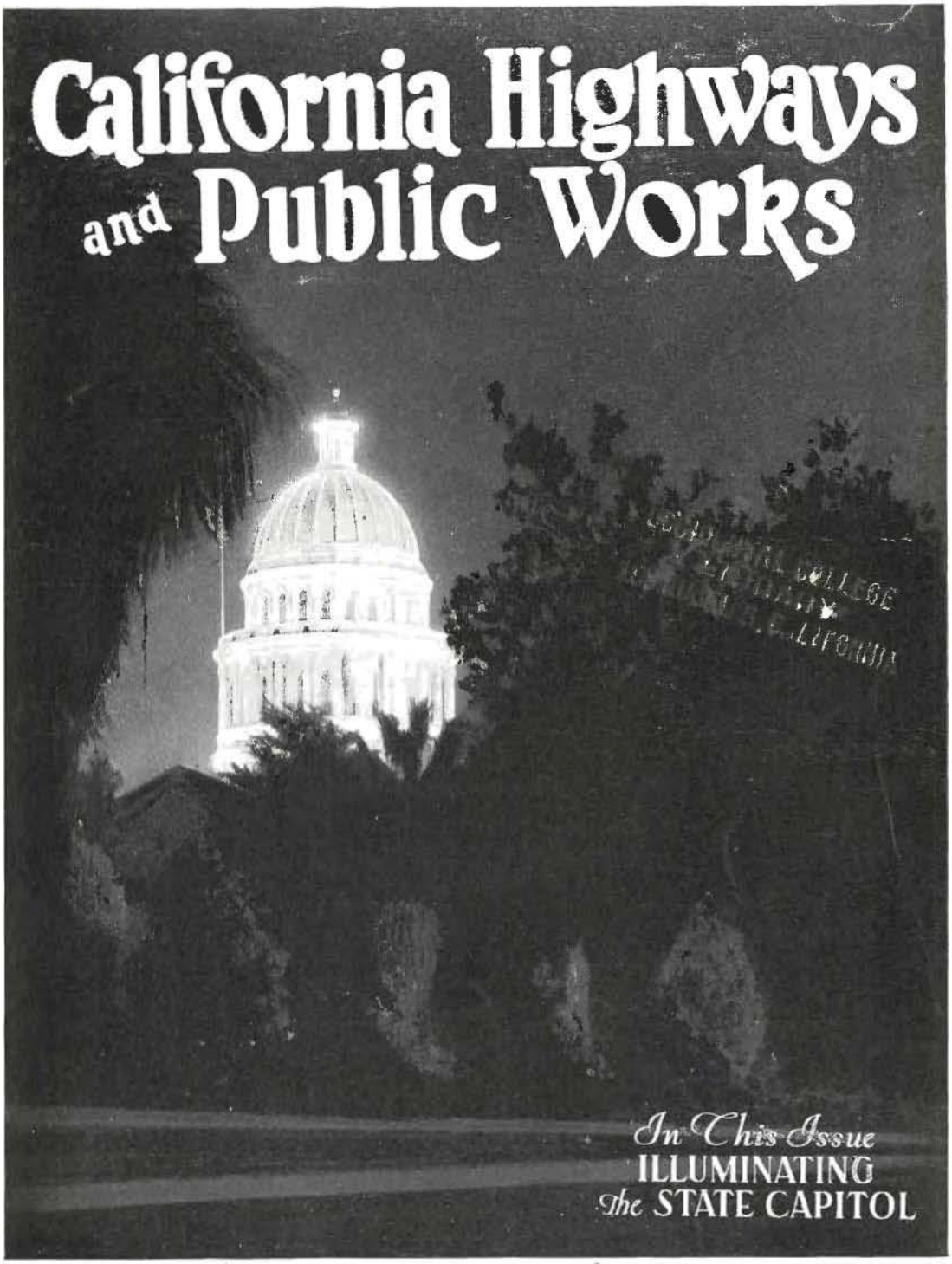
California Highways and Public Works



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ILLUMINATING
the STATE CAPITOL

Official Journal of the Department of Public Works
State of California

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New Designs in Highway Construction As Compared with Older Standards

By C. H. Purcell, State Highway Engineer.

THE STANDARDS of highway location and design have, during the past three years, shown a remarkable nation-wide improvement. The engineers of the California Division of Highways are making every effort to keep their locations in line with modern practice and to insure that the service furnished will be immediate as well as permanent.

Several of the more important recent improvements in California state highway design practice are described briefly in the following paragraphs:

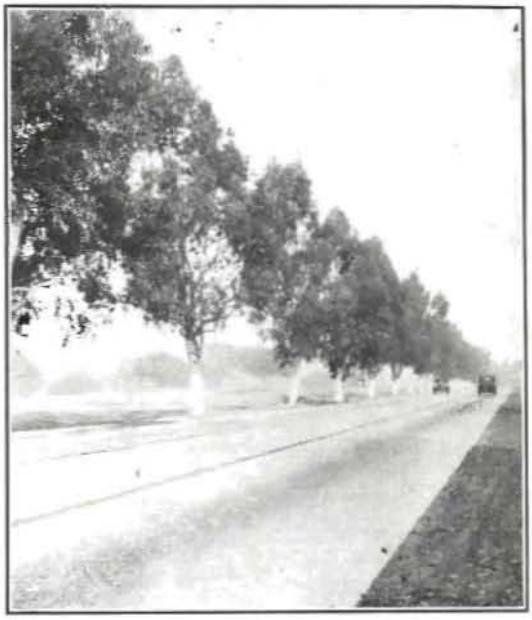
PERMANENT LOCATION

New roads and most major improvements of existing roads are located as nearly as can possibly be foreseen on permanent alignment and grade, which will not require future alteration or correction with consequent loss of a portion of the initial investment; and which, at the same time, is readily adapted to normal growth by widening as required by increasing traffic. In some few cases, new roads or improvements of existing roads are located and designed purposely for temporary rather than for ultimate service, but in such cases consideration is given the ultimate requirement with a view to realizing the maximum salvage value from the temporary road, when the ultimate construction is undertaken.

CURVATURE STANDARDS

Curvature on main trunk highways, in all except the most rugged country, is now usually designed to handle safely, vehicles operating at the maximum speed permitted by law. Even in the mountainous regions, 300 feet is regarded as the minimum acceptable curve radius. A properly designed curve of this radius will allow safely a speed of about 40 miles per hour. On a few secondary roads in unusually difficult country, carrying mainly recreational traffic, 200-foot radius curves are used sparingly to keep grading costs within reason.

These curvature standards present a striking contrast to the standards of a few years ago, when 100-foot radius curves were common on trunk roads and 35 miles per hour was considered maximum high speed. It may be stated without exaggeration that our primary trunk roads are being constructed or reconstructed in some cases on curvature standards which are comparable to the curvature standards of main line railroads in adjacent or similar locations.



The recently completed 30-foot Portland cement concrete pavement on a 46-foot roadbed between Ben Ali and Sylvan School in Sacramento County.

CURVE SUPERELEVATION

Superelevation standards have been revised during the past year to accommodate higher speeds. The superelevation as applied to new projects is designed to make practically all curves within the range of Divison of Highway engineering practice safe for speeds of 40 miles per hour or faster.

CURVE WIDENING

During the past year widening of all curves of 500 feet radius or shorter has been made standard practice. This provides greater clearance between cars passing on curves, increases sight distance around curves, and is so designed that the transition between un-

widened straight road and widened curves produces the effect of tapered ends to the curves, aiding greatly in the ease and comfort with which a curve is entered or left, especially at high speeds.

GRADE IMPROVEMENTS

The present tendency is toward the use of 5 per cent maximum grades, especially in the higher altitudes, in response to the popular demand for fast high gear roads. Six per cent grades are losing favor even on secondary roads, especially where the maximum grade is sustained for a considerable distance. Seven per cent grades are used only in exceptional cases, usually to avoid great loss of distance.

The old practice of rolling grades heavily to reduce cut and fill costs is practically obsolete. On all new work effort is made to secure straight, even grades as an aid to safety, visibility and appearance. In many cases, especially on side hill mountain and canyon locations, skillful engineering can secure the straight grades for no greater cost than the objectionable rolling grades.

Numerous technical refinements have been made in the detail design and coordination of grades, vertical curves, and horizontal curves, all tending toward greater safety and more pleasing appearance, usually without increased cost.

VISIBILITY ON SUMMITS

Current design requires that at summits on straight roads, objects five feet above the road surface shall be mutually visible to each other for a distance not less than 600 feet. The tendency is to increase this minimum sight distance requirement to 800 feet on important roads. Until quite recently 300 or 400 feet of sight distance was considered ample in California. This vertical sight distance is modified on curves, but is so designed as to be always greater than the horizontal sight allowed by the curve regardless of future widening.

ROADBED WIDTHS

Pavement widths of 16 feet or less are obsolete. A very few 18-foot temporary surfaces (usually gravel or crushed rock) are being constructed on certain secondary roads in mountainous country when traffic is light. A minimum 20-foot pavement width and a minimum 10-foot traffic lane width have been adopted recently for all permanent and for most temporary or stage pavements.

Shoulder width standards have increased rapidly until the 8-foot parking shoulder on each side of the surfacing is now standard practice on the average trunk road in contrast to the usual two- or three-foot shoulders of several years ago.

RIGHT OF WAY WIDTHS

Until recently most state highway rights of way were from 40 to 60 feet wide. Current California state practice, adopted within the last two years, requires a minimum right of way of 80 to 100 feet, depending on the importance and position of the road. In built up or suburban districts, definite set back lines for property improvements are usually obtained in connection with right of way agreements, to accommodate future highway growth without excessive expense due to moving buildings, etc. In National Forest lands, arrangements have been made with the Forest Service whereby leases and building permits issued for use of forest lands are restricted by set back lines at least 100 feet from the center line of state highways.

UTILIZATION OF RIGHT OF WAY

Considerable effort has been made recently to design typical standard roadway cross sections for various types of roads in order to secure a more efficient use of the right of way. For use on important roads in easy valley locations, a so-called "turnpike" section has been developed which consists essentially of a normal roadbed with wide, gentle side slopes extending to side ditches placed near the right of way lines. The side slopes are so designed that they will fit ultimate widening of the pavement, and at the same time will provide the most efficient distribution of all cut and fill material for both current and ultimate construction. Deep side borrow ditches are avoided, and the slopes are designed so that future improvement will be a continuation of the initial work rather than an alteration.

Provision for roadside trees, sidewalk space, curbs, public utilities equipment, building lines, etc., is included in the typical section designs which have been applied successfully to recent construction.

PAVEMENT CONSTRUCTION IMPROVEMENT

The last few years have seen a notable improvement in the strength, durability, and riding qualities of state highway pavements. Concrete pavements have been not only thickened but are now designed scientifically with reinforcement, variable section, etc., in a manner similar to that in which any other

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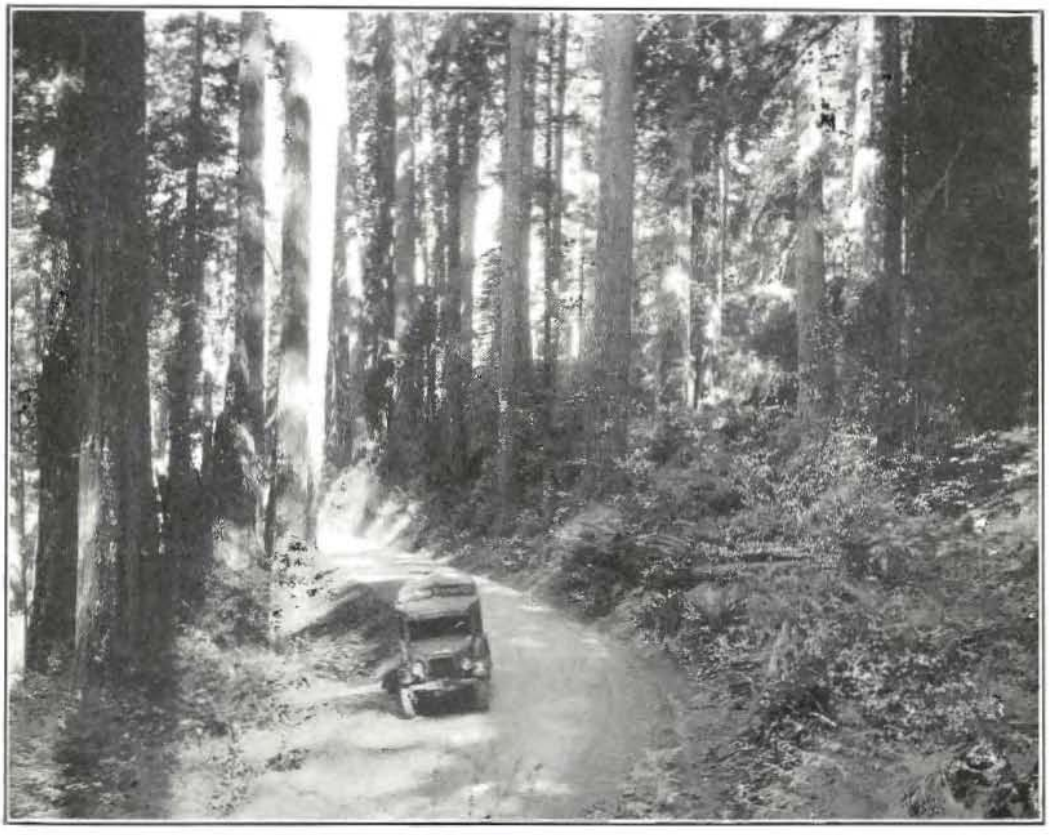
Redwood Park Adorns State Highway

GIANT redwoods and spectacular seacoast scenery are uniquely combined in the splendid new Del Norte Coast State Park, nearly 3000 acres in extent, and costing more than $400,000, now preserved for the people of California and the nation by the California State Park Commission and the Save-the-Redwoods League.

Those who have traveled California's Redwood Highway where it winds above Pacific Ocean south of Crescent City, will remember this stand of giant redwoods. Its beauty is enhanced by the fact that in addition to the five miles of highway through the forest, the project includes more than seven miles of ocean frontage, the highway at times taking its course close to 1000 feet above the seacoast, with many thrilling vistas of the Pacific. This is considered one of the most spectacular drives in the world.

Officials of the California Highway Commission, the State Park Commission and the Save-the-Redwoods League are congratulating themselves upon the fact that here is one of California's outstanding scenic areas which through its status as a state park will forever be protected from defacement. No trees or undergrowth are to be destroyed; no unworthy construction or development, no "hot dog stands" or bill boards to mar the landscape picture. The beauty and tranquillity of the redwood forest, the matchless vistas of the Pacific, will in this area be kept unspoiled for all time. Not the least important feature of this park is the glorious display of rhododendrons and other wild flowers which in late May and June are at their finest.

The plan of preserving this Del Norte Coast Park, in its present confines had its nucleus in the Graves Grove, 289 acres, presented to



New State Redwood Park in Del Norte County.

the League in 1925 by Mr. George F. Schwars of New York, in honor of Colonel Henry Solon Graves, Dean of the Yale University School of Forestry and former U. S. Forester. Lands controlling highway approaches to the grove to the north and south were later acquired and presented to the League by Mr. George O. Knapp of Santa Barbara.

Other contributors toward the establishment of groves in the Del Norte Coast area include J. D. Grant of San Francisco, Madison Grant of New York, and Mrs. Samuel Boardman, Mrs. Philip Van Horne Lansdale and Mrs. Stella M. Leviston, all three of San Francisco. A sum of money toward the completion of the project was allocated from the funds in the League treasury. The state's share, derived from the sale of state park bonds, was $199,000.

A scenic trail, two and a half miles long, from the highway down through these various "zones" to the coast, has been laid out under the direction of Mr. Emerson Knight. Other trails penetrating this forest fastness will, it is expected, be built in the future.

In his report, Mr. Knight says of the first three zones: "The wild, rugged character of the coast, where the sea has for ages been eating its way into the cliffs, where storms crash and waters churn about the fallen giant boulders; the deep-cut creek bottoms and the vast, silent spaces in the redwood forest, richly inhabited by rhododendrons, huckleberry, salal, ferns and lilies, render this area remarkable for park purposes, in its variety and beauty."

Of the Redwood Highway zone, Mr. Knight goes on to say: "The course of this famous thoroughfare through the park area is one of a beautiful serpentine character and about six miles in length. It ranges from about 200 feet elevation at the southern gateway to about 1000 feet, where the panorama of the coast looking northward toward the foam-fringed curve of beach from which comes the name 'Crescent City,' is suddenly encountered as a dramatic surprise, on emerging from the forest."

In referring to the scenic old county road, Mr. Knight continues: "This charming relic of earlier travel is in general quite well secluded and separated from the Redwood Highway by the first ridge parallel to the sea. While the new highway swings along the contours below the crest on the west side, the old county road lies nearer the ridge, winding mostly along the east side, protected from the wind. A considerable portion of that which

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TWO VIEWS OF STATE ROADS IN THE BUILDING

The contractor's equipment and force at work about one-half mile north of Eagle Falls, for the grading of a portion of state highway between Bay View Rest and one mile north of Eagle Falls, a portion of the Truckee-Meyers National Forest Highway.

Sacked concrete riprap protecting embankment of newly constructed 24-foot graded roadbed in Lake County, a portion of the Ukiah-Tahoe state highway.

ARCHITECT NAMED FOR LOS ANGELES STATE BUILDING

John C. Austin of Los Angeles has been selected as the architect of the Los Angeles State Building for the construction and furnishing of which $1,250,000 has been provided by a bond issue. The site for the building has been accepted and preliminary sketches are now being made. As soon as these are approved working drawings will be started and completed so as to get construction under way at the earliest possible moment.

SALES TALK

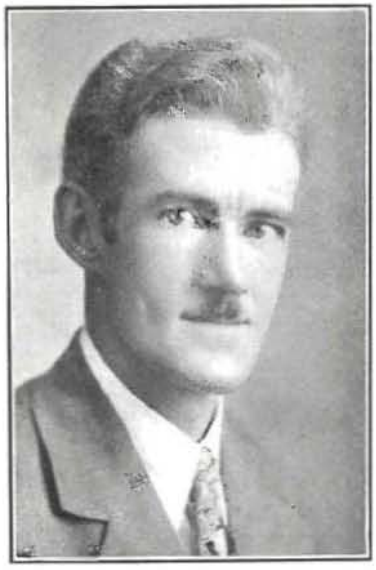
Wife—The garage man says that our car must be thoroughly overhauled.

Husband (wearily)—You win. Go down and pick out your new car.

Floodlighting the State Capitol

By WALTER M. CALLAHAN, Electrical Engineer, Division of Architecture.

TO ENDEAVOR to describe the theoretical principles involved and their relation to the physical conditions which exist, in the design of a floodlighting system one would not only present an elaborate compilation of facts and figures, but would, in all



WALTER M. CALLAHAN.

probability, unduly tax the patience of the reader.

The floodlighting of the upper portion of the State Capitol Building has been in nightly operation for over a year. The comments of the general public are indeed gratifying to those of the state organization who set forth their efforts to attain the resultant effect which tends to emphasize the dignity which the building implies.

While considering this particular project, it is well for us in a general way, to turn our thoughts to the progress being made in floodlighting as regards its usefulness to industry and also its adaptation to the spectacular and aesthetic applications.

Modern floodlighting is gradually contributing a high standard of utility in the commercial field as well as a profound appreciation of the beauty and architectural design of our public buildings and civic centers.

From a utilitarian standpoint, floodlighting has materially increased production in our industrial plants by virtue of the fact that more efficient working conditions are afforded in that an equally distributed intensity of illumination is provided. The installation of floodlights to illuminate an extremely large area permits the mounting of the units at concentrated points, quite often isolated, thereby eliminating the obstructions caused by poles or standards, which are necessary in the case of direct unit lighting. In this particular class of service we have the lighting of railroad yards, wharves and docks, building construction, grading and excavating projects, carnivals and expositions, athletic fields, airports and many other applications too numerous to mention.

DEVELOPMENT OF WORLD WAR

The development of floodlighting and its attendant equipment during the World War period was phenomenal. To successfully cope with acts of espionage, it was vitally necessary that immediate precautions be taken for the protection of industrial plants and building structures being utilized for the manufacturing of munitions or provisions for use in our national defense. This relatively new phase of production was inaugurated in an amazingly short period of time and carried on with a maximum degree of efficiency. The contribution of floodlighting in assisting this stimulated production so successfully, has been generally conceded by private and public officials engaged in this work. Since the war, this type of protection has been rapidly expanding in the continual effort to combat the vast number of the enemies of society at large.

