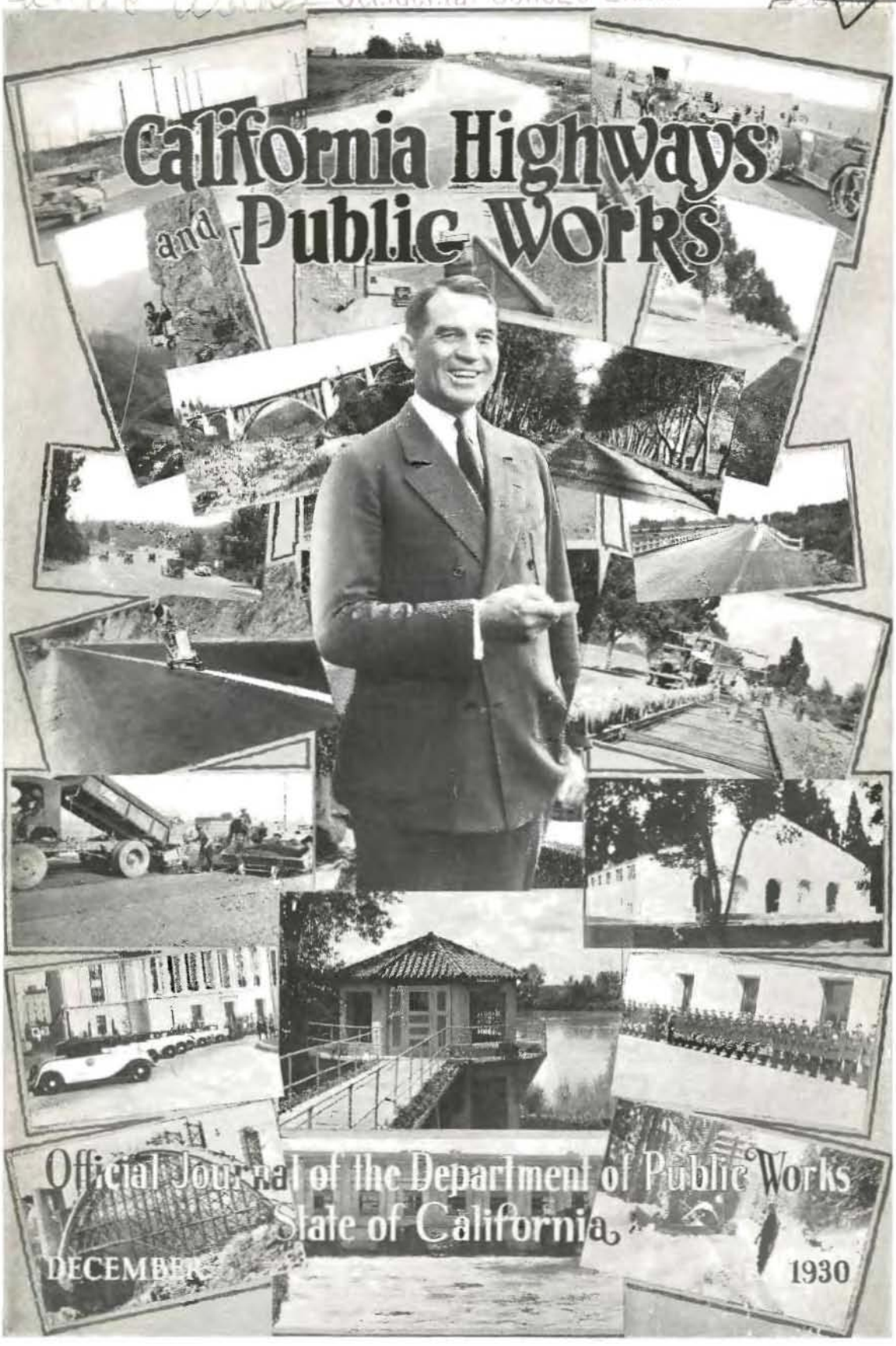


California Highways and Public Works

Official Journal of the Department of Public Works
State of California

DECEMBER 1930

Table of Contents

A Message From the Director

By B. B. Meek, Director of the Department of Public Works

IN THE first issue of California Highways and Public Works, I wrote to the members of the Department of Public Works as follows:

THE THOUGHT that I would convey to every official and every employee of the Department of Public Works in this, the first issue of California Highways and Public Works, is that YOU form the BUILDING branch of the state government of California.

