purposes for recreation use.

EL DORADO COUNTY—Diamond Reservoir No. 462–2. Diamond Ridge Water Co., Diamond Springs, owner; earth and rock, 14 feet above streambed with a storage capacity of 10 acre-feet. Situated on ditch in Sec. 25, T. 10 N., R. 10 E., M. D. M., for storage purposes for irrigation use.

MERCED COUNTY—Yosemite Lake Dam No. 58–3. Merced Irrigation District, Merced, owner; earth, 45.8 feet above streambed with a storage capacity of 7000 acre-feet. Situated on main canal in Sec. 33, T. 6 S., R. 14 E., M. D. M., for storage purposes for irrigation. Estimated cost $165,000.

Application for approval of Plans and specifications for the repair or alteration of dams filed with the State Department of Public Works, Division of Water Resources, during the month of May, 1930.

INYO COUNTY—Hillside Dam No. 100. Hillside Water Co., Riverside, owner; rock, in Sec. 15, T. 9 S., R. 31 E., M. D. M. Install new face.

NEVADA COUNTY—Fuller Lake Dam No. 97–21. Pacific Gas and Electric Co., San Francisco, owner; earth. Situated on Jordan Creek tributary to South Fork Yuba River in Sec. 17, T. 17 N., R. 12 E., M. D. M. New outlet; granite slab on upstream face.

Plans and specifications for the construction or enlargement of dams approved by the State Department of Public Works, Division of Water Resources, during the month of May, 1930.

SAN DIEGO COUNTY—Mary Joe Dam No. 841–2. H. F. Schnell, San Diego, California, owner; arch, 28 feet above streambed with a storage capacity of 135 acre-feet. Situated on Skye Valley Creek tributary to Pine Creek in Sec. 2, T. 17 S., R. 3 E., S. B. M., for storage purposes for irrigation and recreation use. Estimated cost $30,000.

LOS ANGELES COUNTY—Mulholland Dam No. 6–17. City of Los Angeles, Los Angeles, owner; gravity arch. Situated in Weid Canyon. Estmated cost $293,488.

Plans and specifications for the repair or alteration of dams approved by the State Department of Public Works, Division of Water Resources, during the month of May, 1930.

INYO COUNTY—Hillside Dam No. 100. Hillside Water Company, Riverside, owner; rock fill. Situated on South Fork Bishop Creek tributary to Owens River in Sec. 15, T. 9 S., R. 31 E., M. D. M. Install new face.

TRAFFIC OFFICERS GO TO SCHOOL

(Continued from page 1.)

a special corps of cooks, assistant cooks and waiters hired for the occasion.

Stringent rules governing the conduct of the students were made and adhered to rigidly. No officer was permitted to leave the grounds without permission and every man was required to attend all classes.

The studies at the school included a score of important subjects, all bearing on the work of the traffic officer, such as accident prevention, efficiency, clearing highways, directing traffic, making reports, courtesy to the public, court procedure, arrests, etc.

Several special lecturers came in at various times for special subjects. Harry Huston, attorney for the Division of Motor Vehicles, addressed the school on one occasion on certain phases of the Motor Vehicle Act. Justice of the peace H. P. Andrews, on another occasion, lectured on court procedure.

Daily lessons in jiu jitsu were given by Tommy Burns, a master of the intricate Japanese art. Dr. D. F. Dozier gave daily instruction in first aid.

The school was fortunate at its opening period in having the services of Inspector William H. White, a former colonel in the United States Army, to supervise the close order drills and other phases of military work.

General instruction was given by inspectors Ralph Yoder, Elmer Steinmeyer and M. C. McKee. Inspectors Victor W. Killick, Ed P. Williams, Will R. Sharkey, Jr., George Moynahan, Edward P. Cook and others acted as part-time instructors.

UNIFORM TRAFFIC LAWS TERMED PROBLEM FOR STATES AND CITIES

(Continued from page 12.)

"This subject is one of vital concern to all of us and touches the well-being of the whole people. As such it calls for concerted action not only by governmental authorities of all the states and all the municipalities, but by the national associations and organizations through which the public interest, not to say the public responsibility, is expressed.

"The conference itself is an avowal of this singleness of purpose and of public responsibility. Its conclusions represent the best thought and judgment available brought to focus upon the many aspects of the traffic problem.

ACCOMPLISHMENT RESTS WITH THE STATE

"This is an accomplishment of no little magnitude, but it is the beginning, not the end of your endeavor. The task that remains is to put your conclusions into effect, to apply the solutions upon which you have agreed.

"How is this to be done? It is not for federal government to undertake to carry out your recommendations. That can not be done without violence to our fundamental political principles and the genius of our institutions. It is the proper function and desire of the federal government to assist the states and municipalities in carrying out the purposes of the conference, but not to encroach upon the authority which rightfully belongs to them.

"The task rests primarily with the states. The responsibility is theirs. I think the deliberations of the conference are a convincing guaranty that they will have the earnest support of the organizations and associations which have been represented here.

"Finally the success of this important undertaking rests with the public, the individual citizens whose welfare is the end sought by this gathering.

"May I bespeak for your efforts this necessary individual cooperation and express my own personal appreciation of the highly important work you have done?"

I know a woman who was so down-in-the-mouth, she had her face lifted.

STATE OF CALIFORNIA

Department of Public Works

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Port of San Diego—Edgar A. Luce

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

CALIFORNIA STATE PRINTING OFFICE
SACRAMENTO, 1930

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