MODERN APPLICATIONS

Penal institutions as well as insane and narcotic hospitals, are finding a solution of their lighting problems in the use of floodlights as a precautionary measure. The Division of Architecture has very recently completed the installation of an extensive floodlighting system at the State Narcotic Hospital at Spadra, California. The lighting units are arranged to thoroughly illuminate the area surrounded by a galvanized iron wire screen fence, and at the same time are so situated that no offensive glare is evident. The light-

ing units are mounted on the roofs of low buildings in such a position that their beam is directed toward the fence as well as illuminating the ground area. In the event of the prowler walking in the illuminated area or approaching the fence, a very distinct shadow is cast on the fence thereby very definitely attracting the attention of the institution attendants. An exceedingly high candlepower directional beam searchlight is mounted on top of the main building which can ascertain the moving object within the radius of three-quarters of a mile.

AIRPORTS AND AIR LANES

The most recent application and probably the greatest field open for expansion of floodlighting, is in line with the development of airports and air lanes for night flying. Commercial aviation, to be successful, is solely dependent on adequately marked routes and well illuminated landing fields.

It is logical to believe that any article or type of equipment being manufactured in the class of mass production and at the same time being constantly improved to meet the demands of exacting requirements, will quickly develop into a product of distinctive merit.

IN THE FIELD OF ARTISTRY

In addition to the foregoing described utilitarian purposes, the artistic application of floodlighting presents an unlimited field for the illuminating engineer. By a comprehensive study of the architecture, together with a correct design based on the fundamental principles of floodlighting, the conception of the architect can be lifted from nightly obscurity and portrayed on a dark and oftimes starry background, thereby perpetuating a thought so carefully conceived.

Unfortunately, at times, the error of too brilliant or intense illumination is discernible. The shadows which tend to emphasize the mass and proportions of the structures are obliterated and at the same time, shadows which are distasteful are accentuated by the intense illumination. To attain the desired results which will idealize the original purpose, quite often necessitates a wide deviation from the so-called hard and fast rules of the technical engineer. Any attempt toward standardization of procedure in design on work of this kind, is irrational, as all structures are basically different; therefore, the success of the finished product is dependent solely upon the analytical mind of the engineer and his ability to incorporate his findings in the actual installation.

Our national, state and city governments are constantly authorizing the floodlighting of their respective civic centers. These edifices all possess architectural detail of exquisite beauty and are the manifestation of the political and community prestige. By removing them from their veil of darkness and clothing them with a robe of white light, an educational value is derived which can not be considered an unwarranted expense.

LIGHTING THE STATE CAPITOL

Keeping abreast with the national trend, the State of California included the floodlighting of the upper portion of the State Capitol in its program of construction and development.

The Division of Architecture of the State Department of Public Works completely designed the entire installation and prepared all plans and specifications governing the installation. This point is, no doubt, of particular interest for the reason that the design of floodlighting installations of major importance is in practically all instances made by engineers of lighting equipment companies specializing in this field. This project alone is indicative of a diversified field of research and development carried on by the Division of Architecture.

This particular design was rather difficult in that only three sides were available for the installation of floodlighting equipment; however, after careful study, the locating of the equipment at the correct angles enabled the engineer to obtain results which have proved satisfactory.

Main floodlighting of the dome is provided from banks of 22 General Electric Type L-24, 1000-watt projectors and 28 General Electric Type L-9, 500-watt projectors mounted on low platforms around the edge of the main roof of the Capitol.

To relieve the sharp shadows caused by the two balcony railings around the dome, a series of relief lights is employed. There are mounted on the inside of the upper balcony railing, 48 200-watt Type C lamps enclosed in Crouse-Hinds vaporproof fittings. Twenty-four of the same type of lamps and fittings are installed around the inside of the lower balcony. Not only do these lamps eliminate the shadows on the dome caused by the floodlights and railings but they also raise the railings in relief to provide a most pleasing effect.

An architectural feature of the dome is the two rows of long narrow windows separated by thin columns that surround the dome at two different elevations. A striking color

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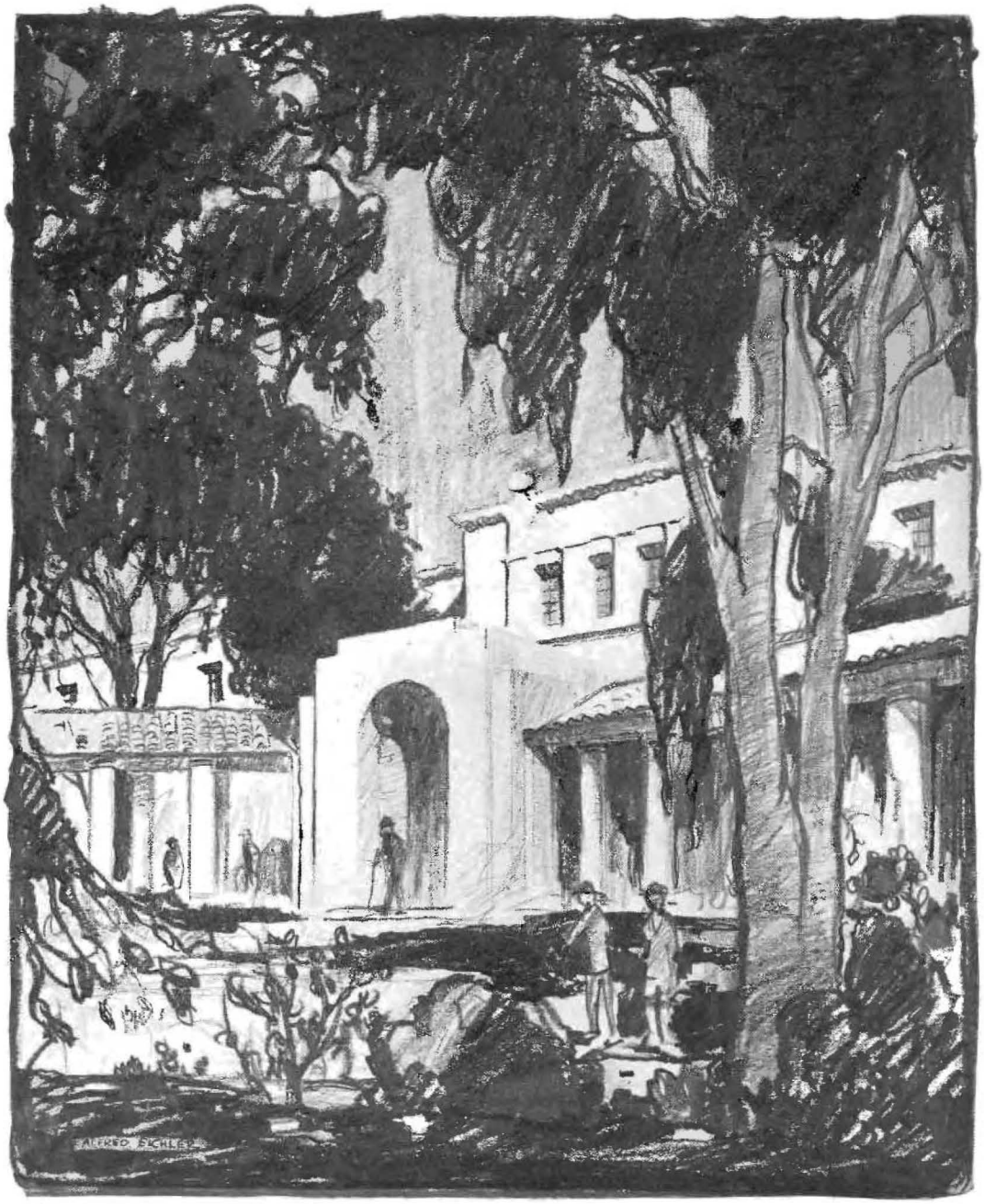
Scenic Glimpses of State Buildings



The above sketch is a view of the barracks at the Veterans Home at Yountville, California.

San Juan Grade Decision is Announced

A DECISION of the much debated question of the position of the San Juan grade in the state highway system was reached by the California Highway Commission at a meeting held on March 20th in San Francisco.

The plan as adopted by the California Highway Commission provides that the San Juan grade will be eliminated as a part of the Coast Highway but will be retained in the state highway system as a part of the Hollister lateral.

The decision of the Commission ratified a plan presented to that body by B. B. Meek, Director of the Department of Public Works. The plan was fully approved in a written opinion given by Attorney General U. S. Webb. The four salient points in the plan as voted by the California Highway Commission today are as follows:

1. Authorization to proceed at once to make the necessary surveys, plans and estimates of cost to relocate the "Coast Highway" westerly of the present San Juan grade, and make provision for starting the construction thereof in the next budget.

2. Authorization to retain and maintain the present San Juan grade as a part of the state highway system to constitute an extension of the present Hollister county seat lateral, such extension to run from San Juan Bautista over the grade to a new connection with the projected, relocated "Coast Highway" at a point south of the present grade.

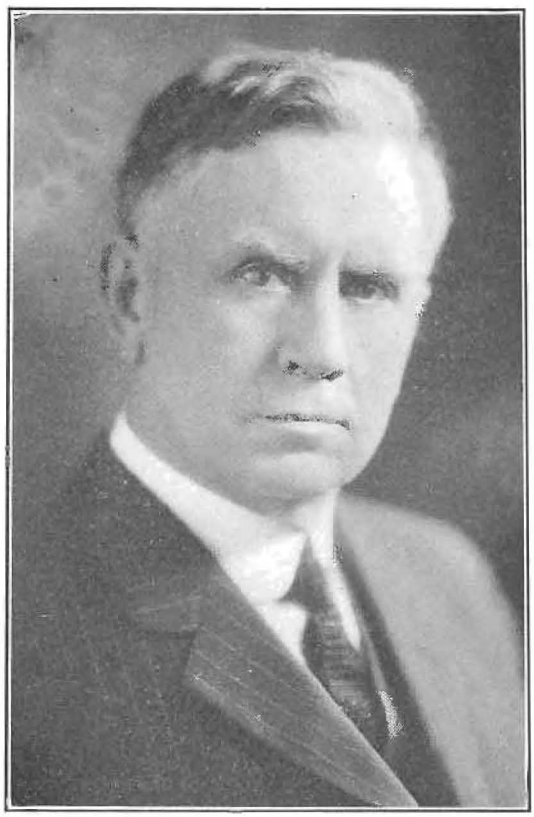
3. Authorization to relinquish the short unit now in the "Coast Highway," between San Juan Bautista and the point where the new relocation would depart from the present road north of San Juan Bautista, to the county of San Benito, this unit to be maintained by the county, until such later date, as the legislature may by statutory enactment reincorporate it in the state highway system.

4. Recommendation to the next legislature that the foregoing treatment of the San Juan grade situation be recognized by appropriate legislation.

Facts relative to the San Juan grade, upon which the Commission based its decision, were cited by Director Meek as follows:

The present San Juan grade can not, within reasonable engineering possibility and within the limits of justifiable expenditure of public funds, be made to meet the traffic and safety requirements of the main north and south trunk line of the state highway. In other words, it has passed the peak of its adaptability and usefulness for such major trunk line uses.

The relocation will vastly improve grades and curves, increasing, of course, the carrying capacity of the road and adding to the safety and expedition of travel and transportation.



Attorney General U. S. Webb.

The highest point on the present road is 1015 feet; the highest point on the new road will be 550 feet. The length of adverse grades will be cut in half. The minimum radius curve on the present road is 100 feet; on the relocation 1000 feet. Total number of curves on the old road is 113; on the new line 38. The minimum sight distance on the present road, 75 feet; on the relocation, 600 feet.

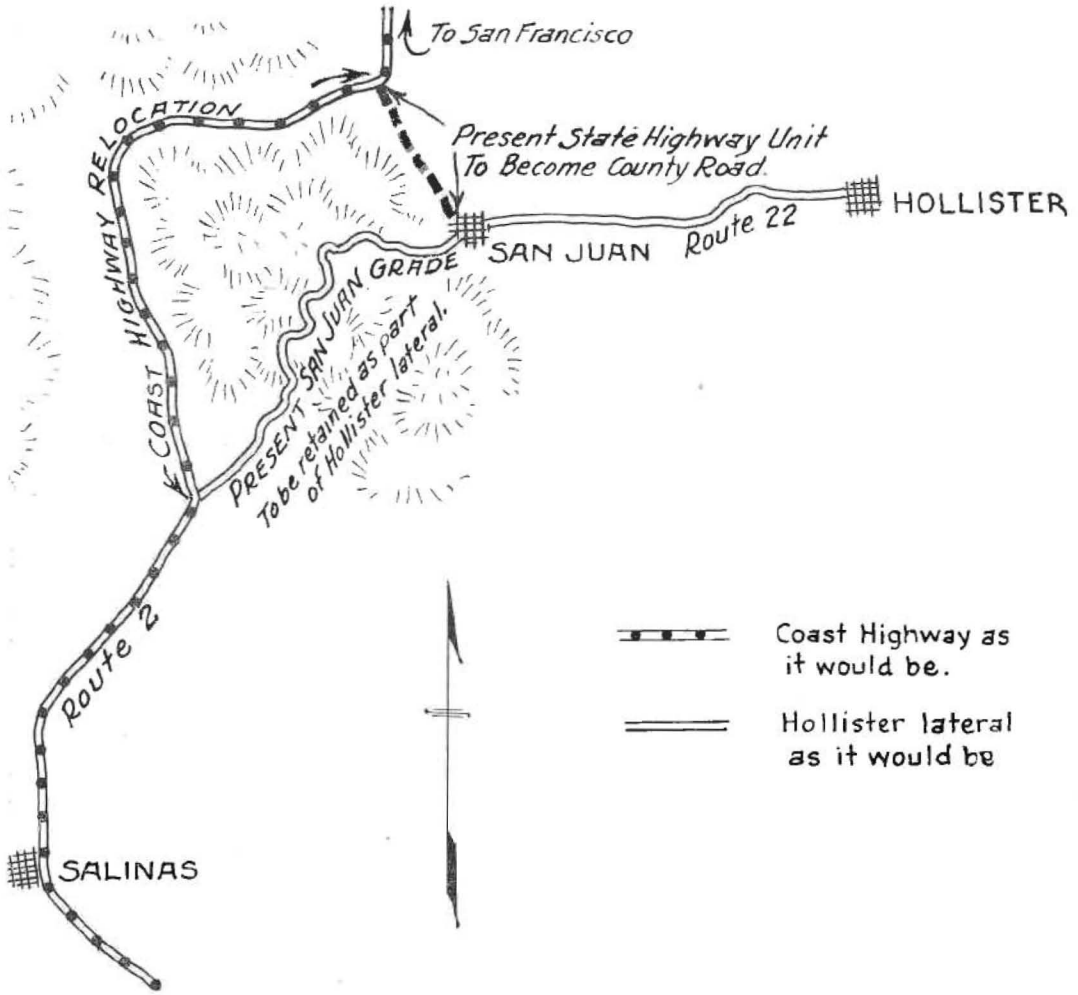
The relocation will afford opportunity for construction at low cost of a safe, convenient road adapted to indefinite expansion as traffic requires, and capable of handling traffic safely at any reasonable speed fixed by law.

The present San Juan grade, with minor improvements and proper maintenance, in our judgment, will be suitable to be retained as a link in the Hollister county seat lateral.

Despite the heavy duty taken off the grade by the relocated unit, there will continue to be much travel on the grade, but an amount within its capacity.

The present grade will doubtless continue to serve a large share of travel to the old mission town of San Juan Bautista, Hollister and the Pacheco Pass cut-off, but should be sufficient to handle that for an indefinite period of time.

In brief, the San Juan grade with all the present commercial and tourist travel thereon,



is now overstressed to the danger point, but, with the abnormal traffic taken from it by the alternate route, it should, with minor improvements and maintenance, suffice for the lighter traffic.

OPINION OF ATTORNEY GENERAL

The opinion of Attorney General U. S. Webb on this subject is as follows:

State of California
Legal Department

U. S. Webb,
Attorney General.

San Francisco, March 19, 1930.

Hon. B. B. Meek,
Director, Department of Public Works,
Sacramento, California.

Dear Sir:

On March 14, 1930, you addressed this office on the subject of "Relocation of Coast Highway at San Juan Grade." As stated by you this proposed relocation has been the subject of a number of conferences between this office and "members of the California Highway Commission, Mr. C. H. Purcell, State Highway Engineer, Mr. C. C. Carleton, Chief of our Division of Contracts and Rights of Way, and the writer."

It is true that I have been made familiar with the proposed changes in routing through these various discussions and through, as you state, "inspection and examination of maps, reports of the Commission's engineers, and a report on legal aspects of the situation submitted by Mr. Carleton," all of which were furnished me some months ago and were examined

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Run-off Predictions Are Made Based On Data Obtained from Snow Surveys

IN THE period from late March to early April snow surveys have been completed at practically all of the 150 snow courses throughout the major stream basins of the Sierra. This constitutes the main survey as in general, this is the period when normally the major storms have occurred and melting of the snow has barely commenced. The survey data at this time therefore may be taken as indicative of the April–July run-off with later modification of estimates in accordance with subsequent storms, temperature and conditions.

The results may be summarized as follows:

For the western slope of the Sierra the data up to April 1st from the precipitation station shows an approximately uniform decrease in the precipitation expressed in percentage of normal, from 90 to 100 per cent for the upper Sacramento and Feather basins in the north to little better than 60 per cent for the upper San Joaquin, Kings and Kern basins in the south. Because the greater number of snow courses are newly established few normals are available to permit percentages of normal water content being given.

Where the survey records are of sufficient length that forecasts have been possible the average water content of the snow in per cent of normal is as follows: South Yuba River areas, 70 per cent; Tahoe basin, 60 per cent; Truckee basin, exclusive of Tahoe, 60 per cent; Carson basin, 59 per cent; West Walker basin, 60 per cent; and East Walker basin, 58 per cent. The estimates for the eastern slope basins have been made by the Forecast Committee of the Nevada Cooperative Surveys through the cooperation between California and Nevada.

Although the measurement of such snow as occurs in the higher ranges of southern California basins would probably not furnish as reliable data for water supply forecasts as in the Sierra the measurement of total precipitation, including snowfall, at representative stations in the higher areas should give data upon which forecasts of value might be based. It is planned that the surveys are to include these southern basins and the data for precipitation stations now existent (very few for the higher areas) and to be established will be published in bulletins. For the present season a general estimate of the precipitation to April 1st in per cent of normal as given by the Los Angeles office of the U. S. Weather Bureau for the Santa Ana, San Gabriel and Los Angeles River basins is 74 per cent. At Mt. Wilson, the only weather bureau station in the high mountain area of these basins, the precipitation to April 1st in per cent of normal is reported as 58 per cent.

Based upon past experience the *precipitation*, October to March, inclusive, in Sacramento and San Joaquin basins would indicate seasonal run-off (October–September) in per cent of normal as follows:

Sacramento River at Red Bluff	74 per cent
Sacramento River at Sacramento	73 per cent
San Joaquin River near Vernalis	48 per cent
Combined Sacramento and San Joaquin flow to the Delta	69 per cent

With these seasonal run-off percentages minimum river flows to be expected are 3300 second-feet at Red Bluff, 2000 second-feet at Colusa, 2500 second-feet at Sacramento and minimum combined Sacramento and San Joaquin flow to the delta, 3300 second-feet. These estimates assume a rice area approximately 130 per cent of that of 1929 (preliminary estimates).

With percentages and minimum flows as given, past experience would indicate corresponding maximum salinity in the late summer at points in the delta as follows: (Parts of chlorine per 100,000) O. & A. Ferry 650, Collinsville 500, Antioch 400, Emmaton 150, Jersey 125, Rio Vista 40 and Central Landing 10.

Other Forecasts

The following forecasts are made for those few basins or partial basin areas where the snow surveys have been conducted according to the standard methods adopted for a sufficient number of years to make it possible to forecast.

Yuba River Basin

Area tributary to South Fork at Langs Crossing (Lake Spaulding):

Normal water content for area (using snow survey data weighted accord-

ing to elevation from Lake Spaulding, Cisco, Furnace Flat, Lake Fordyce, Soda Springs, Meadow Lake, Red Mountain, Sawmill Flat, Lake Sterling, Summit and Webber Peak snow courses) ..... 41.98 inches
1930 Mean water content for area (weighted) ..... 28.98 inches
1930 Mean water content in per cent of normal ..... 69.03 per cent
Normal April–July natural run-off of South Fork at Langs Crossing ..... 251,000 acre-feet
Estimated 1930 April–July natural run-off 251,000 x .6903 ..... 173,000 acre-feet

Area tributary to Bowman Lake:

Normal water content for area (using snow survey data weighted according to elevation from Bowman Lake, Findley Peak, English Mountain, Meadow Lake and Webber Peak snow courses) ..... 35.32 inches
1930 Mean water content for area (weighted) ..... 25.56 inches
1930 Mean water content in per cent of normal ..... 72.37 per cent
Normal April–July run-off for combined Jackson and Canyon creeks and Middle Yuba at Milton (above Milton-Bowman Tunnel diversion) ..... 107,000 acre-feet
Estimated 1930 April–July run-off 107,000 x .7237 ..... 77,500 acre-feet
Normal April July run-off for Jackson and Canyon creeks ..... 45,600 acre feet
Estimated April–July run-off for these two creeks 45,600 x .7237 ..... 33,000 acre-feet

TRUCKEE RIVER BASIN (Exclusive of Tahoe)

Weighted per cent of normal for 1930 snow surveys in zones above and below 7000 feet with weight of two for west portion of watershed and one for east portion ..... 59.5 per cent
Normal April–July run-off of Truckee River at Iceland (exclusive of Tahoe) ..... 325,745 acre-feet

Estimated 1930 April–July run-off:

Probable—175,000 acre-feet or 53.7 per cent of normal.
Possible minimum—160,000 acre-feet or 49.1 per cent of normal.