To be a builder is a great thing.

To be a BUILDER OF CALIFORNIA should be sufficient to enthrall the imagination, arouse the ambition and enlist the energy and the efforts of every one to whom has been given the privilege of such service.

For IT IS a privilege to have an active part in building California into the great commonwealth that geography and nature both intended it to become.

And as the privilege is great, so is the responsibility.

To those of us to whom is now entrusted the responsibility of building the highways of the state; of developing its water resources; of planning, designing and constructing its public buildings, the thought should ever come that if we do our work well, the prosperity, the well being, the happiness of the people of this state for centuries to come will reflect the fact that our service was well and honorably performed.

And it is in these terms of human value that I would ask those who are connected with the department to view their tasks.

When pouring concrete or spreading asphalt, we are building not roads alone, but we are also building happiness, contentment, comfort, patriotism and loyalty into the lives of a whole people.

And so it is with every activity of every division of this department. It is PEOPLE whom we are building and not things. * * *

The department is entitled to your best and independent judgment on all matters that affect your work here. This is no place for "Yes-men" or "Amen-ers."

We must be willing, yes anxious, to work with others, knowing that the job is too big for any one person.

We must give some thought to the other fellow's problems, and in our turn must be willing to accept suggestions from the other fellow. An outside viewpoint sometimes corrects an opinion, faulty by reason of being formed from "too close a close-up."

We must recognize that the interest of this glorious state of ours always comes first.

We must realize that primarily we are dealing with human values.

We must BELIEVE in the California that has been, that is, and that is to be.

Therein is the code for the conduct of our duties.

Accept it as a challenge or receive it as a religion, as you wish.

Be that as it may be, it is the steel tape by which the usefulness of each and every one of us engaged in this work must and will be measured.

In a few days my term of office as Director of the Department will end. At this time, I desire to thank my associates and co-workers in the department for the magnificent response that has been made to the ideals that we first set before ourselves.

No official could have received more and better cooperation than has been accorded me, both from those immediately associated with me in the great work of building California, and from the public as a whole.

This support has been most loyal, and that is in agreement with the only quality of loyalty that I believe any public official has the right to ask or expect, namely, a loyalty that recognizes that its first obligation lies to the people of the State of California rather than to the particular person who may be in administrative control for the moment. This is a continuing loyalty that takes no cognizance of changes in administration but always gives to the state the best in ability and the best in service that the individual possesses. It is this loyalty that I have desired, a loyalty that recognizes its first duty to the state, and this is the quality of loyalty that I have received.

I bespeak for the new administration and for my sucessor, the incoming director, the same degree of able and gracious support accorded me, and which has made my work, however heavy it might appear, not a burden, but an ever-continuing and increasing joy.

If we of the Department of Public Works have lived up to the ideals to which we set ourselves four years ago; if we have been able to keep faith with the people of California; if we have been of assistance in relieving the distress of the unemployed; if we have been a factor in building a better and more beautiful state—we can take pride in the fact that while we may be forgotten, yet the work that we have done will live on, adding to the comfort, increasing the prosperity, and ever enriching the lives of the people of the great commonwealth whose privilege it has been ours to serve.

DEPARTMENT GRIEVES AT DEATH OF DEPUTY DIRECTOR

Corning De Saules, Deputy Director of the Department of Public Works since the reorganization of the department in 1927, died at his home in Sacramento on Tuesday, December 23d. In his death the state lost the services of a faithful, loyal, and able official.

3107 Men Now at Work Under State Highway Unemployment Relief Program

REPORTS as of Saturday, December 20, 1930, show that the program for unemployment relief upon the state highway system is affording employment to 3107 men who otherwise would be without work.