TAHOE BASIN

Weighted per cent of normal for 1930 snow surveys in same manner as for Truckee Basin exclusive of Tahoe ..... 59.5 per cent
Normal net or actual April–July rise of Lake Tahoe assuming outlet gates closed ..... 1.68 feet
Estimated 1930 April–July rise 1.68 x .595 ..... 1.00 feet
Elevation of lake April first ..... 6223.68 feet
1930 probable maximum elevation ..... 6224.70 feet
1930 possible maximum elevation in case of very deficinet April–July rainfall ..... 6224.50 feet

CARSON BASIN

Weighted per cent of normal for 1930 snow surveys using zones above and below 7000 feet and considering only the area tributary to West Carson at Woodfords, to East Carson at Hangman's bridge and to Markleeville Creek at Markleville ..... 59.0 per cent
Normal April–July run-off of Carson River at Clifton ..... 230,100 acre-feet

Estimated 1930 April–July run-off:

Probable—110,000 acre-feet or 47.8 per cent of normal.
Possible minimum—95,000 acre-feet or 41.2 per cent of normal.

WALKER BASIN

West Walker:

Weighted per cent of normal for 1930 snow surveys by zones ..... 60.0 per cent
Normal April–July run-off of West Walker at Coleville ..... 191,180 acre-feet

Estimated 1930 April–July run-off:

Probable—101,000 acre-feet or 52.6 per cent of normal.
Possible minimum—95,000 acre-feet or 49.6 per cent normal.

East Walker:

Weighted per cent of normal for 1930 snow surveys ..... 58.5 per cent
Normal April–July run-off of East Walker at Bridgeport Dam ..... 70,380 acre-feet

Estimated 1930 April–July run-off:

Probable—41,000 acre-feet or 44.1 per cent of normal.
Possible minimum—25,000 acre-feet or 35.5 per cent of normal.

It should be noted in the foregoing that the forecasts for the basins on the eastern Sierra slope have been compiled by the Nevada Forecast Committee through the cooperation between California and Nevada. In these eastern slope basins the Nevada Cooperative Snow Surveys have been in progress for many years.

THERE'S NO ESCAPE

Lean men and clean men,
Wild men and mild men,
Wee men and he-men,
Numb men and dumb men,
Tailor men and sailor men,
Pinch hitters, steam fitters,
Golf players, man slayers,
Jobbers and robbers
Get married.
Tall girls and small girls,
Big girls and trig girls,
Neat girls and sweet girls,
Cash girls and rash girls,
Bad girls and sad girls,
Circus riders, home abiders,
Opera singers, hash slingers,
Crooks and cooks
Marry them.—*London Opinion.*

Milk produced on American farms in 1928 weighed 60 million tons—twice the weight of all the pig iron produced in the country in the same period.

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 Historic Old "Plank" Road

Teaching Respect to State Property

File Mining Claims For Road Purposes

Clippings, Letters and Comment

Dealing With State Highways

Move Creek to Make Way for Road

Monster Steel in Underpass Crossing

Highway Facts of Interest

Plea To Preserve "Old Plank Road."

The following is from the Calexico *Chronicle:*

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 tourists, 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."

At the time the old plank was built, years ago, it was thought impossible to construct a hard surfaced road over the sand hills. In later years engineers conceived the plan of hard surfacing and then oiling the sides of the road to keep the sand from shifting. It has proven a huge success and has been acclaimed one of the greatest engineering feats of the age.

Nevertheless, we do not believe that the old plank road should be torn apart and carted away. If we have been informed correctly the road was built by public subscription and really belongs to those who contributed to the fund. No one should have the right to the boards and we sincerely trust that the California State Highway Department will see fit to stop further removal of the old road.

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 ones property. Let's try and stop further despoilation of one of the southwest's most famous and interesting marks.

* * * * *

Destruction Of State Property Punished.

A group of Fresno boys have learned that state property, including highway appurtenances, can not be destroyed with impunity.

Recently, three of the light fixtures on the bridge across the San Joaquin River at Herndon on the Fresno-Madera County line on route 4, were found to be broken. These lights in addition to being ornamental are very definitely considered as safety devices. By cooperation of District Attorney DeVore of Fresno, and of Captain W. L. McCarthy of the Highway Patrol, the boys who were guilty of breaking the lights, were apprehended and their legal guardians were advised that owing to the youth of the miscreants he would not prosecute if the damage done was fully repaired. This was done at a cost of $33.26 covering the replacement of three lamp units.

* * * * *

Mining Claim For Road Purposes.

The following article is clipped from the Stockton *Record:*

Division Engineer R. E. Pierce of the Highway Commission is a mine owner in Calaveras County He filed a claim on a prospect near Averys, which he had located the previous week.

The new property is known as the Mountain Misery Quartz Mine, and is near the Big Trees, within easy reach of the highway. The Mountain Misery is the first claim to be located in the Averys section in several years.

Pierce located the claim for the State of California and state money will be used to develop it, which puts California in the mining business. Coincidentally, it was located for the granite deposit which it contains and not for the gold content of the rock. The granite will be crushed and used to resurface the Murphys-Big Trees Road. The ledge was on government land and open to location. It afforded the easiest way to secure a large deposit of rock for the state.

* * * * *

Creek Moved To Make Room For Highway.

This from the San Jose *Mercury Herald:*

The State Highway Department has changed the course of one of Santa Clara Valley's creeks by half a mile, the supervisors were informed by the California Department of Public Works yesterday.

Calabasas Creek, which formerly ran beside the state highway for a considerable distance between Santa Clara and Sunnyvale along that stretch once protected by a white fence, has been moved a distance of half a mile from the road to join Campbell Creek.

The new ditch, four feet wide at the bottom, 12 at the top and three feet deep, was dug by crews under N. M. Ball, who won the contract with a bid of $6,975 a year ago.

The old channel of the creek has been filled in and is now being used for the base of the widened state highway just north of Santa Clara.

* * * * *

Monster Steel Piece In Underpass Crossing.

The San Bernardino *Sun* publishes the following article:

With the setting in place of a 101-ton steel girder, one of the largest single pieces of steel used in any railway bridge in America, the underpass being constructed jointly by the Union Pacific Railway and the State Highway Commission at Wineville is nearing completion.

The project, which will eliminate a grade crossing on the highway between Riverside and Ontario, will cost more than $100,000 and includes the building of a quarter of a mile of new highway under the rail crossing.

The girder used in the construction of the railway over the highway was transported from Gary, Ind., on three flatcars.

Measuring 112 feet, 6 inches, in length, and 12 feet high, the girder is also one of the longest in the country. It is the main support of the railroad overhead crossing and eliminates the grade crossing at this point. When it arrived on its "tri-flatcar special" two giant cranes were hooked to it and steel workers, under the supervision of R. L. Adamson, chief engineer of the Union Pacific, had a virtual picnic placing it in position.

The Highway Commission and Pacific Electric Railway will construct an $80,000 underpass at the point where the interurban line crosses the Foothill boulevard at Muscat. Work on this project will begin next week.

THE PUN OF THE MONTH

First Garage Mechanic—A Mr. Beard from Calaveras County was in a few minutes ago.

Second Garage Mechanic—An old timer?

First Garage Mechanic—No, a new carburetor.

HIGHWAY FACTS

From the 1929 Highways Handbook

New Jersey established the first State Highway Department in 1891.

New York State was the first to license motor vehicles, begining in 1901, and collecting $954 that year.

There are 6,579,826 miles of highways in the world, of which 3,000,000 are in the United States. This compares with 764,238 miles of steam railways in the world.

Governmental studies indicate that it costs an average automobile approximately 2.06 cents more per mile to drive on an earth road than on a hard-surfaced road.

The first important road in the United States was the old York Road between New York and Philadelphia, established by the colonies in 1711. The first company incorporated to build and operate a toll road was the Philadelphia and Lancaster Turnpike Company. It was incorporated in Pennsylvania in 1792 and had a road from Philadelphia to Lancaster, a distance of 62 miles. This was later taken over by the state in the public interest.

Federal road building for other than military purposes began with the "National Pike" or "Cumberland Road," said to have been the original conception of General Washington. On March 28, 1806, President Jefferson signed the bill appropriating $30,000 for a preliminary survey, and actual work was begun not long after.

The predecessor of the present U. S. Bureau of Public Roads was the Office of Road Inquiry, established in the Department of Agriculture by the Act of March 3, 1893. The name was changed to Office of Public Roads in 1901.

The first Federal Aid Road Act as now administered was passed in 1916, carrying an appropriation of $75,000,000 to be expended in five years.

Prior to the building of the railroads, freight was moved by road in conestoga wagons. In 1819 one of these regular services dispatched two conestoga wagons daily from Philadelphia to Pittsburgh, making the trip in 12 days and charging $120 a ton.

There are approximately 20,000 grade crossings on the entire Federal Aid Highway system of 187,753 miles as of December 31, 1928. On the 76,000 miles of the system improved with Federal Aid from 1916 to 1928, nearly 4300 have been eliminated.

Approximately 627,000 miles, or more than one-fifth of the 3,000,000 miles of highways in the United States, are surfaced in varying degree.

Annual expenditures for rural highway construction and maintenance amount to about $1,500,000,000. Another $500,000,000 is spent by the cities for street facilities.

More than 50,000 miles of new highways are built annually.

Automobile drivers today average more than 2 per car; in other words, there are twice as many drivers as cars.

The longest paved motor road in the world is said to be U. S. Route 40, from Wilmington, Delaware, to St. Mary's, Kansas, a distance of 1254 miles.

The highest motor road in the United States is on Pike's Peak in Colorado, 14,109 feet above sea level.

The shortest and narrowest paved motor road in existence is believed to be the road on Smith's Island, one of the little islands in the lower Chesapeake Bay, near Crisfield, Maryland. It is less than a mile long and just wide enough to permit the passage of one motor car at a time.

It's All in the Life of a Traffic Officer

EPISODES FROM OFFICIAL REPORTS OF CALIFORNIA HIGHWAY PATROL

INSPECTOR M. F. BROWN reports that he met L. M. Epps, wife and child of Tacoma, Washington, stalled on the Redwood Highway near Garberville. Epps was having gas line trouble and had lost all of his gasoline. The Inspector repaired the trouble, gave him two gallons of gasoline from his own tank and sent him to Garberville where permanent repairs on the car were made. Mr. Epps writes to the Department thanking it for the attention given him by Inspector Brown.

SERVICE ON "DAY OFF"

C. E. Burrows of Los Angeles writes as follows: "Occasionally things occur that compel a man to speak up. Because this has happened to me I am taking this opportunity of advising you that Captain J. E. Payton of the Division of Motor Vehicles at Santa Cruz, gave the writer and one of his employees considerable service on the captain's day off. This service was given in such a gentlemanly and wholehearted manner that I believe that you should be advised of the occurrence."

STOPPED CONTRABAND CHINESE

The following letter is from Walter E. Carr, District Director, Immigration Service, U. S. Department of Labor, with headquarters at Los Angeles: "On February 26th near Santa Barbara your highway patrol officer, Mr. Johnson, apprehended a Chrysler automobile in which two white men were smuggling four contraband Chinese aliens into the interior of the United States. Your patrol, through Patrol Officer Johnson, greatly assisted this service and its border patrol in this case, and we desire at this time to extend to you our heartiest thanks for this cooperation."

AUTOIST AT FAULT; SAYS SO

Paul F. Byrne of Palo Alto writes as follows: "I should like to express my sincere appreciation for the courtesy and efficiency of one of your highway patrolmen. Although I was entirely at fault the gentlemanly conduct of this officer in performing his duty should not be overlooked. To the best of my memory his number was 92. Service of this type is appreciated by the public and will no doubt lead to safer traffic conditions." (Badge No. 92 is assigned to Patrolman H. Zierdt of Calaveras County).

HELPED '49 CELEBRATION

E. R. Gardner writes from Marysville as follows: "I wish to compliment you on the splendid service rendered the Trails of '49 Committee during our celebration in Marysville and Yuba City by your traffic officers. The committee on motion pictures in particular are desirous of commending to you the work of officers Brown, Lamme, Marvin, Curson, Bissett, Babb, White, Boatsman and Norwood under the direction of Inspector F. S. Quinn. The courteous cooperation extended our committee by each of these officers greatly facilitated the motion picture work and we wish you to know it is appreciated."

BAYSHORE HIGHWAY NOT RACE TRACK

A. J. Scampini of San Francisco addressed the following letter to the Division of Motor Vehicles: "The other day the writer was, without knowing it, proceeding at a good rate of speed when Officer Perussina overtook him and in a very gentlemenly, but firm manner, warned him that the Bayshore Highway was not intended for a race track and to be more careful of his speed. I wish to commend the officer both for his courtesy and his efficiency."

GAVE CLUE TO ROBBERY

Ivan D. Christie, border checker at Clam Beach Checking Station, Arcata, is commended for furnishing information to the sheriff's office through which it was possible for the sheriff to arrest a felon within 36 hours after a robbery was committed.

AIDED IN CAPTURING BANK ROBBERS

A. S. McCurdy, undersheriff of Marin County, writes as follows: "We wish to thank you for the excellent support that was given this office recently by your officers in the apprehension of the criminals that held up the Fairfax branch of the Bank of Italy."

For obvious reasons the signature to the following letter is omitted.

No doubt you are in receipt of many complaints from time to time, from people who feel that they have a grievance against the men who work under you. I find this true in my work and also find that the average person will not go out of their way, to say a word of praise.

It may be an unusual procedure for me to thank an officer of the law for causing my arrest but such is the purpose of this letter. Last Sunday, I took a friend of mine for an automobile ride to Tia Juana. We arrived quite early in the morning. Our primary object being, to see the races. I don't know how much whiskey, etc., that I consumed but I missed the races. I had all the confidence in the world that I was able to drive, so started to cross the line for the American side. We were stopped by Officer Harold Waite. Mr. Waite gave me every opportunity to prove to him that I was capable of driving, before he took the car from me, put me on a San Diego stage, with a ticket charging me with being drunk. At no time was there any rough talk or actions. I was shown nothing but kindness, courtesy and fairness. More perhaps than I might have shown, had our positions been changed. Mr. Waite did me a favor and perhaps saved me from serious bodily injury or injury to others. I desire that you thank him for me. I consider him a friend and hope to meet him again under different circumstances. Men of the type of Mr. Waite are a credit to the work they do and I believe should be told that they are appreciated by a few who like myself, slip back once in awhile. I feel since coming in contact with him that I have better protection while driving and I am sure that you will want him to know these things. Let him know that although his job may be an unpleasant one at times, he is doing good and making the world a better place to live in. Let me again say that I appreciate the service, you and your men are giving to the State of California.

Highway Patrol Wins Editorial Praise.

The following editorial is from the Chico *Record:*

The address of H. R. Youngblood, assistant chief of the California Highway Patrol, delivered before the Rotary Club Tuesday, was highly expressive of the changed attitude relative to the enforcement of traffic regulations.

Somehow it has always seemed that only the most hard-boiled were considered as officers for enforcement of the traffic regulations. In the minds of the general public discourtesy and rough language were synonomous with traffic police. "As tough as a motor cop" was a popular comparison.

Of course there always have been exceptions. There always have been discreet, intelligent, courteous motor traffic police. But usually they were so mixed with the majority of the opposite kind as to lose recognition.

Mr. Youngblood in explaining the operation of the new set-up in traffic regulation—in motor control—stressed the fact that discourtesy was no longer considered by its executive officers as a necessary component of efficiency.

The efforts of the department under whose authority the motor control operates to build up a personnel of intelligence, courtesy and tact, is sound, and will meet with the approval of the public.

States to Spend More For Highways in 1930

COOPERATING with President Hoover in his plea to enlarge all construction programs as much as is practicable to ameliorate the unemployment situation, the states and their counties will spend in their road building program for 1930 at least $250,000,000 more than they spent in 1929.

Reports received from state highway departments and compiled by the Bureau of Public Roads, U. S. Department of Agriculture, show that state and local authorities plan to spend $1,601,167,455 for highway improvement in 1930.

The planned expenditure by state highway departments for construction and maintenance of state highways is $937,500,455; the balance, $663,667,000, will be spent, according to the estimates, on local roads and bridges. The state highway officials of 45 states estimate the total length of roads to be improved by them in 1930 as 32,532 miles, an increase of 3126 miles over the estimate in the 1929 programs. Three states failed to report contemplated mileages for 1930.

The highway departments of all states will control the maintenance of 281,393 miles of highways this year, an increase of 32,381 over the mileage under state maintenance in 1929. Gradually, the states are taking over into their systems for maintenance the more important county and local roads of the country.

The states of greatest population and industrialization in which unemployment, naturally, is greatest, show the highest contemplated expenditures. The Middle Atlantic states, comprising New York, New Jersey and Pennsylvania, plan to spend $374,835,310 on improvement of state and local roads; the east north central states of Ohio, Indiana, Illinois, Michigan and Wisconsin plan to spend $303,696,000.

The west north central states, including Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska and Kansas rank third in their contemplated expenditure of $236,461,727, and the south Atlantic states of Delaware, Maryland, Virginia, West Virginia, North Carolina, South Carolina, Georgia and Florida, with an expenditure of $182,872,418 rank fourth; the west south central states of Arkansas, Louisiana, Oklahoma and Texas rank fifth with an expenditure of $154,100,000; and the Pacific states comprising Washington, Oregon and California rank sixth with an expenditure of $121,590,000.

Hoover-Young Water Resources Commission Meets

Progress In Water Resources Investigation

Review of March Activities

In the

Division of Water Resources

EDWARD HYATT, Chief of Division

Activities Among Irrigation Districts

Flood Control

Snow Surveys

Dam Inspections

HOOVER-YOUNG WATER RESOURCES COMMISSION

The third meeting of the joint Hoover-Young Water Commission convened at the Hotel Oakland in Oakland, March 11th.

The State Engineer announced the appointment of Professors Frank Adams and David Weeks, University of California, College of Agriculture, by the Division of Water Resources to conduct a survey of land values in the San Joaquin Valley to determine the amount of financing farm lands can absorb in the proposed water diversion to the San Joaquin Valley. These reports are to be prepared and submitted to the Hoover-Young Commission.

Lt. Col. Thos. M. Robins, federal member of the joint commission, announced the detail of men to work on the salt water barrier project investigation to ascertain the probable effect of the barrier construction on navigation, flood control and silting.

Assemblyman Bradford S. Crittenden, chairman of the State Legislative Committee read a report on the activities of that body of the last three years. A number of requests from various interests were received and filed for future consideration before the Commission.

The State Engineer informed the members of the Commission present of the results of his meeting with Dr. Elwood Mead, Chief of the U. S. Reclamation Service, in Denver. Dr. Mead conveyed his assurance to the Commission that the U. S. Reclamation Service would place every facility at its disposal to cooperate with the state and federal agencies to assist California in formulating a water conservation program along economic and sound engineering lines. Mr. Walker R. Young and Mr. C. A. Bissell of the U. S. Reclamation Service have been assigned to the work on the water resources investigation by Dr. Mead and are already at work, having arrived in Sacramento on March 20th.

The following persons were present at the meeting:

United States Members:

Lieutenant Colonel Thos. M. Robins,
E. W. Kramer, Representing F. E. Bonner,
R. J. Coffey, Representing Elwood Mead.

Ex officio:

Wm. J. Carr,
B. B. Meek.

State Members:

B. A. Etcheverry,
Wm. Durbrow,
Alfred Harrell,
W. B. Mathews,
Warren Olney,
Edward Hyatt, Secretary of the Commission,
Absent—Frank E. Weymouth.

Legislative Water Committee:

Assemblyman B. S. Crittenden,
Assemblyman Robert P. Easley,
Senator H. C. Nelson,
Senator Ralph Swing,
Assemblyman Van Bernard,
Absent—Frank W. Mixter.

WATER RESOURCES STUDY

SAN JOAQUIN VALLEY INVESTIGATION

Main Supply Canal Surveys—Surveys of canal line from mouth of canyon on the Kern River to serve areas south and east of Bakersfield were initiated and completed during the past month.

Land Classification and Crop Survey—The land classification maps and reports were submitted to the San Joaquin Valley Water Committee on February 14th for review and were returned to this office on March 14th. Only minor changes and comments were made on the land classification by the counties interested. The classification as submitted was substantially agreed to by the committee.

Ground Water Studies—Analysis of ground water data has been continued throughout the month.

Water Supply and Yield Studies—Reservoir studies on the San Joaquin River in connection with supply canal from San Joaquin to Kern River have been continued for different combinations of canal capacities and reservoir capacities for the purpose of determining the most economical combination.

Seepage Investigation—A field study has been initiated along the lower San Joaquin River for the purpose of determining, if possible, the seepage which might result when and if a pumping system were installed and operated.

SACRAMENTO VALLEY INVESTIGATION

Water Supply—Estimates of monthly run-off of the five main stream systems of the Sacramento Basin, Sacramento, Feather, Yuba, Bear and American rivers, as would be impaired by ultimate upstream use and available at the edge of the valley floor, is practically completed.

Land Classification—Crop Survey—6,200,000 acres of land in the Sacramento Valley and adjacent foothills have been classified and the crops thereon ascertained. The areas of lands and crops have been tabulated by counties, irrigation districts and reclamation districts. All this information has been submitted to the U. S. Engineers.

Engineering Advisory Committee—Field trip was made on March 4-7 inclusive, by the Engineering Advisory Committee on the Sacramento Valley Investigation, consisting of Messrs. Etcheverry, Galloway, Herrmann, Huber, Tibbetts and Dr. Louderback of the University of California. The State Engineer and A. D. Edmonston, G. W. Hawley, T. B. Waddell and Chester Marliave of the water resources staff accompanied the Advisory Committee on this trip. The Fairview dam site on the Trinity River was viewed together with the conduit line and power layouts extending from the Trinity River to the Sacramento River above Redding. Kennett dam site and the Iron Canyon dam site on the Sacramento River were also examined and examination of the core borings of the Iron Canyon dam site stored at Orland was made. Classifications of lands from Sacramento to Red Bluff were checked.

A trip of engineers and representatives of the federal departments cooperating with the Division of Water Resources in investigating the state-wide plan was made during the period March 20-22 inclusive, under the guidance of the State Engineer, for the purpose of viewing the watersheds and reservoir sites on the American, Feather, Yuba and Bear rivers. The personnel of this trip was as follows:

Colonel T. M. Robins, representing U. S. War Department.

Mr. E. W. Kramer, representing Federal Power Commission.

Walker R. Young, U. S. Reclamation Bureau.

J. D. Galloway, Walter Huber, F. C. Herrmann, F. H. Tibbetts, consulting engineers.

J. B. Lippincott, consulting engineer.

C. A. Bissell, United States Reclamation Bureau, Washington, D. C.

T. B. Waddell, Division of Water Resources.

George W. Hawley, Deputy in Charge of Dams, Division of Water Resources.

Edward Hyatt, State Engineer.

Salinity Investigations.

The work on Salinity Investigations during the past month has been largely confined to office studies. Intensive studies and analyses are being made of the large mass of data collected during 1929. Substantial progress has been made on these studies which are designed to obtain the relation between salinity and stream flow and tidal action.

Field work has included the maintenance of automatic tide gages and the collection of salinity samples at 26 observation stations which are being maintained throughout the year. In addition, 8 new salinity observation stations were established about March 1st in the channels of Napa River, Sonoma and Petaluma creeks within the marshland area north of San Pablo Bay.

The United States Geological Survey in cooperation with this office, has completed a precise line of levels extending from Tracy at the upper end of the San Joaquin Delta, westerly and along the bay shore for the purpose of tying all tide gages to a common datum.

Salt Water Barrier Investigation.

The Salt Water Barrier Investigation is now well under way. Under a cooperative agreement with the United States Army Engineers, work has been started under Major Ropes of the First District on several important phases of the investigation, including navigation, tidal action, silt and debris movement, flood control and design features of the barrier structure. Cooperative work is also under way with the Fish and Game Commission on the fishing industry, the Department of Public Health on sewage pollution and industrial use and the Division of Highways on the possible use of the barrier as a highway crossing.

Work has been started in the field on the survey of industrial and agricultural developments within the area affected by the barrier. The data and information is being gathered on carefully prepared questionnaires by representatives from this office.

Pit River Investigation.

The routine field work of the Pit River Investigation was continued throughout the month. Installations were made for determining the rate of run-off on two typical drainage areas in the "Devils Garden" district. The progress report covering the year ending September 30, 1929, was completed.

Special Investigations.

Report on the water supply of Bouquet Canyon near Saugus in southern California and an additional investigation of an alternate site at the mouth of Castaic Creek also near Saugus, for a possible prison site has been completed during the present month.

General.

The investigations being conducted in the Napa and Santa Clara valleys, in Ventura County, and on the Mojave and Santa Ana Rivers in southern California comprising studies of the water resources of these areas, have been actively carried on during the present month under the plans and procedure outlined for the conduct of this work and reported upon in our progress report submitted for January, 1930.

SNOW SURVEYS

Data to March 1st indicated that in the Tahoe Basin at Marlette Lake, the surveys show a water content of 61 per cent of the entire seasonal normal (October to May) as compared to 38 per cent up to the time of the February report. In the Yuba Basin, surveys at Summit and Lake Fordyce show a water content of 52 per cent of the entire seasonal normal and in the Mokelumne Basin the survey of the crest course at Blue Lakes shows a water content of 54 per cent of the entire seasonal normal.

Precipitation data obtained showed the following results when a comparison of the conditions to March 1st with normal were made. The northern stream basins from Upper Sacramento to Yuba, was from normal to 10 per cent below normal with the exception of Feather Basin which was 10 per cent above normal. In the central basins from the American to the Merced, precipitation ranges from about 15 per cent to 35 per cent below normal. In the southern basins from the Upper San Joaquin to the Kern, precipitation is all below normal with departures of from 35 per cent to 45 per cent below.

IRRIGATION, WATER STORAGE DISTRICTS

During the month construction work in progress in the El Dorado, Oroville-Wyandotte and Thermalito Irrigation districts was inspected and a conference was held with the officers of the El Dorado Irrigation District relative to the work being carried on by them with funds derived from the sale of bonds.

Conference between the State Railroad Commission, the Clear Lake Water Company and proponents of the Dixon Irrigation District was attended by a representative of this Division. The conference was held

for the purpose of attempting to clarify the situation with respect to an adequate water supply for the Dixon Irrigation District, an area of 5500 acres situated in northern Solano County. As a result of our studies and this conference the State Engineer has recommended against the formation of the district at this time, owing to the lack of evidence of an adequate water supply being available for this area.

Investigations are in progress in the matter of the petitions for the organization and formation of the Rio Seco and Richvale Irrigation districts. These districts include 8000 and 19,700 acres, respectively, of rice land situated in Butte County, and are now being served by the Sutter-Butte Canal Company.

The compilation of irrigation district financial data and studies has been continued through the present month. These studies are for the purpose of keeping up to date the statistical data presented in Bulletin No. 21 of this Division.

Upon recommendation of the State Engineer, the California Bond Certification Commission has approved and issued its orders covering requests made by the following irrigation districts:

For Sale of Bonds at Private Sale—

Oroville-Wyandotte Irrigation District	$36,000 00
West Stanislaus Irrigation District	50,000 00

Approval of Expenditures for Construction and Developmental Work—

Buena Vista Water Storage District	$942,731 11
Thermalito Irrigation District	2,501 54
Oroville-Wyandotte Irrigation District	25,184 24
West Stanislaus Irrigation District	40,000 00
Woodbridge Irrigation District	9,182 67
Vista Irrigation District	123,167 26
Total approved	$1,142,767 82

Agreement between the Corcoran Irrigation District and F. W. Cornwell for the purpose of developing additional ground water supplies within the district was approved by the Commission.

FLOOD CONTROL AND RECLAMATION

MAINTENANCE OF SACRAMENTO AND SAN JOAQUIN DRAINAGE DISTRICT

Maintenance work on the flood control project has been mostly routine during this period. The Sutter County by-passes have been mostly filled with water during this period, but nothing worthy of note has occurred. It has been necessary to operate the drainage pumping plants almost continuously.

The Dutton Dredge Company's dragline excavator has completed cleaning the East Intercepting Canal and is now engaged in cleaning and enlarging the West Intercepting Canal to the point where it connects with the new diverting canal belg constructed by the California Debris Commission.

The dragline machine operated by Robert P. Easley has been transferred to the Sutter By-pass, where it has been engaged for a short time in trimming portions of the east levee and widening the crown so that the roadway may be made safe. It will proceed to clean the intercepting canals of the Pump No. 1 and Pump No. 2 systems.

FLOOD CONTROL PROJECT MAINTENANCE, BANK PROTECTION

Three additional tree and steel retards are being constructed on the right bank of the Feather River near Nicolaus, in cooperation with the county of Sutter. This work is being done by the Pacific Coast Construction Company under contract, the three retards being in addition to the seven recently completed.

Eight current retards are being constructed by the Pacific Coast Construction Company on the right bank of the Sacramento River below Knights Landing in cooperation with Reclamation District No. 730, at the Huston, Russell and Inglin ranches. This work is approximately 50 per cent complete.

The construction of the redwood timber bulkhead 850 feet long in the Sacramento River near Isleton has been completed by Leonard T. Isham, contractor, of Rio Vista. The replacement of the washed levee section with sand fill and its protection with revetment will be undertaken as soon as the river has reached its early summer low stage.

Arrangements have been made with Brannan Island Reclamation District No. 2067 for cooperative bank protection work on the left bank of the Sacramento River opposite Rio Vista. This work will consist of depositing rubble rock, maximum size 10 inches, along the bank for a distance of approximately 3000 feet. The estimated cost of this work is $4,650.

SACRAMENTO FLOOD CONTROL PROJECT

Little progress has been made during the past period in by-pass construction clearing on account of the weather. The by-pass areas have been covered with water a good portion of the time. An additional sum of $23,500 has been made available for by-pass clearing construction out of the "Joint navigation and flood control project fund," construction budget, by transferring to this fund sums set aside in the program for other work, which could not be accomplished in this fiscal year.

The work being done under five contracts for clearing timber in the Feather River overflow channel above Marysville is approximately 75 per cent complete.

The construction of the West Intercepting Canal by the California Debris Commission has been completed. This office has performed the incidental work necessary in connection with right of way agreements.

The surveys of the timber areas in the Butte Slough, Sutter and Tisdale by-passes, cleared and to be cleared, have been interrupted by the bad weather and overflow water, but will be resumed as soon as conditions permit.

RUSSIAN RIVER JETTY

During this period, repairs have been made to the gas shovel and some rock has been placed along the jetty. A crew of seven men has been maintained. Work will commence about April 10th on driving piles for the extension of the jetty from its present end at the water line into deep water.

An automatic recording tide gage has been set in the lagoon at Jenner, several bench marks have been set and levels run, and a current meter measurement of the discharge through the channel in the bar was made, in preparation for a study to determine the plans for the completion of the work.

FLOOD MEASUREMENTS AND GAGES

There have been several light storms during this period, but none which resulted in flood stages which would justify putting into operation the complete program of flood measurements prepared. Discharge measurements were made at the following points: Tisdale Weir, American River at Coloma, Rattlesnake Bridge and Fair Oaks and Sacramento River at the "I" street bridge.

DAMS

Applications received for dams built prior to August 14, 1929.—One hundred thirty-nine applications were received for existing dams bringing the total of such applications to 570. There are still about 110 dams for which applications have not been received. Of this number there are about 50 dams, applications for which are expected within a few days. The remaining dams consist of those about which there is some doubt as to their status, or whose owners have not been reached. Every effort is being made to inform owners of the law and evidently their failure to file has not been with intent to evade or disobey the law. In no case have owners refused to file when they were informed of their obligation.

Application for approval of plans and specifications for construction:

Dam	County	Owner	Estimated cost
Felt Lake	Santa Clara	Leland Stanford Jr. University	*$78,962
Chatsworth	Los Angeles	City of Los Angeles	3,894,065
Lake Madrone	Butte	Mansfield & McCallum	20,000

* Since August 14, 1929.

Fees received during month $9,383.63.

Fees received to date $57,926.19.

Application for approval of plans for repairs or alteration:

Dam	County	Owner
Rupley	El Dorado	A. J. Rupley
Arrow-Bear	San Bernardino	Arrow-Bear Park Company

Plans approved for construction:

Dam	County	Owner	Estimated cost
Juncal Main	Santa Barbara	Montecito Co. Water Dist.	$388,862.82
Salt Springs	Amador	Pacific Gas & Electric Co.	6,930,000
Lyons	Tuolumne	Pacific Gas & Electric Co.	287,000
Peach Tree	Monterey	Fort Klamath Meadows Co.	800
Wrigley No. 1	Los Angeles	Santa Catalina Island Co.	14,650
Wrigley No. 2	Los Angeles	Santa Catalina Island Co.	5,500
Glendale Park Manor	Los Angeles	City of Glendale	49,300

Plans approved for alterations or repairs:

Dam	County	Owner
Burbank No. 4	Los Angeles	City of Burbank
Belvedere	Marin	Marin Municipal Utility Dist.

Inspection of dams under construction, enlargement or repair:

Dam	*County*	*Remarks*
Almanor	Plumas	Repairs
Bear Gulch	San Mateo	Repairs
Belvedere	Marin	Repairs
Calaveras	Calaveras	Construction
Chatsworth	Los Angeles	Construction and enlargement
Glendale Brand	Los Angeles	Construction
Hansen	Los Angeles	Construction
Juncal	Santa Barbara	Construction
Lake Hodges	San Diego	Repairs
Lower San Fernando	Los Angeles	Enlargement
Lyons	Tuolumne	Construction
Mary Joe	San Diego	Construction
Merced Falls	Merced	Enlargement
Moccasin	Tuolumne	Construction
Peach Tree	Monterey	Construction
Salt Springs	Amador	Construction
Shaver Lake	Fresno	Enlargement
Silver Lake	Amador	Enlargement
Wrigley	Los Angeles	Construction

RUN-OFF DATA

Rainfall and run-off studies referred to in our last report have been continued through the present month to determine the required spillway capacity of dams to carry peak flows. Automatic recording rain and stream gages have been established in a few selected typical areas for the purpose of obtaining the run-off of maximum rainfall during short periods.

WATER RIGHTS

Applications to Appropriate—During the month there were 31 applications to appropriate water received. Eight were canceled and five approved.

Permits and Licenses—During the month four permits were revoked.

ADJUDICATIONS

Shasta River (Siskiyou County)—The final reply brief covering the issues raised by exceptions to the Division's Order of Determination was completed and filed with the Superior Court.

Whitewater River Adjudication (Riverside County)—A field inspection was made of various incomplete water appropriation projects. Two orders were entered granting extensions of time to complete incomplete appropriations.

Clover Creek (Shasta County)—The Division's report as referee in the Clover Creek court reference and exhibits thereto were completed and filed with the Superior Court.

Davis Creek (Modoc County)—A tentative stipulation for consent judgment has been prepared for submission to the water users involved in the Davis Creek court reference at a meeting to be held March 18th.

Mill Creek (Modoc County)—A proposed schedule of distribution has been prepared for submission to the water users involved in the Mill Creek court reference at a meeting to be held March 18th. It will be recommended that this schedule be administered by a water master during the 1930 season, as a trial allocation.

Water Distribution—The water master reports covering the 1929 season for Owl, Soldier and Emerson creeks, all in Modoc County, have been completed. Water master service for the 1930 season has been commenced on these streams.

It seems that one of the employees of Henry Ford dreamed that Henry died. He dreamed that he saw the black casket being borne by six of Henry's oldest and most faithful employees. As the casket came by, Henry raised up, looked around, and offered the following suggestion:

"If you would put rollers under this casket, you could lay off five men."—*Sour Owl.*

Stenographer—"Howja spell sense?"

Employer—"Dollars and cents, or horse sense?"

Stenographer—"Well, like in 'I ain't seen him sence.'"—Kreolite *News.*

Offer Trophy for Safety Work in State Highway Patrol Contest

By HELEN LUCILE HOLT, Director, Safety Conference, California State Chamber of Commerce.

THE California State Chamber of Commerce is deeply appreciative of the efforts being made by the State Department of Public Works through the California Highway Patrol to regulate and control traffic in the interest of public safety.

This loyal group of men, who every day are facing the problems of keeping the traffic on our highways moving in an orderly fashion, are unquestionably making a great contribution to the happiness, welfare and safety of the motorist.

It is with this in mind, and in recognition of the work which is being done, and, in the hope that we may be able to secure a complete report of the concrete safety work being done by this group of men, that the Board of Directors of the State Chamber of Commerce has decided to offer to that division of the Highway Patrol presenting, at the end of a year's time, the most complete record of accomplishments in the safety field, a trophy to be emblematic of their value to our state.

The contest will be among the several divisions of the California Highway Patrol, and will be decided upon the basis of most effective work done in making the highways safe, and will take into consideration the relationship of the work being done to the district served, and will not be particularly governed by the size of the territory or the number of men involved, in other words, the idea is to equalize all districts, irrespective of size, and to place the contest definitely on a basis of effectiveness of program.

The award, which is to be offered, will be in the nature of a cup to be permanently held by that division winning it three times. The contest will be judged on the basis of a written report to be made at the conclusion of the contest by a proper representative of each division to the judges of the contest.

It is the hope of Mr. Wm. M. Garland, president of the California State Chamber of Commerce, that the trophy will be presented in person by the Governor of the State of California, the Director of the Department of Public Works, the Chief of the State Division of Motor Vehicles, the Superintendent of the California Highway Patrol and representatives of the State Chamber of Commerce.

The State Chamber recognizes the fact that the California Highway Patrol will carry on just as effective work should there not be a contest among the divisions, but is specifically carrying out the contest in order that the state, as a whole, may become more aware of the safety work being done by the Patrol, and more than this, that other states in the United States may profit from our splendid achievements. We are already sufficiently aware of the fine work being done, but the contest will enable us to present concrete written achievements.

The California State Chamber of Commerce desires to congratulate Mr. Meek, Chief Snook and Mr. Biscailuz on the courteous and efficient work being done by the California Highway Patrol.

PARIS ADOPTS PARKING RULE

For the first time in its history Paris has adopted a half-hour parking limit.

Increased registrations of automobiles led to the rule, which applies to the entire downtown district.

Parking lots in three classes are provided: "R" lots for car owners living or working in the immediate vicinity, "M" lots for car owners who do not live in the vicinity, and "pay" lots.

TEXAS—Bexar County has created an innovation in county highway systems by adopting uniform and standard marking for its roads.

DELAWARE—A highway devoted to industrial traffic only is proposed to be built from Wilmington along the Delaware River to Philadelphia.

ARIZONA—This state has embarked on a program of highway and bridge construction covering a period of ten years at an estimated cost of $50,000,000.

A colored man got his nerve together and took a flight in an airplane. As he climbed out of the ship on its return to the field, he turned to the pilot and said:

"Suh, Ah has to thank you fo' both dem rides."

"What are you talking about?" said the aviator. "You only had one."

"No suh," returned the passenger "Ah done had two—mah fust an' mah last."—Round Table.

MOTOR VEHICLE DIVISION REPORTS

FRANK G. SNOOK, Chief

As of March 1, 1930, the state has registered 1,699,069 automobiles, 13,670 solid tire trucks, 64,479 pneumatic tire trucks, 6,386 motorcycles, 7,932 solid tire trailers and 25,338 pneumatic tire trailers. In comparing these figures with the total registrations of 1929, we find that only 210,294 automobiles, trucks, trailers, etc., remain unregistered to date. This reduction is accounted for through the number of vehicles that are in dealers' possession that have been reported on inventory forms, and those commercial vehicles that are used in seasonal hauling and are not registered until needed by their owners. We feel confident that the total registration for 1930 will surpass 1929. The total fees received as of March 1 are $7,872,462.22. This sum will likewise be increased, but, due to a decrease in commercial fees, it is possible that the total fees will be smaller than those collected in 1929.

On March 1 approximately the same number of motorcycle and trailer dealers had been licensed as in 1929. There is a decrease of 557 in the number of automobile dealers for 1930 compared to 1929. This number no doubt will be increased as the year progresses.

The total number of the Highway Patrol personnel at this time is 304 officers, men and clerks, exclusive of the administrative officials and clerical personnel at the Sacramento office.

During the month of February, 15,895 persons were stopped by the officers of the Highway Patrol and 5315 arrests made. The Patrol covered 465,230 miles during the month.

To date approximately 700 concerns and individuals have made application to be authorized as brake testing stations. Of this number 410 have been inspected and approved. Investigations are still being made on the remaining applications.

In several districts the inspectors have been supplied with necessary equipment for weight testing of commercial vehicles under the revised provisions of the California Vehicle Act. Every district inspector will be supplied with this equipment very soon, and rigid enforcement in this connection will be carried on extensively.