On that day 1732 men were at work on relief maintenance crews working out from over 200 centers in California. Those men are working upon a three-day-a-week basis and are paid $4 per day. They provide their own board and lodging. The work assigned to them is that which lends itself to the use of a maximum of hand labor and a minimum of machinery.

These crews are organized in addition to the regular maintenance organization. Men given employment on the special relief crews are certified to by community relief agencies as bona fide residents of California and in great need of employment.

In order to afford relief to unemployed labor in the metropolitan areas of California five labor camps have been established and are now carrying their full quota of 250 men each. These camps are respectively located in Plumas County on the Feather River lateral; on the alternate Ridge Route and on the Arroyo Seco Highway in Los Angeles County; on the Yosemite lateral in Mariposa County and on the Carmel-San Simeon Highway in Monterey County. A special relief construction crew of 125 men is working on the latter highway south of Monterey.

The men employed in labor camps are selected by the state free employment agencies and are again selected on the basis of their great need for labor and ability to qualify as bona fide residents of California. They are paid $3 a day and provided with board and lodging. The special construction crew working out of Monterey and Carmel provide their own board and lodging.

EDITORIALS IN STATE HIGHWAY RELIEF PROGRAM

(From the Gridley Globe)

We like Bert Meek's way of relieving the unemployed.

While Congress, the President, governors, etc., are telling what is going to be done and quarrel over appropriations that under their provisions and restrictions will not provide work for months, and even in some cases a year or two to come, Bert, without unnecessary talk, goes ahead providing more and more work for idle men on the state road system, over which he at present has jurisdiction.

Bert's efforts mean that a thousand or two families are already enjoying food and comfort and that Christmas will mean joy to them.

The other method already means that hundreds of thousands of families are in needless misery and that literally millions of children will have a joyless Christmas.

(From the San Luis Obispo Telegram)

While municipal officials, groups of business men, welfare agencies and similar organizations are holding meetings and talking about what to do for the unemployed, the State of California, through the Highway Commission, is going ahead, giving work to the workless.

> California's highway department, under the leadership of Bert B. Meeks, Nipomo boy, and Director of Public Works, jumped into the breach immediately the unemployed crisis reached noticeable proportions, and began to use its organization and all its available funds for relief.

Starting out with plans for establishment of four labor camps in the state to give jobs to at least 1000 men, other plans to give work while the camps were being established, were launched.

Each division of the Commission was authorized to add to the number of men on its maintenance crews, so that in the division with headquarters in San Luis Obispo, 100 men will be on this work before the first of the year.

Still seeking to serve, the officials rushed to completion plans and specifications for contemplated work, advertising for bids at earlier dates than had been planned, so that work would be available during the winter months when, of course, the needs for food and fuel are greatest.

Here is state SERVICE OF THE HIGHEST KIND, social service that will have more wide reaching benefit to the state as a whole than any other thing that the commonwealth could do.

Only the highly organized efficiency of the highway department, coupled with its spirit of doing its best for the state, made possible the great aid that is being given so promptly in this time of need.

> All California should be proud of the Highway Commission, and of the men who compose its personnel throughout the state, and grateful to it for the big thing it is doing.

Doctor: "Well, my dear, you certainly have acute appendicitis."

Patient: "Oh, doctor, don't flatter me so."

Next Ten Years in Highway Building

By C. H. PURCELL, State Highway Engineer

FOR THE past two years the State Division of Highways has been carrying on a study to determine the cost of bringing the present state highway system to a status of improvement to adequately and satisfactorily serve traffic. This study has now been completed and shows the estimated cost to improve the state highway system to adequate standard to be $313,565,906.

Early in the study, several methods of preparing such an estimate presented themselves. An estimate of cost of immediately improving all roads to a standard required by present traffic would present a hypothetical amount which we know is not available. An estimate of cost of improving each route to some arbitrary standard to adequately serve traffic necessary to justify that standard would produce the amounts necessary for such arbitrary standards, but improvements would be carried over a variable period of time for each route and, therefore, would not present a workable basis for such a study. The method of computing these estimates finally decided upon was on the basis of providing adequate service for a definite period. It presents, as nearly as can be determined from data of present and predicted future volume and character of traffic, the amount necessary to make the highways satisfactory in location, type, width, and character for the traffic which will develop over a period of ten years: namely, from July 1, 1931, to June 30, 1941.