Arrangements have been made to establish the first school of traffic instructions at Sacramento. For this purpose a cooperative agreement has been made with the government to use Mather aviation field. It is expected shortly that all will be in readiness to call in the traffic officers for their preliminary instructions.

The following persons were appointed members of the California Highway Patrol during the month of March:

INSPECTOR APPOINTED

Ray Franck of Redding has been appointed inspector for the district comprising Shasta, Trinity, Siskiyou and Tehama counties. Headquarters at Red Bluff.

TRAFFIC OFFICERS NAMED

Following are appointments to the various counties:

Contra Costa County—Richard H. Trembath, George R. Cockerton, Wilfred H. Kennerley, Charles E. Boomhower.

Alameda County—Harold T. Hendricks, William A. Hamilton, George J. Barron, Anthony Enos.

Amador County—Vernon J. Farewell, Harrison M. Shear.

Merced County—Donald Halterman, Niel C. Nicholson, Chas. F. Sloat.

Napa County—Eugene C. Riordan, Joseph P. Mathews.

Fresno County—Will J. Eudaly, B. H. Schallenberg.

Marin County—Ivan A. Carbine, Vernon E. Dwelly, Thos. H. Wentworth.

Placer County—H. A. Duryea.

Sacramento County—John A. Daroux, Jack A. Thielen, Thos. Robinson.

Santa Cruz County—Victor C. Calhoun, Arthur E. Day.

Glenn County—Irvin C. Kimball.

NEW REDWOOD PARK ADORNS STATE HIGHWAY

(Continued from page 4.)

remains is brushed out and in good condition for a road of the corduroy type. It passes through richly massed redwoods with very luxuriant undergrowth and is well worthy of being reinstated as a slow, rambling route. Its course through the park as proposed is about five miles in length."

Within the confines of the park are fragments of the old Eureka pack trail, famous in the days of the pioneer. Mr. Knight recommends that an effort be made to awaken interest in this historic old relic, so that it may be reestablished as a link with the romantic early days.

"The entrance to the park, from both north and south, is an important factor if the unique beauty and appeal of this area are to be enjoyed to the full. Beginning in a key almost commonplace, and gradually increasing in charm and interest as the traveler progresses into the recesses of the park, the climax is finally reached, as the view discloses suddenly a scene of superb redwood forest etched against the dramatic background of the ocean. Although the northern and southern approaches can not compare in any way with the grandeur in store for the traveler farther along, they are of tremendous significance to the "tone" of the park as a whole. Unsightly structures in the way of roadside refreshment stands and other obstructions to the loveliness of the countryside must be so dealt with that there may be no jarring note, in order that the visitor to the park may reap the fullest possible aesthetic enjoyment and spiritual benefit therefrom."

Buck: "Can you give me a definition of an orator?"
Private: "Sure. He's the fellow who's always ready to lay down your life for his country."—*Kenebec Journal.*

NEW DESIGNS IN HIGHWAY CONSTRUCTION

(Continued from page 2.)

type of structural member, beam, or otherwise is designed to resist the stresses and strains of service. Greater unit strengths in concrete are being obtained than ever before. All other types of pavement, including even the low type temporary gravel or crushed rock, are laid with the utmost scientific care in selection of materials, placing, etc., to insure smooth, durable surfaces.

The importance of suitable subgrade and drainage is realized fully.

The design of this factor is considered to be as important fundamentally as the design of the pavement itself, and is now given its full share of consideration.

Practically all important paved state highways are being divided by plainly visible white traffic stripes into well defined traffic lanes. This work was started about a year ago and is being pushed toward completion as rapidly as possible.

GRADE CROSSING ELIMINATION

This work is being pushed forward as fast as funds become available therefor.

DRAINAGE

Although the importance of this factor always has been recognized, it is being given increasing attention in connection not only with the disposal of surface drainage but also in connection with subgrade pavement foundations and appearance. In flat country deep parallel side borrow ditches, such as were often in times past designed to supply material for roadway fills, are no longer permitted as they are considered unsightly, unhealthful in that they often hold stagnant water and breed mosquitoes, and are dangerous. During the past two or three years, many such ditches have been backfilled and eliminated, often in connection with shoulder widening.

LANDSCAPING

Increasing attention is being paid to this factor of design, especially on recreational roads. Engineers of the Division of Highways are trained to give special attention to the aesthetics of highway designs and to avoid wherever practically possible destruction or injury of trees, streams, parking sites, and all types of scenery and natural or cultivated beauty.

Roadside tree planting is encouraged, the state usually assuming responsibility for the care but not the planting of the trees.

Especial attention is given during both location and construction to the development of wide shoulder parking sites at points where good views may be obtained.

JOINT HIGHWAY DISTRICTS

One of the most important recent trends has been the development of the joint highway district. In line with certain requirements prescribed by law, two or more counties may form a joint highway district to construct an important road, and may request and, subject to the state's approval, may receive state aid in the form of financial contributions and engineering advice. This naturally leads toward higher standards of construction and better coordination of the county road systems.

The preceding notes present only a few of the more important improvements in the trend of modern highway design. It may be stated briefly that the current policy of the California Division of Highways is the production of highways which will at all times provide to the public the fullest measure of transportation service and satisfaction.

TEST YOURSELF

The following definitions are given in the *Wisconsin Engineer* as answers one of the professors received in a vocabulary test:

tandem—trance, riot, uproar.
palpable—pleasing to the taste, very fine, excited.
facade—a period of five years.
ludicrous—delicious.
askance—can have for asking.
exorcise—to kill one's wife.
intrigue—poison for insects.
chimera—animal which changes color with environment.
nostaglia—bunch of flowers.
marital—pertaining to the sea.
maritime—period of marriage.
bovine—sad, melancholy, pertaining to a dog.
polygamy—worshipping more than one god.
equestrian—a judge.
science—dealing with things that are not understood.
category—a bag of tricks.
tent—one who occupies another's property.
weal—small water animal.

FROM THE OLD SCOTCH

Scotch Father (out riding)—Wee Sandy, why are ye a-hidin' under the lap-robe?

Sandy—Whist Father, dinna ye see the toll bridge we're a-coming to?

Father (quickly)—Hoot lad, move over so that your mither can get under wi' ye.

"Why is Jones looking for a cashier, he only hired one last week."

"That's the one he is looking for."

Improvements in Highway System Secured Through March Contracts

Redwood Highway

Two grade eliminations on this highway were made possible by the following contracts:

In Marin County an overhead crossing over the tracks of the Northwestern Pacific Railroad at Forbes Station consisting of one 46-foot steel beam span and 190 feet of timber trestle on pile bents. This grade separation is on the new alignment just north of San Rafael. Grading and paving of this section is now under construction. Rocca and Caletti of San Rafael was awarded this contract for $16,170.

In Humboldt County an undergrade crossing at Loleta under the same railroad tracks and being situated on the recently constructed realignment on that portion of the Redwood Highway between Loleta and Beatrice. Fred J. Maurer and Son of Eureka were awarded this contract for $10,880.

Pacific Highway

In Glenn County on the West Side Pacific Highway between Logandale and Willows, 5.2 miles will be paved with Portland cement concrete. This pavement is to be placed on the recently graveled 33-foot roadbed over this section of the highway and is the final step in its three-stage construction. The first stage of construction consisted of grading. The second was the placing of a 12-inch gravel subbase, which raised the grade sufficiently to protect the roadbed from the possible overflow of water from the irrigation of the adjoining rice fields. The present improvement has been shifted to the west so that the center line of the ultimate 40-foot pavement will be centered in the 100-foot right of way. This contract was awarded to Basich Brothers Construction Company of Los Angeles for $146,319.

Tahoe-Ukiah Highway

In Lake County between Middletown and the old Williams road, 23 miles will have light fuel oil furnished and applied as a dust layer. The Basalt Rock Company of Napa was awarded this contract for $5,842.

Mother Lode Highway

The grading and surfacing with crusher run base and untreated crushed gravel or stone for 2.8 miles on either side of Calaveritas Creek, makes another important improvement on this highway, replacing the present narrow and crooked road with a graded roadbed of 24 feet and surfacing 20 feet wide. Larsen Brothers of Galt is the contractor for a price of $45,494.

Valley Highway

In San Joaquin County two important contracts have just been let for improvement of the section between Lodi and Stockton.

Between Cherokee Station and Harney Lane, 6.9 miles will be graded 36 feet wide and paved with Portland cement concrete 20 feet. This construction replaces the old 16-foot bituminous macadam built by the county. This contract was awarded to T. M. Morgan Paving Company of Los Angeles for $251,562.

Another contract in conjunction with the above mentioned road construction is the building of four reinforced concrete girder bridges over Calaveras River, and Mosher, Bear and Live Oak creeks. Each bridge will have a clear roadway width of 34 feet. Jacobs and Pattiani of Oakland are the contractors for a price of $48,875.

Crest Drive

H. W. Rohl Company of Los Angeles received the award of contract for grading 1.9 miles in San Bernardino County between The Pass and Waterman Canyon. This improvement is another sector of one of southern California's recreational highways and is on an entirely new alignment of that portion of the Crest Drive from The Pass between Waterman Canyon and Devils Canyon down Waterman Canyon. This project will bring to modern standards of mountain highway construction the worst section of the road from San Bernardino to Big Bear Lake. The present old road has grades as steep as 16 per cent and curves so sharp that stages and trucks negotiate them with great difficulty. Contract price on this improvement, $100,372.

COMPLETION OF CONTRACTS

Pacific Highway

O. F. Brown of Sacramento recently completed a contract for moving buildings, appurtenances and utilities from the state right of way through Wheatland, in Yuba County, at an approximate cost of $2,670. In Sacramento County Mr. Brown recently completed another contract for moving buildings from the state highway right of way about 8 miles north of Sacramento at an approximate cost of $495.

Valley Route

Contract for constructing an undergrade crossing near Califa, Madera County, under the S. P. Railroad has been completed at an approximate cost of $32,700, and accepted as satisfactory. Otto Parlier of Tulare was the contractor.

Another contract in Madera County for constructing a graded roadbed and placing asphaltic concrete surfacing between Califa and the northerly county boundary, for about 5.6 miles, and at an approximate cost of $148,600, has been completed and accepted. A. Teichert and Son of Sacramento were the contractors.

Coast Highway

A contract for widening the pavement with oil-treated crusher run base between Eagle Creek and El Capitan Creek, Santa Barbara County, for a distance of 5.5 miles and at an approximate cost of $17,483 has been satisfactorily completed. Cornwall Construction Company of Santa Barbara was the contractor.

Another contract on this route in Ventura County for superelevating curves on the Conejo Grade at an

approximate cost of $2,800 has been completed. Griffith Company of Los Angeles was the contractor.

SAN DIEGO-EL CENTRO HIGHWAY

Basich Brothers Const. Company of Los Angeles just recently completed the constructing of graded roadbed and placing Portland cement concrete pavement between Pine Valley and Kitchen Creek, in San Diego County, for a distance of 7.2 miles at an approximate cost of $309,000.

HIGHWAY BIDS AND AWARDS
For Month of March

CALAVERAS COUNTY—Between 1½ miles north and 1½ miles south of Calaveritas Creek, about 2.8 miles in length to be graded and surfaced with crusher run base and untreated crushed gravel or stone. Dist. X, Rt. 65, Sec. B. W. H. Hauser, Oakland, $53,582; Lord & Bishop, Oroville, $67,586; Mathews Const. Co., Sacramento, $48,803; Chigris & Sutsos, San Francisco, $50,087; Tieslau Bros., Berkeley, $56,407; M. J. Bevanda, Stockton, $56,786; A. J. and J. L. Fairbanks, Ins., South San Francisco, $58,963; W. C. Cooley, Berkeley, $56,776; Hemstreet & Bell, Marysville, $55,660; A. Teichert & Son, Sacramento, $62,-105; Kennedy-Bayles Const. Co., Oakland, $57,714. Contract awarded to Larsen Brothers, Galt, $45,-494.25.

GLENN COUNTY—Between Logandale and Willows, 5.2 miles to be paved with Portland cement concrete. Dist. III, Rt. 7, Sec. A. T. M. Morgan Paving Co., Los Angeles, $162,986; M. J. Bevanda, Stockton, $168,487; N. M. Ball, Porterville, $164,670; Fredrickson & Watson, Oakland, $162,298; C. W. Wood, Stockton, $155,698; Mathews Const. Co., Sacramento, $163,123; Hanrahan Co., San Francisco, $162,919. Contract awarded to Basich Bros, Los Angeles, $146,319.

HUMBOLDT COUNTY—An undergrade crossing under the Northwestern Pacific tracks at Loleta. Dist. I, Rt. 1, Sec. G. Smith Brothers, Eureka, $11,586. Contract awarded to Fred J. Maurer & Son, Inc., Eureka, $10,880.40.

LAKE COUNTY—Between Middletown and the Old Williams Road, on the Tahoe-Ukiah Route, 23 miles to have light fuel oil dust layer applied. Dist. IV, Rt. 49, Secs. A, B and C. C. W. Wood, Stockton, $8,259; Deysher & Lafargue, San Anselmo, $6,520; Geo. French, Jr., Stockton, $6,955; C. F. Fredericksen & Sons, Lower Lake, $7,071; Lee J. Immel, Berkeley, $8,954; J. A. Casson, Hayward, $6,404; Chas. Kuppinger, Lakeport, $6,694. Contract awarded to Basalt Rock Co., Napa, $5,824.37.

MARIN COUNTY—Overhead crossing over the tracks of the Northwestern Pacific R. R. at Forbes Station. Dist. IV, Rt. 1 Sec. A. M. B. McGowan, San Francisco, $19,725; W. L. Proctor, Santa Rosa, $17,919; Fredrickson & Watson, Oakland, $19,963; A. T. Howe, Santa Rosa, $17,052; Healy-Tibbits Const. Co., San Francisco, $21,365. Contract awarded to Rocca & Coletti, San Rafael, $17,170.50.

SAN BERNARDINO COUNTY—Between The Pass and 2 miles down Waterman Canyon, 1.9 miles to be graded (on new alignment). Dist. VIII, Rt. 43, Sec. A. George Pollock Co., Sacramento, $108,-892; J. G. Donovan & Son, Los Angeles, $103,277; Lewis Construction Co., Los Angeles, $147,808; Gist & Bell, Arcadia, $103,927; Sander Pearson, Santa Monica, $120,789; O. A. Lindberg, Stockton, $115,741; Triangle Rock & Gravel, San Bernardino, $115,493; C. G. Willis & Son, Los Angeles, $106,095; Pearson & Dickerson, Riverside, $174,352; J. P. Holland, Inc., San Francisco, $101,757. Contract awarded to H. W. Rohl Co., Los Angeles, $100,372.

SAN JOAQUIN COUNTY—Between Cherokee Station and Harney Lane, four reinforced concrete girder bridges between Lodi and Stockton across Calaveras River, Mosher, Bear and Live Oak creeks. Dist. X, Rt. 4, Sec. C. Fredrickson & Watson Const. Co., Oakland, $50,056; M. J. Bevanda, Stockton, $56,-722; J. F. Knapp, Oakland, $49,823; Bodenhamer Const. Co., San Diego, $60,797; N. M. Ball, Porterville, $64,914; Geo J. Ulrich Const. Co., Modesto, $51,803; M. B. McGowan, San Francisco, $56,726. Contract awarded to Jacobs and Pattiani, Oakland, $48,875.

SAN JOAQUIN COUNTY—Between Cherokee Station and Harney Lane, 6.9 miles to be graded and paved with Portland cement concrete. Dist. X, Rt. 4, Sec. C. Isbell Const. Co., Fresno, $290,120; Heafey-Moore Co., Oakland, $314,389; C. W. Wood, Stockton, $259,579; M. J. Bevanda, Stockton, $264,-808; J. F. Knapp, Oakland, $269,845. Contract awarded to T. M. Morgan Paving Co., Los Angeles, $251,562.50.

ARCHITECTURAL AWARDS
For the Month of March

STATE FAIR GROUNDS, Sacramento. Contract for general work in the Live Stock Unit, awarded to McGillivray Construction Co. of Sacramento; price, $118,205.

Contract for plumbing work, same building, awarded to Luppen and Hawley, Sacramento, price, $9,564.

Contract for electrical work, same building, awarded to Latourrette-Fical Company of Sacramento; price, $2,400.

INDUSTRIAL HOME FOR ADULT BLIND. Contract for construction of new Broom Factory, awarded to A. Fredrick Anderson of Oakland; price, $24,260.

PUBLIC WORKS BUILDING, Sacramento. Contract for ventilating and roof sprinkling system, awarded to McLaughlin Sheet Metal Works of Sacramento; price, $6,645.

MENDOCINO STATE HOSPITAL, Talmage. Contract for building crematory furnace awarded to J. T. Thorpe & Son, Inc., San Francisco; price, $2,530.

CHICO STATE TEACHERS COLLEGE, Assembly Building. Contract for general work, awarded to Campbell Construction Company of Sacramento; price, $133,616.

Contract for plumbing, heating and ventilating on above award to Frederick W. Snook Company of San Francisco; price, $18,523.

Contract for electrical work on above, awarded to Alta Electric Company of San Francisco; price, $13,994.

HE MIGHT AS WELL

Prospective Car Buyer—I want to buy a car that will do one hundred miles per hour, forty miles on a gallon of gas, ride like an easy chair, turn in a thirty-foot street, cost not more than $500, and run for years without any repairs. What would you suggest?

Salesman—Walk.

FLOODLIGHTING THE STATE CAPITOL

(Continued from page 6.)

effect is provided by mounting 24 200-watt Type C lamps in Crouse-Hinds vaporproof fittings with ruby globes on the inside of the dome, one over each window. These lamps are not lighted when the general floodlighting is on, but are used on special occasions to provide a red silhouette effect.

To assist the floodlighting to overcome the lost reflection due to the extremely dark weathered copper surface of the dome, 1200 10-watt lamps are mounted on the ribs of the dome and around the edge of the smaller dome, capping the entire structure.

COST FIGURES

The installation represents a total connected load of 62.4 k.w. It is arranged on a 3-phase, 4-wire system. It is controlled by Diamond H contactors with push-button stations located in the basement.

The cost of the entire installation was approximately $7,000.

The system is in operation every night of the year from 8 to 11 o'clock in the evening. The operating cost per day is as follows:

Current	$3 74
Lamp renewals and depreciation	0 75
Interest on investment	1 34
Total daily cost	$5 83

The installation was executed under contract by the Latourrette-Fical Company of Sacramento.

MARCH CONTRACTS LET BY ARCHITECTURE DIVISION

During March contracts have been awarded for work of the Division of Architecture having a total value of $397,031. These projects included work on additional wings for the San Francisco State Building, the Live Stock Unit at Agricultural Park, Sacramento, the Broom Factory at the Industrial Home for the Adult Blind in Oakland, and improvements upon the Public Works Building, Sacramento, and also at the Mendocino State Hospital.

THE COURTEOUS MOTORIST

"Which do you like better, balloon tires or high-pressure tires?"

"I like balloon tires better."

"What kind of a car do you have?"

"I don't have any; I'm a pedestrian."

Appel—"My son is a jack of all trades. What shall I do with him?"

Sass—"Buy him a drug store."

HIGHWAY MILEAGE IN EUROPE AND THE UNITED STATES

The following figures showing comparative highway figures for the United States and Europe are taken from the 1929 edition of Highways Handbook published by the Highways Education Board of Washington, D. C.:

	Miles in Europe	*Miles in United States*
Unimproved	58,098	2,390,144
Earth, sand, clay or gravel, graded and drained	1,178,458	458,982
Water bound macadam	370,857	64,596
Water bound macadam, surface treated	6,880	———
Bituminous or penetration macadam	6,428	30,153
Asphalt	3,680	9,155
Cement concrete	1,102	55,274
Stone, block or paving brick	12,200	4,628
Not specified	812,626	379
Total	2,450,430	3,016,281

The same authority gives the following additional data:

	Europe	*United States*
Area to 1 mile of road	4.208	1.00
Automobiles	4,140,126	24,629,921
Automobiles to 1 mile of road	1.69	8.17

Highways Stir Praise of Visitor.

This from the Los Angeles *Times:*

Visiting Los Angeles for the first time since 1901, John B. Drake, vice president of the Drake Hotel Company of Chicago, operator of the Blackstone and Drake hotels in the midwestern metropolis, expressed himself as amazed at the development that has taken place in the last three decades.

Drake was particularly impressed with California's highways, on which he motored in northern and central California before coming to Los Angeles. The state's highways, he commented, are the best he has seen in the country.

"California has been a revelation to me," Drake said. "I think it would be a good thing if easterners could visit here and see what is happening."

Drake declared that American business is showing steady improvement and that he looks for a return to normal conditions within a few months.

TRY HORSEBACK

One of our statisticians says that he would rather be sunburned on his vacation than tanned on a week-end.

Fair One: Now before we start for this ride, I want to tell you that I don't smoke, drink or flirt, I visit no wayside inns, and I expect to be home by ten o'clock.

Young Gallant: You're mistaken.

Fair One: You mean that I do any of those things?

Young Gallant: No, I mean about starting for this ride.

SAN JUAN GRADE DECISION IS ANNOUNCED

(Continued from page 9.)

and discussed and explained in the various conferences and discussions already referred to.

In your letter you state that it has been determined "to handle the San Juan Grade situation in the following manner:

1. Proceed to make the necessary surveys, plans and estimates of cost to relocate the 'Coast Highway' westerly of the present San Juan Grade, as indicated on the blueprint marked, 'Suggestion No. 2,' and make provision for starting the construction thereof in our next budget.

2. Retain and maintain the present San Juan grade as a part of the state highway system to constitute an extension of the present Hollister county seat lateral, such extension to run from San Juan Bautista over the grade to a new connection with the projected, relocated 'Coast Highway' at a point south of the present grade; also shown on said blueprint.

3. Relinquish the short unit now in the 'Coast Highway,' between San Juan Bautista and the point where the new relocation would depart from the present road north of San Juan Bautista, to the county of San Benito, this unit to be maintained by the county."

It is proposed that the section of the Coast Highway to be constructed will commence at the present Coast Highway, a short distance north of San Juan Bautista and extend in a general southerly direction to a point south of San Juan grade, and there connect with the present Coast Highway. The distance from the point where construction begins on the coast line north of San Juan Bautista to the point where the new construction will connect with the present highway south of the San Juan grade is approximately the same as the distance between these points along the present state highway through San Juan Bautista and over the San Juan grade.

Some of the reasons for the relocation of this section of the Coast Highway are stated in your letter as follows:

"1. The present San Juan Grade can not, within reasonable engineering possibility and within the limits of justifiable expenditure of public funds, be made to meet the traffic and safety requirements of the main north and south trunk line of the state highway. In other words, it has passed the peak of its adaptability and usefulness for such major trunk line uses.

The exhibits heretofore submitted to you bear this out through statistical data.

The relocation will vastly improve grades and curves, increasing, of course, the carrying capacity of the road and adding to the safety and expedition of travel and transportation.

A few interesting figures may show the merits of the new line.

The highest point on the present road is 1015 feet; the highest point on the new road will be 550 feet. The length of adverse grades will be cut in half. The minimum radius curve on the present road is 100 feet; on the relocation 1000 feet. Total number of curves on the old road is 113; on the new line 38. The minimum sight distance on the present road 75 feet; on the relocation, 800 feet.

The relocation will afford opportunity for construction at low cost of a safe, convenient road adapted to indefinite expansion as traffic requires, and capable of handling traffic safely at any reasonable speed fixed by law."

Your statement just quoted is fully supported by the reports of engineers heretofore submitted.

The advantages that will result from the elimination of San Juan grade and the adoption in lieu thereof of the section to be constructed thus plainly appears.

These advantages are substantial, are not temporary, but on the contrary are permanent and will grow in magnitude with the increase of traffic over the Coast Highway which inevitably will occur.

The public purpose that will be subserved justifies the new construction and the abandonment of the portion of the coast highway known as San Juan grade, and likewise justifies the relinquishment to the county of the portion of the present state highway extending from San Juan Bautista northerly to the point at which the new construction begins, and it is my view that this change may legally be effected.

Section 363b of the Political Code, as amended in 1929, is as follows:

"The Commission is hereby granted the power to alter or change the route of any road and to abandon any portion thereof, under the jurisdiction of the Department of Public Works (whenever and wherever) in the opinion of the Commission such alteration, change or abandonment shall be necessary or advisable by reason of alteration or revision in alignment of portions of routes of state roads or highways or shall be for the best interests of the state."

In terms this section seems ample to warrant the determination of the Commission in this regard. However it may well be questioned how far the legislature may go in view of the provisions of the State Highway Act of 1909, and subsequent state highway acts, for the reason that these several highway acts were referendum measures. But I am not inclined to enter into an examination of this particular question, for it is my view that the proposed changes may legally be made without regard to this section of the Political Code.

I am aware that the State Highway Act of 1909, under which the Coast Highway was constructed, provides that

"All highways constructed or acquired under the provisions of this act shall be permanently maintained and controlled by the State of California."

In 1926 the Highway Commission was considering a change in the state highway in Tulare County. As theretofore constructed the highway extended through Visalia the county seat, and it was proposed to adopt a new section of the state highway which would leave the city of Visalia off the main highway, but connected therewith by a lateral. The question thus presented in its legal aspects was quite similar to the one now being examined, and on February 13, 1926, I advised that the change then being considered could legally be made, and in referring to the provisions of the Highway Act of 1909, heretofore quoted, I said:

"This is a mandatory provision and full force and effect must be accorded to it. I can not give to this provision however a construction which would cast upon the state the burden of maintaining a section of a highway after such section had, by reason of highway improvement made for the purpose of correcting curves, grades, or shortening distance, eliminated such portion from the highway and rendered it thereafter unneeded and unuseful. Nor can I give to this provision a construction which would prevent the proper and

1929 Grade Crossing Accident Record

The number killed and injured at grade crossings in California was higher in 1929 than in any previous year, the casualties amounting to 1154 (including 200 killed and 954 injured), as compared with the previous peak of 957 in 1927, and 897 in 1928. Included in these figures are accidents at all crossings, including private crossings but excluding accidents between crossings, according to a report compiled by J. G. Hunter, transportation engineer of the State Railroad Commission.

The following table shows the statistics since 1913, in which year there were a total of 460 casualties. It will be noted from this table that the casualties per 10,000 motor vehicles have substantially decreased since 1913, although practically the entire decrease was during the years 1913 to 1918.

Since 1918, and during the last twelve years, there has been no marked increase or decrease in the casualties per 10,000 motor vehicles. Motor vehicle registration has increased from approximately 125,000 in 1913 to 2,000,000 in 1929.

	Casualties				
Year	*Killed*	*Injured*	*Total*	*Motor vehicle registration*	*Casualties per 10,000 vehicles*
1913	83	377	460	122,444	37.6
1914	93	378	471	148,225	31.7
1915	73	338	411	190,196	21.6
1916	103	337	440	263,434	16.7
1917	117	231	348	337,333	10.3
1918	69	152	221	390,773	5.7
1919	78	199	277	503,522	5.5
1920	104	260	364	595,187	6.1
1921	96	297	393	698,343	5.6
1922	128	392	520	878,108	5.9
1923	134	392	526	1,114,977	4.7
1924	129	454	583	1,331,719	4.4
1925	169	560	729	1,451,543	5.0
1926	139	629	768	1,610,770	4.8
1927	194	763	957	1,702,639	5.6
1928	165	732	897	1 822,262	4.9
1929	200	954	1154	1,983,969	5.8

persistent efforts made by highway authorities to improve state highways by correction of curves, reducing grades and shortening distance, though such improvements of necessity must result in the abandonment of sections of roads theretofore constructed and theretofore used and maintained.

The language from the opinion just quoted is applicable to the present problem, and I conclude that the proposed relocation of the Coast Highway may be legally made.

This conclusion however makes necessary the consideration of a question necessarily resulting from it.

The abandonment of that portion of the Coast Highway known as San Juan grade and the portion thereof extending northward from San Juan Bautista to the point of intersection of the new construction with the present state highway would leave Hollister, the county seat of San Benito County, without a direct state highway connection with the Coast Highway. The Highway Act of 1909, and subsequent acts, require that all county seats not situated upon a main highway shall be connected therewith by a lateral. This requirement justifies the Commission's determination to maintain the San Juan grade as a part of the lateral connecting Hollister with the Coast Highway, and by its maintenance Hollister has the connection with the Coast Highway contemplated by the statute.

It may be added in passing, that through the maintenance by the county of the portion of the Coast Highway north of San Juan Bautista, Hollister will in fact be connected with the state highway at a point north of San Juan Bautista, as well as at the point south of San Juan grade.

My conclusion is that all that is proposed to be done, as indicated in your letter, may be legally done.

I have not overlooked the suggestion in your letter that the legislature may hereafter "by statutory enactment reincorporate" that portion of the state highway north of San Juan Bautista to be abandoned "in the state highway system." This may and doubtless should be done, but this future possibility should not be taken into consideration in dealing with the legal question before me.

Very truly yours,

U. S. Webb,
Attorney General.

State Highway Progress Reports

COLUSA COUNTY

The widening of the roadbed to a uniform width of 26 feet between Colusa and Meridian was completed by C. R. Merrill, contractor, on February 6. The work involved the placing in embankment of more than 25,000 cubic yards of earth to widen the shoulders to four feet on each side of the existing 18-foot Portland cement concrete pavement.

Plans and estimate have been completed for grading of state highway between Bear Creek and a point 5½ miles west of Williams.

Plans and estimates have been completed for proposed improvement between Williams and Maxwell. The proposed work is to consist of constructing a graded roadbed from material to be excavated from a drainage ditch on the west side of the right of way and installing the necessary drainage structures. This is to be followed as soon as permissible with the placing of a blanket of gravel 12 inches thick over the entire width of the fill. After bridges are built and sufficient time has elapsed to allow for the fills to settle, a Portland cement concrete pavement will be constructed. The paving is scheduled in the tentative program for the 83d and 84th fiscal years.

DEL NORTE COUNTY

The Holdener Construction Company which has the contract for stockpiling crushed rock screenings over 39 miles of the Redwood Highway between Elk Valley and the Oregon line have engaged Smith Bros. to complete the work and the contract is approximately complete.

Smith Bros. have also completed their contract for placing corrugated metal pipe underdrains along the state highway between a point approximately five miles east of the Crescent City and the Hiouchi Bridge over Smith River.

EL DORADO COUNTY

Fourteen thousand cubic yards of excavation of the 88,000 cubic yards required to complete the 1¾ miles of new 24-foot graded roadbed between Bay View Rest and one mile north of Eagle Falls, has been placed in embankment by Nate Lovelace, contractor. Work is behind schedule and every effort is being made to speed up the work with a view to causing as little inconvenience as possible during the coming summer to traffic, which will have to be carried through construction.

GLENN COUNTY

Proposals for the construction of 5.2 miles of 20-foot Portland cement concrete pavement between Logandale and Willows was advertised for March 26, 1930. The work to be done consists of widening the existing roadbed with pit run gravel to be imported from local site 2½ miles east of the highway and constructing a Portland cement concrete pavement 20 feet wide and 6 inches to 9 inches thick (standard section).

HUMBOLDT COUNTY

The work of producing and stockpiling bituminous macadam rock along the Redwood Highway for a 20 feet by 2 inches bituminous macadam pavement between a point one mile south of Orick and the northerly Humboldt County line has been taken over by the state for completion. It is intended that this rock shall be stockpiled during the winter season in order that the Heafey-Moore Company who have the contract for placing the bituminous macadam may proceed with the work as soon as weather conditions permit next summer.

The Heafey-Moore Company who also have a contract for placing a 2 inch by 20 foot bituminous macadam pavement for 10.7 miles between Arcata and Little River expect to resume the work of completing their contract as soon as weather conditions permit, and it is understood will start the construction at Arcata and work northerly to complete to Mill Creek, approximately one mile north of Mad River.

Mercer-Fraser Company who have the contract for the construction of the new Trinity River Bridge near Willow Creek have again started operations after the winter shut down.

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 expected to be well advanced by the time the touring season begins next summer. The work is now approximately 35 per cent complete.

The Engelhart Paving and Construction Company have practically 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 six miles south of Miranda.

H. H. Boomer who has the contract for grading and surfacing a portion of the state highway, approximately 1.2 miles in length immediately north of Garberville, has continued his operations throughout the winter and the work is now approximately 15 per cent complete.

The contract for the grading and surfacing of 1.4 miles of the Redwood Highway from the southerly Humboldt County line to Richardson Grove has just been awarded to contractors, Chigris and Sutsos. The contractors have just arrived on the job and began setting up camp approximately March 25.

INYO COUNTY

From the southerly boundary to Little Lake, Fred W. Nighbert is making fair progress on his contract. Likewise, the adjoining contract which extends to

Coso Junction, which is now under construction, Fred W. Nighbert, contractor, is progressing slowly.

From Coso Junction to Olancha, the Allied Contractors, Inc., have moved in considerable equipment and forces, and every indication is that rapid progress will be made on this 21-mile stretch.

KERN COUNTY

The George Herz Company, which was recently awarded a contract between Cinco and seven miles north of Ricardo, have moved onto the job and construction is getting underway.

Between Seven miles north of Ricardo and Freeman, the G. W. Ellis Company has recently completed its contract.

The adjoining project from Freeman to the northerly boundary of Kern County, which is under construction by Bartlett & Mathews-Black & Hagey, is nearing completion, but progress has not been at an entirely satisfactory rate.

LAKE COUNTY

Widening of the roadbed from 20 to 24 feet between Sweet Hollow Summit and Abbott Mine, in Lake County is about 65 per cent completed.

Grading of a 24-foot roadbed between Abbott Mine, Lake County, and Bear Creek, Colusa County, is about 40 per cent completed. No section of roadway, however, has been completely finished. Heavy rains during February retarded construction operations.

All of the foregoing is on a part of the Ukiah-Tahoe Highway and work is being done by prison road camp forces augmented by necessary skilled free labor.

The construction of 10.6 miles of the Ukiah-Tahoe Highway between Lucerne and Clear Lake Oaks was recently completed by von der Hellen, Pierson and Logan. This construction provides a graded roadbed 24 feet wide surfaced 20 feet wide by 6 inches thick with untreated crushed gravel. It is proposed to oil treat the surface as soon as possible by state forces.

LOS ANGELES COUNTY

The contract for a line change immediately north of the Newhall Tunnel has been awarded to McCray Co. Good progress is being made on this work. It is expected that this contract will be completed next June.

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 14th. Rough grading is in progress on one and one-half miles. It is expected that this contract will be completed by next July.

The second contract on the La Canada-Mt. Wilson Highway for grading 1.5 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 next September.

A contract for grading and paving a line change near Liberty School, 4 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 August.

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.

LOS ANGELES-VENTURA COUNTIES

A contract for oil mix shoulders between Calabasas and Conejo Summit has been awarded to the Southwest Paving Company. It is expected that this contract will be finished in April.

MENDOCINO COUNTY

The contract for placing a four-inch thickness of crushed gravel surfacing on portions of the Redwood Highway between a point 2 miles south of Arnold and the Sherwood-Laytonville road has been practically completed by the contractors, Hemstreet and Bell.

von der Hellen and Pierson have just been awarded the contract for constructing approximately 425 feet of rubble masonry retaining wall, approximately nine miles south of the Mendocino-Humboldt County line. The contractors have just arrived on the work and expect to begin operations immediately.

MONO COUNTY

Plans have recently been completed for the early construction of the project from Sonora Junction to four miles south of Coleville, which project follows the West Walker River and when completed will form a mecca for sportsmen and tourists.

The adjoining project from Sonora Junction south to Bridgeport is now being estimated and planned in the district office.

MONTEREY COUNTY

The new subway under the Southern Pacific Railroad at Spence five miles south of Salinas is complete. Triberti-Massaro were the contractors. The work was under the supervision of the Bridge Department. This structure eliminates a very dangerous grade crossing.

The change of line and approaches to the new bridge across the Salinas River at San Ardo are under construction by Frederickson and Watson and Frederickson Brothers, contractors. The project is about 1.5 miles in length. Satisfactory progress is being made. Ben C. Gerwick is the contractor on the bridge which is under the supervision of the Bridge Department.

Plans are being prepared for a new bridge and a major line change at the crossing of the Salinas River near Bradley.

On the San Simeon-Carmel Highway construction work is in progress with convict labor. Two camps are maintained. At Little Sur a crew of 60 men and two power shovels are working, and between Villa Creek and a point north of Alder Creek, 75 men and three power shovels are working. About 7.4 miles of graded roadway have been completed. Recent rains have caused a number of slides on this work.

Mr. H. L. Leventon who has been superintendent of the prison camp at San Simeon has resigned to accept a position with the Division of Water Resources. Mr. H. B. Henry from District II is the new superintendent.

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

NEVADA COUNTY

The Callahan Construction Company on December 12, 1929, suspended work for the winter on their contract for grading and surfacing between Indian Springs and Soda Springs near the summit of the Colfax-Truckee road. The contractor will resume work just as soon as weather conditions will allow.

NEVADA AND PLACER COUNTIES

T. E. Connolly on January 4 suspended work for the winter on his grading contract between Airport and Indian Springs on the Dutch Flat-Donner Lake wagon road. The project covers the construction of 9.3 miles of 28-foot graded roadbed. Construction will be resumed as soon as weather conditions permit.

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 Co. 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 November.

SAN BENITO COUNTY

Plans are being prepared for the reconstruction of the state highway from a point three and one-half miles north of Hollister to the Pacheco Pass Lateral, a distance of about five miles. About two-thirds of a mile of this project is in Santa Clara County.

A survey for the relocation of the state highway between Salinas and San Juan Bautista has been ordered and work on this survey will start at once. 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 was awarded on August 13th to the R. E. Hazard Contracting Company. This section is 5.4 miles long and is to be a 46-foot graded roadbed. It is expected that this contract will be completed by July 1, 1930.

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 was awarded on May 27th to the Nevada Contracting Company. It is expected that this contract will be completed next June.

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 on June 25th to Basich Bros. This section is on the San Diego-El Centro Highway. Rough grading is completed and concrete paving is now in progress. It is expected that this contract will be finished by July 1, 1930.

A contract for grading a 38-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 May 1, 1930.

SAN LUIS OBISPO COUNTY

Asphaltic concrete pavement 20 feet in width is being placed on the Coast Highway between Atascadero and Paso Robles. Steele Finley is the contractor. This work is expected to be finished in June.

Street improvements including a half-mile of state highway are being constructed in the town of Atascadero. This work is handled by a local improvement district. M. J. Bevanda is the contractor.

On the Coast Highway between the 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 on this contract is progressing at a rapid rate with two power shovels working two shifts. J. F. Knapp is the contractor.

Plans have been completed on the proposed reconstruction of the Coast Highway between San Luis Obispo and Cuesta Grade, a distance of about three miles.

SANTA BARBARA COUNTY

On the Coast Highway between Wigmore and Zaca, a distance of four miles, the road is being reconstructed with a 36-foot roadbed and a 20-foot Portland cement concrete pavement. Rough grading is well under way. The Cornwall Construction Company is the contractor.

Plans are complete for a change of line on the Coast Highway about two miles south of Buellton. This change will require a new bridge over Nojoqui Creek.

YOLO COUNTY

C. W. Wood, contractor, completed 1000 feet of Portland cement concrete pavement 20 feet wide at Mullen Crossing. The resulting construction improved the surface, alignment and grade for 500 feet each side of the Southern Pacific Railroad tracks.

The teacher asked little Abie to give a sentence using the word "diadem."

After much effort, Abie turned in the following: "People who drive onto railroad crossings without looking, diadem sight quicker than those who stop, look, and listen."—*Exchange.*

WATER APPLICATIONS AND PERMITS

Applications for Permit to Appropriate Water Filed with the State Department of Public Works, Division of Water Resources, during the month of March, 1930.

TRINITY COUNTY—Application 6578. The New River Mining Co., Ltd, c/o H. W. Hall, Box M, Corona, for 40 c.f.s. from Quimby Creek tributary to New River to be diverted in Sec. 29, T. 7 N., R. 7 E., H. M., for mining purposes. Estimated cost $10,000.

YOLO COUNTY—Application 6579. Lars Jorgensen, Hobart Bldg., San Francisco, for 200 c.f.s., 100,000 acre-feet per annum from Putah, Pope, Capell, Eticura creeks tributary to Sacramento River to be diverted in Sec. 25, T. 8 N., R. 2 W., M. D. M., for domestic and industrial purposes. Estimated cost $3,900,000.

TRINITY COUNTY—Application 6580. R. E. Robards, Burnt Ranch, for 2 c.f.s. from Jan. 1st, to Dec. 31st, from Dixie Creek tributary to New River to be diverted in Sec. 2, T. 5 N., R. 6 E., H. B. and M., for mining and domestic purposes (½ acre domestic irrigation).

SUTTER COUNTY—Application 6581. Fred Holmes and R. E. Hughes, 41 Palm Ave., Woodland, for 10 c.f.s. from East Dredge Cut of Sutter By-pass tributary to Sacramento River to be diverted in Sec. 3, T. 12 N., R. 3 E., M. D. M., Sec. 19, T 13 N., R. 3 E., M. D. M., for recreational purposes

SUTTER COUNTY—Application 6582 C. Fred Holmes and R. E. Hughes, 41 Palm Ave., Woodland, for 42.26 c.f.s. from East Dredge Cut of Sutter Bypass tributary to Sacramento River to be diverted in Sec. 3, T. 12 N., R. 3 E., M. D. M., Sec. 19, T. 13 N., R. 3 E., M. D M, for irrigation purposes Estimated cost $15,000

SACRAMENTO COUNTY—Applicatoion 6583. A. L. White, Sacramento, for 2.5 c.f.s. from March 1st, to October 15th, of each season from Sacramento River to be diverted in Sec. 33, T. 10 N., R. 3 E., M. D. B. and M., for irrigation purposes. (80 acres.) Estimated cost $2,000.