The estimated cost will not complete the state highway system. Completion of a highway is a relative term. It does make conservative allowance for growing traffic demands. It provides improvements adequate as measured by the traffic which may be conservatively predicted to develop within that period of time. This estimate of cost should be qualified, as future changes in conditions which can not at present be foreseen may alter probable construction costs.

Various factors influenced the selection of standard and type of road, and, consequently, the costs of providing the type of improvement which, while commensurate with the traffic requirements, will also give consistent and economical returns on the investment. These were: (1) The present facilities, their condition, salvage value, and deficiencies needing correction before an economic program can be continued. (2) Present and future volume and character of traffic on each route or section thereof. (3) The type and width of pavement necessary to serve increased traffic. (4) The economic balance between cost of construction and cost of maintenance under expected traffic conditions. (5) The relative priority or importance of each route.

C. H. PURCELL

The volume and character of traffic using a highway is probably the best measure of the standard and character of construction required. Study of the traffic problem includes consideration of increased standards made necessary by increased legal speed limit; elimination of hazards due to alignment, grade, railroad crossings and important highway intersections; and increased strength of pavement made necessary by larger volume of heavy commercial vehicles moving at greater speed. Modern highway practice demands that increased costs require more care-

ful consideration of such factors as the value of reduced distance providing saving in operating cost and time, safety in design and in control by elimination of hazards, smoothness of pavement for comfort at higher speeds, beautification of roadside, landscape, and structures, and a regard for scenic and recreational features. Ultimate saving and preparation for future logical improvement is important. Failure to build for the future by visualizing its demands and incorporating the necessary features in each stage of the development will increase maintenance and reconstruction costs. The estimate of cost of bringing the present state highway system to an adequate standard was based on a policy developed from a study of such factors with the intent of providing economically and expeditiously the necessary improvement.

ESTIMATES OF AVAILABLE REVENUES

In connection with the preparation of the estimate of cost of bringing the present state highway system to an adequate standard within a ten-year period, estimates were also prepared of revenues which would become available for such action within the same period under the present statutory provisions.

Revenues for state highway construction, reconstruction, and maintenance, with the exception of federal aid funds contributed by the federal government, are secured by direct taxation of the users of the highways. There are four sources: (1) Motor vehicle registration fees. (2) Motor bus franchise fees. (3) The original 2-cent fuel tax effective in 1923. (4) The additional 1-cent fuel tax effective in 1927. One-half of the net income from the first three sources is apportioned to the 58 counties in California for road purposes, and one-half is apportioned to the state for state highway purposes. The entire net income from the fourth source (additional 1-cent fuel tax) is apportioned to the state.

In the estimated revenues available for state highway construction is included the amount of federal aid apportioned to California from appropriations voted by Congress. The estimated amount of this federal aid contribution is based on past appropriations and is included on the assumption that such congressional appropriations will continue. Federal aid is not a direct appropriation immediately available, but must be earned by the application of state funds to projects on the federal aid system. It is paid to the state only after work has been completed.

The estimate of total revenue available to the state for state highway purposes in the ten-year period, July 1, 1931, to June 30, 1940, is $422,015,334. This total revenue is for all purposes in connection with state highway construction, reconstruction, and maintenance.

In order to arrive at a figure of revenues available for actual construction and reconstruction, there must be deducted from this total amount the respective cost of administration, general maintenance, and funds set aside for joint highway district aid. The last named function is provided for by law to be not in excess of 10 per cent of secondary construction revenues. The total estimated cost of administration, general maintenance, and 10 per cent of secondary construction revenues for joint highway district contribution, is $101,662,583.35. This amount subtracted from the total available revenue leaves a balance of $320,352,750.65. This latter amount is the total revenue available for actual construction and reconstruction of state highways, including right of way and engineering expense.