LOS ANGELES COUNTY—Application 6584. John J. Johnson, Sunland, for 0.25 c.f.s. from Jan. 1st, to Dec. 31st, from unnamed spring tributary to Los Angeles River watershed to be diverted in Sec. 2, T. 2 N., R. 14 W., S. B. M., for domestic and irrigation purposes. (83 acres.) Estimated cost $1,500.

MONO COUNTY—Application 6585. Ralph B. Lloyd, Los Angeles, for 100,000 acre-feet per annum from East and West Walker River and Adobe Valley to be diverted in Sec. 14, 22, 27, 33, T. 6 N., R. 22 E., M. D. M., Sec. 33, 34, 35, T. 4 N., R. 25 E., M. D. M., for power purposes.

MONO COUNTY—Application 6586. Ralph B. Lloyd, Los Angeles, for 100,000 acre-feet per annum from East and West Walker River and Adobe Valley to be diverted in Sec. 14, 22, 27, 33, T. 6 N., R. 22 E., M. D. M., Sec. 33, 34, 35, T. 4 N., R. 25 E., M. D. M., for irrigation and domestic purposes on 50,000 acres.

CONTRA COSTA COUNTY—Application 6587. Henry R. Vail, c/o E. H. Frazier, 422½ D St., Marysville, for 37 c.f.s. from Old River, Dredger Cut and Italian Slough tributary to San Joaquin River to be diverted in Sec. 13, T. 1 S., R. 3 E., M. D. M., Sec. 6, 7, 18, T. 1 S., R. 4 E., for irrigation purposes. Estimated cost $10,000

SAN JOAQUIN COUNTY—Application 6588. American Trust Co., a corporation, 461 California St., San Francisco, for 6 c.f.s. from Stanislaus tributary to San Joaquin River to be diverted in Sec. 21, T. 2 S., R. 8 E., M. D. M., for irrigation purposes. Estimated cost $2,500.

VENTURA COUNTY—Application 6589. Julius Olender, 1812 Tulare St., Fresno, for 0.04 c.f.s. from unnamed spring tributary to In Piru Creek Watershed to be diverted in Sec. 25, T. 7 N., R. 19 W., S. B. M., for mining and domestic purposes. Estimated cost $100.

PLUMAS COUNTY—Application 6590. Telluric Mining and Smelting Co., Seattle, Wash., for 0.10 c.f.s. from Jan. 1st, to Dec. 31st, from unnamed rivulet tributary to (In Indian Creek Drainage Area) to be diverted in Sec. 12, T. 26 N., R. 9 E., M. D. B. and M., for mining purposes. Estimated cost $200.

MENDOCINO COUNTY—Application 6591. Hale Burger, Yorkville, for 50 acre-feet per anunm from Rancheria Creek tributary to Navarro River to be diverted in Sec. 25, T. 13 N., R. 14 W., M. D. B. and M., for irrigation and domestic purposes (10 acres). Estimated cost $1,000.

SAN BERNARDINO COUNTY—Application 6592. John M. Willoughby, 846 N. Hudson Ave., Los Angeles, for ½ c.f.s. from unnamed spring tributary to Mojave Desert to be diverted in Sec. 15, T. 3 N., R. 1 W., S. B. B. and M., for domestic and irrigation purposes (40 acres). Estimated cost $600.

SUTTER COUNTY—Application 6593. Estate of California E. Hale, c/o John E. Hale, Marysville, for 1.75 c.f.s. from Feather River tributary to Sacramento River to be diverted in Sec. 35, T. 15 N., R. 3 E., M. D. M., for irrigation purposes. Estimated cost $4,200.

MENDOCINO COUNTY—Application 6594. Snow Mountain Water and Power Co., San Francisco, for 50 c.f.s., 14,500 acre-feet per annum, from South Eel River tributary to Eel River to be diverted in Sec. 30, T. 18 N., R. 11 W., M. D. M., for irrigation purposes on 4905.9 acres. Estimated cost $2,000,000.

KERN COUNTY—Application 6595. Geo. O. H. Buchner, c/o Walter C. Hintze, 1051 Subway Terminal Bldg., Los Angeles, for 1 c.f.s. Jan. 1st, to Dec. 31st, of each season from well tributary to South Fork Rag Gulch to be diverted in Sec. 22, T. 26 S., R. 28 E., M. D. B. and M., for mining and domestic purposes. Estimated cost $15,000.

TRINITY COUNTY—Application 6596. A. M. Knapp, Weaverville, for 80 c.f.s. from Big French Creek tributary to Trinity River to be diverted in Sec. 17, T. 5 N., R. 8 E., M. D. M., for mining purposes. Estimated cost $20,000.

NEVADA COUNTY—Application 6597. South Yuba Co., Ltd., c/o W. E. Plank, Washington, Nevada Co., for 40 c.f.s. from Scotchman Creek tributary to South Fork of Yuba River to be diverted in Sec. 18, T. 17 N., R. 11 E., M. D. M., for mining purposes. Estimated cost $2,200.

TRINITY COUNTY—Application 6598. Anton Weber, Trinity Alps, for 0.75 c.f.s. from Elk Gulch tributary to Stuarts Fork of Trinity River to be diverted in Sec. 21, T. 35 N., R. 9 W., M. D. B. and M., for irrigation purposes (60 acres).

INYO COUNTY—Application 6599. J. F. Chrysler and E. H. Cook, Lone Pine, for 1 c.f.s., March 1st, to Nov. 30th, of each season from Carroll Creek tributary to Owens Lake to be diverted in Sec. 31, T. 16 S., R. 36 E., M. D. M., for irrigation and recreational purposes (20 acres). Estimated cost $300.

SIERRA COUNTY—Application 6600. E. A. Humphreys, c/o R. F. Taylor, Downieville, for 25 c.f.s. from South Fork of North Fork of Yuba River tributary to Yuba River to be diverted in Sec. 30, T. 20 N., R. 12 E., M. D. M., for mining purposes. Estimated cost $5,000.

SANTA CLARA COUNTY—Application 6601. G. T. Letcher, c/o Louis Oneal, First National Bank Bldg., San Jose, for 45 acre-feet per annum, from unnamed spring to be diverted in Sec. 10, T. 7 S., R. 1 W., M. D. M., for irrigation and domestic purposes.

SAN LUIS OBISPO COUNTY—Application 6602. M. H. Stephens, San Luis Obispo, for total 480 gallons per day from 2 springs tributary to Day Creek to be diverted in Sec. 32, T. 32 S., R. 16 E., M. D. B. and M., for stock-watering purposes. Estimated cost $400.

MERCED COUNTY—Application 6603. J. L. Firpo and John Caraglio, c/o Hugh K. Landram, Merced, for 4 c.f.s., April 1st, to Oct. 1st, of each season from Merced River tributary to San Joaquin River to be diverted in Sec. 35, T. 5 S., R. 12 E., M. D. B. and M., for irrigation purposes (329.7 acres). Estimated cost $2,200.

LAKE COUNTY—Application 6604. Martin Judge, Jr. and Co., Crocker First National Bank Bldg., San Francisco, for 250 c.f.s., 175,000 acre-feet per annum from North Fork Cache Creek tributary to Cache 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—Application 6605. Martin Judge Jr. and Co., Crocker First National Bank Bldg., San Francisco, for 175,000 acre feet per annum tributary to North Fork of Cache Creek to be diverted in Sec. 4, T. 14 N., R. 6 W., M. D. M., for irrigation purposes. Estimated cost $1,000,000.

SAN MATEO COUNTY—Application 6606. The Board of Trustees of the Leland Stanford Jr. University, A. F. Rath, Comptroller, Stanford University, Palo Alto, for 10 c.f.s., 5300 acre-feet per annum, from San Francisquito Creek to be diverted in Sec. 17, T. 6 S., R. 3 W., M. D. M., for domestic purposes. Estimated cost $350,000.

SAN MATEO COUNTY—Application 6607. The Board of Trustees of the Leland Stanford Jr. University, A. F. Rath, Comptroller, Stanford University, Palo Alto, for 30 c.f.s., 5300 acre-feet per annum from San Francisquito Creek to be diverted in Sec. 17, T. 6 S., R. 3 W., M. D. M., for irrigation purposes. Estimated cost $350,000.

PLACER COUNTY—Application 6608. Bear River Water and Power Co., c/o J. L. Rollins, Manager, Colfax, for 111,020 acre-feet per annum from Bear River and its tributaries tributary to Feather River to be diverted in Sec. 22, T. 15 N., R. 9 E., M. D. B. and M., for power purposes (4250 h.p.). Estimated cost about $2,000,000

DEL NORTE COUNTY—Application 6609. Geo. C. Walton, Crescent City, for 0.12 c.f.s., Jan. 1st, to Dec. 31st, from Rock Creek tributary to Smith River to be diverted in Sec. 4, T. 16 N., R. 1 E., H. M., for irrigation and domestic purposes (1½ acres). Estimated cost $200.

SAN BERNARDINO COUNTY—Application 6610. Alvin W. Bercaw, 917 W. 35 St., Los Angeles, for 0.25 c.f.s., Jan. 1st, to Dec. 31st, of each season from 5 unnamed springs tributary to Mojave Desert to be diverted in Sec. 27, T. 4 N., R. 2 W., S. B. B. and M., for irrigation and domestic purposes (50 acres). Estimated cost $1,500.

SAN DIEGO COUNTY—Application 6611. Oceanside Mutual Water Co., c/o A. L. Sonderegger, 925 Central Bldg., Los Angeles, for 1000 acre-feet per annum from Calaveras Creek tributary to Agua Hedionda Creek to be diverted in Sec. 34, T. 11 S., R. 4 W., S. B. B. and M., for domestic and irrigation purposes.

SAN JOAQUIN COUNTY—Application 6612. F. J. Dietrich and Geo. W. Leistner and Geo. A. Ditz, c/o Neumiller and Ditz, 605 Bank of Italy Bldg., Stockton, for 1.44 c.f.s. from Calaveras River tributary to San Joaquin to be diverted in Sec. 27, T. 40 N., R. 6 E., M. D. B. and M, for irrigation purposes (115.46 acres).

SAN FRANCISCO COUNTY—Application 6613. L. F. Trumbull, 714 Sheldon Bldg., San Francisco, for 200 gallons per day from unnamed spring tributary to Lower Echo Lake to be diverted in Sec. 1, T. 11 N., R. 17 E., M. D. M., for domestic purposes.

MONO COUNTY—Application 6614. Lloyd Summers, Mammoth Lakes, for 0.68 c.f.s. from Lake Mary tributary to Mammoth Creek-Owens River to be diverted in Sec. 16, T. 4 S., R. 27 E., M. D. B. and M., for domestic purposes. Estimated cost $4,000.

Permits to Appropriate Water issued by The Department of Public Works, Division of Water Resources, during the month of March, 1930.

SANTA CLARA COUNTY—Permit 3442, Application 6167. Issued to Ida M. McArthur et al. Cupertino, March 5, 1930, for 3 c.f.s. from Stevens Creek in Sec. 11, T. 7 S., R. 2 W., M. D. M., for irrigation on 144.9 acres Estimated cost $3,500

SANTA CRUZ COUNTY—Permit 3443, Application 5990. Issued to Anna M. Werner, Santa Cruz, March 6, 1930, for 0.06 c.f.s. from Bean Creek in Sec. 13, T. 10 S., R. 2 W., M. D. M., for irrigation and domestic on 3 acres Estimated cost $450.

SANTA CRUZ COUNTY—Permit 3444, Application 4842. Issued to Forest Lake Mutual Water Company, San Francisco, March 6, 1930, for 0.6 c.f.s. from Gold Gulch and two unnamed tributaries in Sec. 29, T. 10 S., R. 2 W., M. D. M., for domestic use. Estimated cost $10,000.

NEVADA COUNTY—Permit 3445, Application 6484. Issued to Siberia Mine, San Francisco, March 10, 1930, for 1 c.f.s. from Grizzly Creek in Sec. 36, T. 18 N., R. 8 E., M. D. M., for mining use Estimated cost $2,500

PLUMAS COUNTY—Permit 3446, Application 6469. Issued to Henry Hollye, Twain, March 10, 1930, for 0.014 c.f.s. from unnamed spring in Sec. 21, T. 25 N., R. 8 E., M. D. M., for domestic use. Estimated cost $200.

LOS ANGELES COUNTY—Permit 3447, Application 6425. Issued to Joseph Argay, Mt. Wilson, March 12, 1930, for 50 acre-feet per annum from Coldwater Canyon Creek in Sec. 34, T. 3 N., R. 12 W., S. B. M., for mining use. Estimated cost $2,500.

STANISLAUS COUNTY—Permit 3448, Application 6467. Issued to Alexander J. Silveria, Crows Landing, March 17, 1930, for 0.5 c.f.s. from San Joaquin River in Sec. 8, T. 6 S., R. 9 E., M. D. M., for irrigation on 40 acres. Estimated cost $2,000.

DEL NORTE COUNTY—Permit 3449, Application 6503. Issued to C. R. Ward et al., Crescent City, March 17, 1930, for 0.15 c.f.s. from two unnamed creeks in Sec. 19, T. 17 N., R. 2 E., H. M., for domestic use. Estimated cost $2,000.

SUTTER COUNTY—Permit 3450, Application 6504. Issued to Frank Berry, Yuba City, March 18, 1930, for 0.5 c.f.s. from Feather River in Sec. 4, T. 14 N., R. 3 E., M. D. M., for irrigation on 40 acres. Estimated cost $1,100.

MENDOCINO COUNTY—Permit 3451, Application 6426. Issued to Neil G. MacKinnon, Cummings, March 18, 1930, for 26,000 gallons per day from Big Dan Creek in Sec. 12, T. 23 N., R. 17 W., M. D. M., for irrigation and domestic use on 16 acres. Estimated cost $1,200.

AMADOR COUNTY—Permit 3452, Application 6032. Issued to Pacific Gas & Electric Company, San Francisco, March 24, 1930, for 200 c.f.s. and 50,000 acre-feet per annum from Bear River and Cold Creek in Secs. 19 and 28, T. 8 N., R. 16 E., M. D. M., for power purposes. Estimated cost $7,000,000.

SUTTER COUNTY—Permit 3453, Application 6457. Issued to E. H. Christenson & Son, Yuba City, March 26, 1930, for 10.96 c.f.s. from East Dredge Cut of Sutter By-pass in Sec. 28, T. 13 N., R. 3 E., M. D. M., for irrigation on 438.68 acres. Estimated cost $6,000.

LOS ANGELES COUNTY—Permit 3454, Application 1562. Issued to City of Pasadena Water Department, Pasadena, March 26, 1930, for 14.5 c.f.s. from Arroyo Seco in Sec. 5, T. 1 N., R. 12 W., S. B. M., for municipal purposes. Estimated cost $290,000.

SUTTER COUNTY—Permit 3455, Application 6533. Issued to A. M. Donahoe, Yuba City, March 27, 1930, for 1 c.f.s. from Feather River in Sec. 14, T. 14 N., R. 3 E., M. D. M., for irrigation on 80 acres. Estimated cost $2,500.

MERCED COUNTY—Permit 3456, Application 6470. Issued to San Joaquin Light & Power Corporation, Fresno, March 31, 1930, for 1750 c.f.s. from Merced River in Sec. 4, T. 5 N., R. 15 E., M. D. M., for power purposes. Estimated cost $100,000.

SAN DIEGO COUNTY—Permit 3457, Application 6357. Issued to Edith Austin Ayres, San Diego, March 31, 1930, for 100,000 gallons per day from six springs unnamed in Secs. 29, 32 and 33, T. 12 S., R. 4 E., S. B. M., for domestic use. Estimated cost $32,500.

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 March, 1930.

STANISLAUS COUNTY—Woodward Reservoir Dam No. 66. South San Joaquin Irrigation District, Manteca, owner; earthfill, 60 feet above streambed with a storage capacity of 35,000 acre-feet. Situated on main supply canal in Sec. 9, T. 1 S., R. 10 E., M. D. M., for storage and regulation purposes for irrigation use. Estimated cost $225,000.

EL DORADO COUNTY—Williamson Dam No. 464. Hector Williamson, Placerville, owner; earth fill, 25 feet above streambed with a storage capacity of 92.4 acre-feet. Situated on an unnamed creek tributary to Webber Creek in Sec. 35, T. 11 N., R. 9 E., for storage purposes for irrigation use.

MARIPOSA COUNTY—Exchequer Dam No. 58-2. Merced Irrigation Company, Merced, owner; arch gravity, 288 feet above streambed with a storage capacity of 289,000 acre-feet. Situated on Merced River in Sec. 13, T. 4 S., R. 15 E., M. D. M., for storage purposes for irrigation and power use. Estimated cost $5,116,073.

LOS ANGELES COUNTY—Twin Lakes Park Lower Dam No. 774. Nelson A. Gray, Glendale, owner; concrete, 31 feet and five inches above streambed. Situated on Browns Canyon in Sec. 7, T. 2 N., R. 16 W., S. B. M., for diversion purposes for recreation use.

LOS ANGELES COUNTY—Twin Lakes Park Upper Dam No. 774-2. Twin Lakes Park Company, Los Angeles, owner; gravity, 24 feet above streambed. Situated on Devils Creek tributary to Aliso Canyon in Sec. 7, T. 2 N., R. 16 W., S. B. M., for diversion purposes for recreation use.

TUOLUMNE COUNTY—Don Pedro Dam No. 68. Turlock & Modesto Irrigation Districts, Turlock and Modesto, owners; gravity arch, 264 feet above streambed with a storage capacity of 289,000 acre-feet. Situated on Tuolumne River tributary to San Joaquin River in Sec. 35, T. 2 S., R. 14 E., M. D. M., for storage purposes, for irrigation and power use. Estimated cost $3,097,419.

STANISLAUS COUNTY—La Grange Dam No. 68-2. Turlock & Modesto Irrigation Districts, Turlock and Modesto, owners; masonry, 129 feet above streambed with a storage capacity of 500 acre-feet. Situated on Tuolumne River tributary to San Joaquin River in Sec. 16, T. 3 S., R. 14 E., M. D. M., for diversion purposes for irrigation and power use. Estimated cost $550,000.

STANISLAUS COUNTY—Owen Reservoir Dam No. 68-3. Turlock Irrigation District, Turlock, owner; buttress, 46 feet above streambed with a storage capacity of 49,000 acre-feet. Situated on Main Canal in Sec. 1, T. 4 S., R. 12 E., M. D. M., for regulation purposes for irrigation use. Estimated cost $35,417.

LOS ANGELES COUNTY—Verdugo Road Dam No. 5-3. City of Glendale, Glendale, owner; earthfill, 22½ feet high with a storage capacity of 23 acre-feet. Situated on no stream for storage purposes for municipal use. Estimated cost $60,800.

LOS ANGELES COUNTY—Tenth and Western Dam No. 5-4. City of Glendale, Glendale, owner; earthfill, 23½ feet high with a storage capacity of 46 acre-feet. Situated on no stream for storage purposes for municipal use. Estimated cost $78,190.

LOS ANGELES COUNTY—Chevy Chase Dam No. 5-5. City of Glendale, Glendale, owner; earthfill, 24 feet high with a storage capacity of 46 acre-feet. Situated on no stream for storage purposes for municipal use. Estimated cost $84,475.

MODOC COUNTY—Payne Dam No. 143. H. G. and R. A. Payne, Alturas, owners; earthfill, with a storage capacity of 2000 acre-feet. Situated on no stream tributary to the South Fork of Pit River in Sec. 15, T. 41 N., R. 13 E., M. D. M., for storage purposes for irrigation use.

NEVADA COUNTY—Farad Dam No. 105. Sierra Pacific Power Company, Reno, Nevada, owner; crib, 8 feet above streambed. Situated on Truckee River in Sec. 30, T. 18 N., R. 18 E., M. D. M., for diversion purposes for power use.

NEVADA COUNTY—Fleish Dam No. 105-2. Sierra Pacific Power Company, Reno, Nevada, owner; crib, 10 feet above streambed. Situated on Truckee River in Sec. 18, T. 18 N., R. 18 E., M. D. M., for diversion purposes for power use.

EL DORADO COUNTY—Loon Lake Dam No. 105-3. Sierra Pacific Power Company, Reno, Nevada, owner; gravity, 30 feet above streambed with a storage capacity of 8000 acre-feet. Situated on Gerle Creek tributary to Rubicon River in Sec. 4, T. 13 N., R. 15 E., M. D. M., for storage purposes for domestic and irrigation use.

RIVERSIDE COUNTY—Fishermans Retreat No. 1 Dam No. 811. D. Gerster, Redlands, owner; earthfill, 14 feet above streambed. Situated on San Timoteo Creek tributary to Santa Ana River in Sec. 28, T. 2 S., R. 2 W., S. B. M., for storage purposes for irrigation use.

RIVERSIDE COUNTY—Fishermans Retreat No. 2 Dam No. 811-2. D. Gerster, Redlands, owner; earthfill, 4 feet above streambed. Situated on San Timoteo Creek tributary to Santa Ana River in Sec. 28, T. 2 S., R. 2 W., S. B. M., for storage purposes, for irrigation use.

EL DORADO COUNTY—Webber Creek Dam No. 53. El Dorado Irrigation District, Placerville, owner; multiple arch, 85 feet above streambed with a storage capacity of 1275 acre-feet. Situated on Webber Creek tributary to South Fork American River in Sec. 18, T. 10 N., R. 12 E., M. D. M., for storage purposes for irrigation use. Estimated cost $180,000.

EL DORADO COUNTY—Blakely Dam No. 53-2. El Dorado Irrigation Company, Placerville, owner; earthfill, 20 feet above streambed with a storage capacity of 175 acre-feet. Located in Sec. 12, T. 10 N., R. 11 E., M. D. M., for regulating purposes for municipal use.

PLACER COUNTY—Morning Star Dam No. 325. McGeachin Placer Gold Mining Company, Sacramento, owner; earthfill, 40 feet above streambed with a storage capacity of 2200 acre-feet. Situated on Shirttail Creek tributary to North Fork of American River in Sec. 17, T. 15 N., R. 11 E., M. D. M., for storage purposes for domestic, power and mining uses. Estimated cost $50,000.

SAN BERNARDINO COUNTY—Chino Ranch No. 1 Dam No. 801. Scott Investment Company, Rowland & Chandis, Los Angeles, owners; earthfill, 14 feet above streambed. Situated on a branch of Brea Canyon in Sec. 13, T. 2 S., R. 9 W., S. B. M., for storage purposes for irrigation use.

SAN BERNARDINO COUNTY—Chino Ranch No. 2 Dam No. 801-2. Scott Investment Company, Rowland & Chandis, Los Angeles, owners; earthfill, 18 feet above streambed. Situated on branch of Brea Canyon in Sec. 13, T. 2 S., R. 9 W., S. B. M., for storage purposes for irrigation use.

SAN BERNARDINO COUNTY—Chino Ranch No. 3 Dam No. 801-3. Scott Investment Company, Rowland & Chandis, Los Angeles, owners; arch, 27 feet above streambed. Situated on branch of Brea Canyon in Sec. 13 S., T. 2 S., R. 9 W., S. B. M.

YUBA AND PLACER COUNTIES—Camp Far West Dam No. 52. Camp Far West Irrigation District, Wheatland, owner; gravity arch, 42 feet above streambed with a storage capacity of 5000 acre-feet. Situated on Bear River tributary to Feather River in Sec. 21, T. 14 N., R. 6 E., M. D. M., for storage purposes for irrigation use. Estimated cost $166,978.

NEVADA COUNTY—Bowman Diversion Dam No. 61. Nevada Irrigation District, Grass Valley, owner; arch, 21 feet above streambed. Situated on Canyon Creek tributary to South Yuba River in Sec. 8, T. 18 N., R. 12 E., M. D. M., for diversion purposes for irrigation and other uses.

PLUMAS COUNTY—Feather River Improvement Dam No. 282. Feather River Improvement Company, Blairsden, owner; rockfill, 10 feet high with a storage capacity of 150 acre-feet. Situated on no stream tributary to Feather River in Sec. 7, T. 22 N., R. 12 E., M. D. M., for storage purposes for irrigation use.

SANTA CLARA COUNTY—Grant Company No. 1 Dam No. 621. Grant Company, San Francisco, owner; earthfill, 22 feet above streambed with a storage capacity of 25 acre-feet. Situated on Arroyo Aguague, tributary to Penitencia Creek located in Rancho Canada de Pala for Diversion purposes for irrigation use. Estimated cost $6,000.

SANTA CLARA COUNTY—Grant Company No. 2 Dam No. 621-2. Grant Company, San Francisco, owner; earthfill, 14 feet above streambed with a storage capacity of 180 acre-feet. Situated on Arroyo Aguague tributary to Penitencia Creek located in Rancho Canada de Pala for storage purposes for irrigation use. Estimated cost $2,000.

SIERRA COUNTY—Webber Lake Dam No. 295. Hobart Estate Company, Hobart Mills, owner; wood. Situated on Little Truckee River tributary to Truckee River in Sec. 28, T. 19 N., R. 14 E., M. D. M., for storage purposes for recreation use.

SIERRA COUNTY—Independence Lake Dam No. 295-2. Hobart Estate Company, Hobart Mills, owner; wood. Situated on Independence Lake tributary to Little Truckee River in Sec. 24, T. 19 N., R. 15 E., M. D. M.

LAKE COUNTY—Bucksnort Dam No. 392. Estate of W. F. Detert, San Francisco, owner; earthfill, 30 feet above streambed with a storage capacity of 1000 acre-feet. Situated on Bucksnort Creek tributary to Putah Creek in Sec. 9, T. 10 N., R. 6 W., M. D. M., for storage purposes for irrigation use. Estimated cost $100,000.

AMADOR COUNTY—Central Eureka Dam No. 476. Central Eureka Mining Company, Sutter Creek, owner; earthfill, 17 feet above streambed with a storage capacity of 10 acre-feet. Situated on Anderson Gulch tributary to Sutter Creek in Sec. 7, T. 6 N., R. 12 E., M. D. M., for storage purposes for irrigation and debris use.

SAN BERNARDINO COUNTY—Arrow Bear Dam No. 807. Arrow Bear Lake Company, Los Angeles, owner; gravity, 10 feet above streambed. Situated on South Fork of Deep Creek tributary to Deep Creek for storage purposes for recreation use. Estimated cost $5,000.

SISKIYOU COUNTY—Pruett Dam No. 184. R. H. Pruett, Yreka, owner; earthfill, 20 feet above streambed for storage purposes for domestic use.

LASSEN COUNTY—Triplet Dam No. 247. James Olsen, Madeline, owner; earthfill, with a storage capacity of 40 acre-feet. Situated on hill watershed in Sec. 23, T. 37 N., R. 13 E., M. D. M., for storage purposes for irrigation use.

TEHAMA COUNTY—Dunn Ranch Dam No. 261-2. C. Fred Holmes, Gerber, owner; earthfill, 11 feet above streambed with a storage capacity of 115 acre-feet. Situated on Dry Gulch tributary to Sacramento River in T. 25 N., R. 2 W., M. D. M., for storage purposes for stock watering use.

LOS ANGELES COUNTY—Malibu Dam No. 773. Marblehead Land Company, Los Angeles, owner; concrete, 102 feet above streambed with a storage capacity of 574 acre-feet. Situated on Malibu Creek in Sec. 19, T. 1 S., R. 17 W., S. B. M., for storage purposes for irrigation and domestic use. Estimated cost $152,927.59.

MODOC COUNTY—James Flat Dam No. 121. W. O. Blasingame and Fred H. Huffman, Alturas, owners; earthfill, 14 feet above streambed with a storage capacity of 1108 acre-feet. Situated on Mosquito Creek tributary to Willow Creek in Sec. 25, T. 47 N., R. 10 E., M. D. M., for diversion and storage purposes for irrigation use. Estimated cost $7,500.

MODOC COUNTY—Antelope Dam No. 121-3. W. O. Blasingame and Fred H. Huffman, Alturas, owners; earthfill, 10 feet above streambed with a storage

capacity of 1550 acre-feet. Situated on South End of Antelope Plains tributary to Clover Swale and Pit River in Sec. 11, T. 43 N., R. 10 E., M. D. M., for diversion and storage purposes for irrigation use. Estimated cost $3,500.

RIVERSIDE COUNTY—Holmes Dam No. 1 No. 816. Lawrence Holmes, Arlington, owner; concrete, 27 feet above streambed with a storage capacity of 65 acre-feet. Situated on Cajolca Canyon tributary to Tamascal Canyon in Sec. 12, T. 4 S., R. 6 W., S. B. M., for storage purposes for irrigation use. Estimated cost $20,000.

NEVADA COUNTY—Lake Vera Dam No. 303. W. H. Griffith, Nevada City, owner; buttress, 16 feet above streambed with a storage capacity of 136.24 acre-feet. Situated on Rock Creek tributary to South Yuba River in Sec. 25, T. 1 N., R. 9 W., M. D. M., for storage purposes for recreation use. Estimated cost $4,000.

ALAMEDA COUNTY—Central Reservoir Dam No. 31. East Bay Municipal Utility District, Oakland, owner; earthfill, 50 feet high with a storage capacity of 485 acre-feet. Situated on Hopkins street and 23d avenue for storage purposes for domestic use.

ALAMEDA COUNTY—Berryman Reservoir Dam No. 31-8. East Bay Municipal Utility District, Oakland, owner; earthfill, 40 feet high with a storage capacity of 69 acre-feet. Situated on Euclid avenue, north of Rose street, Berkeley, for storage purposes for municipal use.

ALAMEDA COUNTY—Piedmont No. 1 Reservoir Dam No. 31-10. East Bay Municipal Utility District, Oakland, owner; earthfill, 50 feet high with a storage capacity of 33.76 acre-feet. Situated on Bullard Drive and Estates Drive, Piedmont, for storage purposes for municipal use.

ALAMEDA COUNTY——Claremont Reservoir Dam No. 31-9. East Bay Municipal Utility District, Oakland, owner; earthfill, 17 feet high with a storage capacity of 25.16 acre-feet. Situated at Claremont avenue and Webster street, Berkeley, for storage purposes for municipal use.

ALAMEDA COUNTY—Piedmont No. 2, Reservoir Dam No. 31-11. East Bay Municipal Utility District, Oakland, owner; earthfill, 50 feet high with a storage capacity of 59.8 acre-feet. Situated at Scenic and Mulberry streets, Piedmont, for storage purposes for municipal use.

CONTRA COSTA COUNTY—Summit Reservoir Dam No. 31-12. East Bay Municipal Utility District, Oakland, owner; earthfill, 21 feet high with a storage capacity of 116.6 acre-feet. Situated on Spruce street for storage purposes for municipal use.

ALAMEDA COUNTY—39th Avenue Reservoir Dam No. 31-13. East Bay Municipal Utility District, Oakland, owner; earthfill, 16 feet high with a storage capacity of 32.91 acre-feet. Situated at head of Maybelle avenue, Oakland, for storage purposes for municipal use.

MODOC COUNTY—French Dam No. 143-2. G. P. French, Alturas, owner; gate, 7 feet above streambed. Situated on Inland Basin in Sec. 21, T. 41 N., R. 13 E., M. D. M., for storage purposes for stock and irrigation use.

AMADOR COUNTY—Sutter Creek Flushing Dam No. 13. City of Sutter Creek, Sutter Creek, owner; concrete, 14 feet above streambed with a storage capacity of 10 acre-feet. Situated on Sutter Creek in Sec. 8, T. 6 N., R. 11 E., M. D. M., for storage purposes for flushing use. Estimated cost $2,000.

MODOC COUNTY—Round Valley Dam No. 145-8. G. O. Trauzettal, Alturas, owner; earth and rockfill, 8 feet above streambed. Situated on Round Valley tributary to Triangle in Sec. 8, T. 44 N., R. 44 E., M. D. M., for storage purposes for irrigation use.

NEVADA COUNTY—Liberty Hill Dam No. 307. Wm. Maguire and Wm. Nicholls, Jr., Nevada City, owners; earthfill, 50 feet above streambed. Situated on Bear River tributary to Feather River in Sec. 27, T. 15 N., R. 10 E., M. D. M., for storage purposes for debris use.

LASSEN COUNTY—Laxalt Dam No. 248. Peter Laxalt, Madaline, owner; earthfill, 20 feet above streambed with a storage capacity of 50 acre-feet. Situated on McDonald Creek for storage purposes for irrigation and stock use.

RIVERSIDE COUNTY—Liberty Ranch Dam No. 821. C. E. Foxley, Romoland, owner; earthfill, 16 feet above streambed with a storage capacity of 200 acre-feet. Situated on Salt Creek in Sec. 5, T. 6 S., R. 3 W., S. B. M., for storage purposes, for irrigation use. Estimated cost $3,500.

SAN BERNARDINO COUNTY—Green Valley Dam No. 804. De Witt-Blair Realty Company, Los Angeles, owner; multiple arch, 60 feet above streambed with a storage capacity of 250 acre-feet. Situated on Green Valley Creek tributary to Deep Creek in Sec. 22, T. 2 N., R. 2 W., for storage purposes for recreation use. Estimated cost $60,000.

AMADOR COUNTY—Treasure Debris Dam No. 473. Treasure Mining Company, San Francisco, owner; arch, 28 feet above streambed with a storage capacity of no acre-feet. Situated on Rancheria Creek tributary to Mokelumne River in Sec. 36, T. 7 N., R. 10 E., M. D. M., for storage purposes for debris use.

FRESNO AND MADERA COUNTIES—Mendota Dam No. 683. San Joaquin & Kings River Canal and Irrigation Company, Inc., San Francisco, owner; concrete, 17 feet above streambed with a storage capacity of 3000 acre-feet. Situated on San Joaquin River in Sec. 19, T. 13 S., R. 15 E., M. D. M., for diversion purposes for irrigation use.

FRESNO COUNTY—Sequoia Lake Dam No. 693. Sequoia Lake Conference, Y. M. C. A., Fresno, owner; rockfill, 47 feet above streambed with a storage capacity of 3000 acre-feet. Situated on Mill Flat Creek tributary to Kings River in Sec. 1, T. 14 S., R. 27 E., M. D. M., for storage purposes for recreation use.

CONTRA COSTA COUNTY—Mt. Diablo Dam No. 583. Mt. Diablo Country Club, Diablo, owner; earthfill, 15 feet above streambed with a storage capacity of 95 acre-feet. Situated on Green Valley tributary to San Ramon Creek in Sec. 21, T. 1 S., R. 1 W., M. D. M., for storage purposes for recreation use.

CONTRA COSTA COUNTY—Black Hills Dam No. 583-2. Mt. Diablo Country Club, Diablo, owner; earthfill, 38 feet above streambed with a storage capacity of 27 acre-feet. Situated on an unnamed creek tributary to Green Valley Creek in Sec. 14, T. 1 S., R. 1 W., M. D. M., for storage purposes for recreation use.

LOS ANGELES COUNTY—Little Rock Dam No. 57. Little Rock & Palmdale Irrigation District, Little Rock and Palmdale, owners; multiple arch, with a storage capacity of 5400 acre-feet. Situated on Little Rock Creek in Sec. 27, T. 5 N., R. 11 W., S. B. M., for diversion and storage purposes for irrigation use.

SAN BERNARDINO COUNTY—Wiggins Hill Dam No. 17. City of San Bernardino, San Bernardino, owner; earthfill, 15.6 feet above streambed with a storage capacity of 36.8 acre-feet. Situated on Devil Canyon tributary to Santa Ana River for diversion purposes for municipal use. Estimated cost $6,000.

SANTA CRUZ COUNTY—Boyea Creek Dam No. 96. Coast Counties Gas & Electric Company, Santa Cruz, owner; timber, 13 feet above streambed with a storage capacity of 50 acre-feet. Situated on Boyea Creek tributary to Big Creek in Sec. 5, T. 10 S., R. 3 W., M. D. M., for storage purposes for power use.

SANTA CRUZ COUNTY—Mill Creek Dam No. 96-2. Coast Counties Gas & Electric Company, Santa Cruz, owner; rock crib, 50 feet above streambed with a storage capacity of 350 acre-feet. Situated on Mill Creek tributary to Scotts Creek in Sec. 29, T. 9 S., R. 3 W., M. D. M., for storage purposes for power use.

YUBA COUNTY—Boyer Dam No. 61-11. Nevada Irrigation District, Grass Valley, owner; earthfill, 20 feet high with a storage capacity of 50 acre-feet. Situated on Excelsior Ditch in Sec. 2, T. 15 N., R. 6 E., M. D. M., for regulation purposes for irrigation use.

PLUMAS COUNTY—Tailings Dam No. 271. Walker Mining Company, Spring Garden, owner; earthfill, 25 feet above streambed with a storage capacity of 57 acre-feet. Situated on Little Grizzly Creek tributary to Indian Creek in Sec. 12, T. 24 N., R. 11 E., M. D. M., for storage purposes for debris use. Estimated cost $38,000.

RIVERSIDE COUNTY—Holmes Upper Dam No. 816-2. Lawrence Holmes, Arlington, owner; reinforced concrete, 18 feet above streambed with a storage capacity of 50 acre-feet. Situated on Cajolca Canyon tributary to Tamascal Creek for storage purposes for irrigation use.

PLUMAS COUNTY—Australia Dam No. 275. Australia Placer Mining Company, Quincy, owner; rockfill. Situated on Waupensie Creek tributary to Spanish Creek for storage purposes for debris use.

MONO COUNTY—Walker Lake Dam No. 533. Farrington Estate, Mono Lake, owner; earth and rockfill; 6 feet above streambed with a storage capacity of 597 acre-feet. Situated on Walker Lake tributary to Mono Lake in Sec. 7, T. 1 S., R. 26 E., M. D. M., for storage purposes for irrigation use. Estimated cost $2,000.

MONO COUNTY—Sardine Lake Dam No. 533-2. Farrington Estate, Mono Lake, owner; rockfill, 10 feet above streambed with a storage capacity of 305 acre-feet. Situated on Sardine Lake tributary to Walker Creek and Mono Lake in Sec. 15, T. 1 S., R. 25 E., M. D. M., for storage purposes for irrigation use. Estimated cost $500.

NEVADA COUNTY—Omega Dam No. 302. South Yuba Mining & Development Company, San Francisco, owner; arch, 54 feet above streambed. Situated on Scotchman Creek tributary to South Yuba River for storage purposes for debris use. Estimated cost $13,000.

Applications for approval of plans and specifications for construction or enlargement of dams filed with the State Department of Public Works, Division of Water Resources, during the month of March, 1930.

BUTTE COUNTY—Lake Madrone Dam No. 342. George Mansfield and Duncan McCallum, Oroville, owners; Ambursen, 27 feet above streambed. Situated on Berry Creek tributary to Feather River in Sec. 27, T. 21 N., R. 5 E., M. D. M., for storage purposes for recreation use. Estimated cost $20,000. Fees paid $200.

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

EL DORADO COUNTY—Rupley Dam No. 463. A. J. Rupley, Placerville, owner; earthfill. Situated on Webber Creek tributary to American River in Sec. 11, T. 11, R. 11.

SAN BERNARDINO COUNTY—Arrow-Bear Dam No. 807. Arrow-Bear Lake Corporation, Los Angeles, owner; gravity. Situated on South Fork of Deep Creek tributary to Deep Creek.

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 March, 1930.

LOS ANGELES COUNTY—Glendale Park Manor Dam No. 5-2. City of Glendale, Glendale, owner; earthfill, 270 feet high with a storage capacity of 10.7 acre-feet. Situated on no stream for storage purposes for municipal use. Estimated cost $49,300. Total.

CONTRA COSTA COUNTY—Chenery Dam No. 581. California Water Service Company, San Francisco, owner; earthfill, 30.5 feet above streambed with a storage capacity of 3113 acre-feet. Situated on no stream tributary to Sacramento River for storage purposes for industrial and domestic use. Estimated cost $300,000.

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

MARIN COUNTY—Belvedere Dam No. 33-4. Marin Municipal Utility District, San Rafael, owner; earthfill. Nature of Repairs—Installing new outlet pipe.

LOS ANGELES COUNTY—Malibou Lake Dam No. 771. Malibou Lake Mountain Club, Los Angeles, owner; arch. Situated on Malibou Creek in Sec. 12, T. 1 S., R. 18 W., S. B. M.

MOUNTAINS

By HARRY T. FEE.

Don't care much for valleys,
Don't hanker much for seas,
But I'm crazy about mountains
All carpeted with trees.

Where the songs of birds and branches
Meet the singing of a stream,
And the sun is just a gleaming
Like the rapture of a dream.

There's a lot o' pretty scenery
In this old world as a whole,
But it's only in the mountains,
I seem to lose my soul.

They're prettier than roses,
Or springtime daffodils.
Oh—I'm crazy about mountains—
I'm daffy about hills.

And though I count the glory
Of each supernal world—
The drama of song and story
Which history has unfurled,

There's nothing in creation
To me so set apart,
As this beauty of the mountains
That sits upon my heart.

STATE OF CALIFORNIA

Department of Public Works

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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
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