RELATION OF EXPENDITURES TO REVENUES

The total cost of construction and reconstruction for a ten-year period to bring the present state highway system to an adequate standard for traffic developing during that period amounts to $313,565,906. Probable revenues applicable to such construction and reconstruction during the same period total $320,352,751. Comparison of these independently derived estimates indicates that, considering totals only and the state as an undivided unit, the state highway system could be brought in about ten years to a satisfactory status with respect to traffic demands.

Classification, however, of state roads in primary and secondary routes and statutory division of funds to state districts, constitutes a control which presents an entirely different picture. Construction revenues are divided first 75 per cent to primary and 25 per cent to secondary roads. Both reconstruction and the 75 per cent primary construction funds are divided between the north and south districts of the state on the basis of primary mileage. This division results in 54.7 per cent for the north section and 45.3 per cent for the south section. The secondary 25 per cent construction revenues are divided equally between the north and south sections of the state. Applying revenues so divided against the estimated costs so classified shows that reconstruction and construction of primary highways, both in the north and south sections, can be accomplished within the ten-year period. On secondary construction a deficit

(Continued on page 17.)

The "Braided" Crossing, Latest Phase In the Evolution of Express Highways

By Col. John H. Skeggs, District Engineer

THE first construction work of any kind undertaken by the California State Highway Department between Sausalito and San Rafael was in the year 1914, at which time a grading contract for some six miles of this highway was let.

At that time people had had no past experience with highways and were not educated to foresee the tremendous settlement and property development which would follow in the wake of highway construction, nor were they in a position to visualize the extreme growth of traffic in a short period of time upon the opening of these new roads.

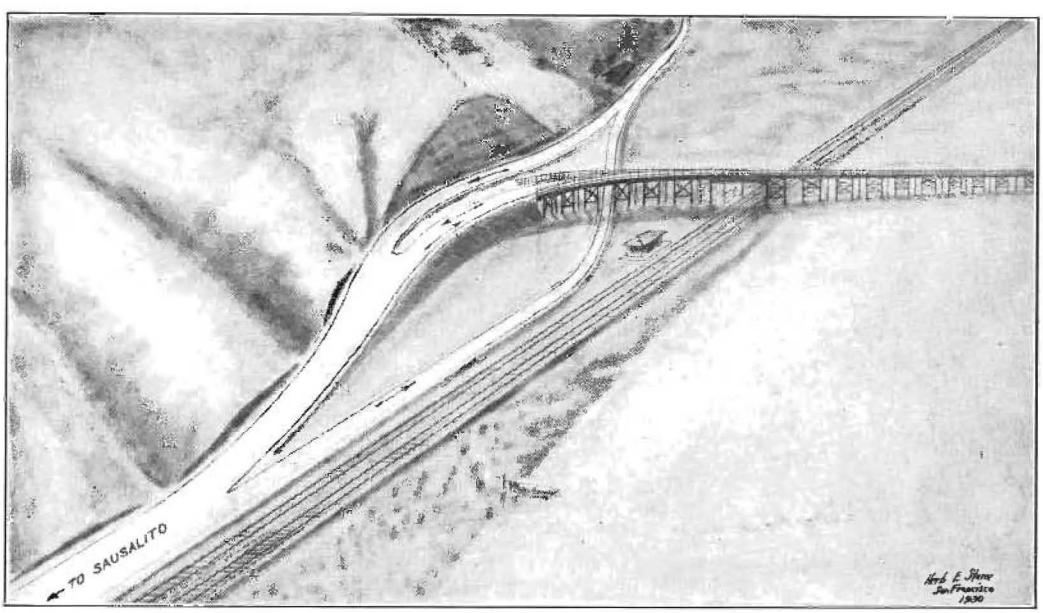
For these reasons funds for highway construction, as voted by the people, were extremely limited and as a result the standards then set up, though entirely adequate to serve the needs of the times, have proven to be entirely inadequate for present day requirements. In right of way problems, in so far as possible, people forced the utilization of old county roads and poorly aligned streets through the settlements and towns. As a rule, the main streets only through the towns were adequate to even be considered in routing the highway. Many settlements had only the one main street. As a result, business growth on those streets was accentuated, traffic demands being more or less of a local nature.

With the growth of business the parking problem came into being, and, with cars parked along the sides of these business streets the effective width of the roadway for travel was narrowed, causing congestion. This condition in the towns was emphasized by rapidly increasing traffic upon cross streets.

Another heavy factor in increasing traffic demands was the development of the automobile. The first models, with the exception of a few of the higher priced cars, could scarcely attain a speed exceeding 40 miles per hour. Due to this fact, long trips causing through traffic were rare in comparison to those of today.

TRUNK HIGHWAYS AND CITY STREETS

With the development of fast cars at a moderate price came the desire of people to



Braided crossing at Manzanita Station, showing the south end of the bridge over Richardson Bay. The picture is taken looking northerly

settle farther out from the business centers, and long trips at high speed are now an everyday occurrence. Consequently, through traffic, as far as highways are concerned, has entirely overshadowed the traffic of local demands.

With the development of through traffic came a cry from business men in some communities that trunk highways are not a benefit to them, but a damaging influence to their business; due, first, to the parking problems involved, and, secondly, to the present desire of people to keep out of any sort of traffic jams.

The people now are educated to the extreme economic influence of through roads and highways; and, with the passage of the gasoline tax, a sufficient amount of money has become available to rebuild these highways to conform to the requirements of today.

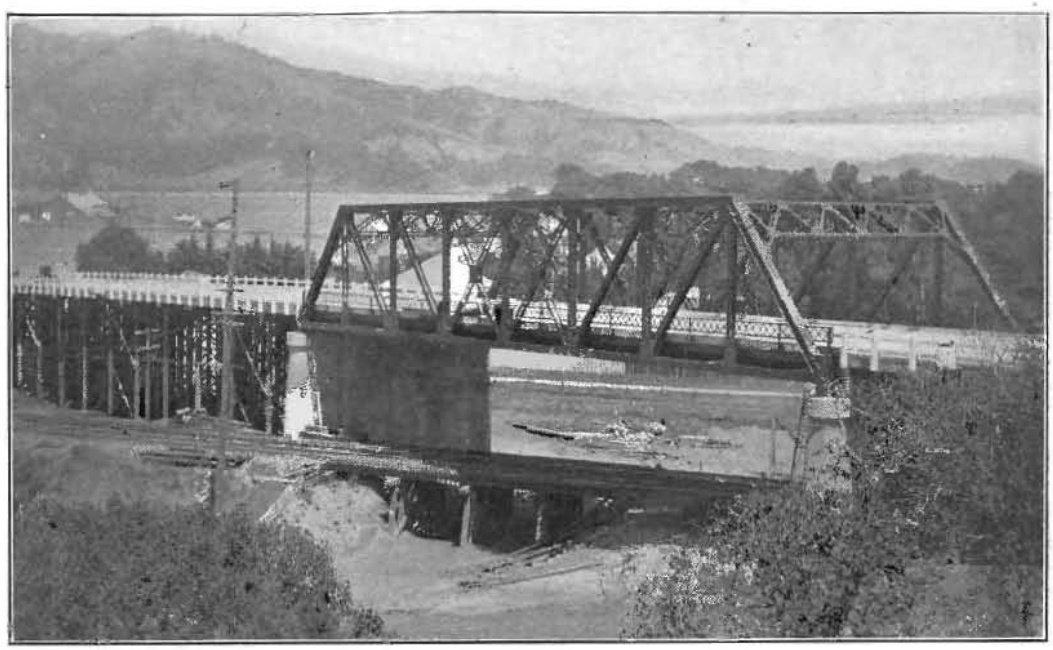
SAUSALITO-SAN RAFAEL DEVELOPMENT

This typical condition of development and corresponding reaction was particularly emphasized on that portion of Route 1 known as the Redwood Highway, between Sausalito and San Rafael, and has resulted in an entire relocation of the original highway, which passed through the towns of Corte Madera, Larkspur, Kentfield, Ross and San Anselmo to San Rafael.

That the new route is much more direct is evidenced by a saving in distance of about four miles between the two towns, this being about 30 per cent of the original distance. All towns and settlements have been avoided, and yet are easily available to the new road. The width of the highway has been increased and provision made for still further widening, as traffic demands it. The number of curves has been reduced over 90 per cent and have been changed from short radius, oftentimes reversing turns, to long sweeping curves, heavily superelevated to conform to high speed requirements. Railroad grade crossings have all been eliminated. In short, the highway has been made into an express trunk line, functioning like a huge filling system in taking and depositing each car at its proper destination, with an absolute minimum of delay and a maximum of safety.

THE THREE SECTIONS

The first section of this major express highway, three-quarters of a mile in length and 40 feet in width, from San Rafael to California Park, which also serves Point San Quentin Ferry to Richmond, was opened to traffic in 1929. The second section, from California Park to Alto, a distance of 4.4 miles, was opened to the public, paved 30 feet in width, in August of the present year. The third section of this highway, from Alto to Waldo, is to be let in two contracts, a combined length of two and one-half miles. Bids were taken on October 19th for grading and surfacing two miles, under the supervision of District



A three-deck structure, showing county road beneath and state highway above railroad

IV, Division of Highways; and bids for a bridge one-half mile in length over Richardson Bay and the Northwestern Pacific Railroad tracks being called for on October 26th, to be constructed under the direction of the Bridge Department, Division of Highways. This section involves but one curve of 900-foot radius, this occurring on the south end of the bridge over the bay, which has an effective roadway width of 44 feet. Between Sausalito and Manzanita, the south end of the bridge, the new road is to be paved 40 feet in width. North of the bridge it will be paved to a 30-foot width. The time limit set for completion upon both the bridge and road contracts between Alto and Waldo is 175 days, which means that this road should be opened to the public about July, 1931.

THE ROAD HOG MENACE

The road hog, who is almost altogether responsible for traffic accidents, might be likened to the small boy who was informed by his mother that if he ate another piece of cake he would burst, and received a prompt answer to please give him the cake and then get out of the way. The road hog, though

Highway approaching the braided crossing

warned by safety societies and much publicity regarding the consequences, asks us to give him the road and then get out of the way. He, however, not only endangers his own life but the lives of all with whom he comes in contact. At sixty miles per hour each, two cars from opposite directions approach each other at the rate of 172 feet per second. Such speeds are not now uncommon for short stretches, and the split second human reaction necessary to avert an accident when some road hog takes an undue advantage means the ultimate in safety precautions must be provided by the highway engineer.

Many safety measures have been used in an effort to reduce traffic accidents, among them being: stop and go signals, boulevard stops, flashing red lights, red reflector signals, etc., warning the motorist of cross roads, intersections, sharp curves, etc. White painted traffic stripes, guard rail and guide posts, particularly in those sections of the country where heavy fogs prevail, have added much to the safety of our highways.

Later developments have been of more far-reaching importance, due to their incorporation in the basic engineering design, such as: the elimination of blind intersections, the construction of long, vertical curves and easy alignment for the sole purpose of increasing the sight distance along the highway, and the elimination of railroad grade crossings. The latest development in making our highways as nearly fool-proof as is possible is in construction of the more important highway crossings in such a way as to keep all traffic entering or leaving the highway moving in the same direction.

In the fight for reducing traffic hazard to a minimum, three major structures were built on the section between San Rafael and Alto: a triple overhead structure crossing the Greenbrae and San Quentin branches of the Northwestern Pacific Railroad and a county road at California Park; a new wide bridge over Corte Madera Creek at Greenbrae; and an overhead crossing at the Northwestern Pacific Greenbrae branch line at Detour. Two wide sweeping Ys have been provided at the California Park intersection with the Point San Quentin State Highway, and four such Y connections at the Alto-Tiburon State Highway crossing.

THE "BRAIDED" CROSSING

For the section of highway between Alto and Waldo there has been designed what might be called a "braided" crossing. Fully 80 per cent of the northbound traffic from Sausalito is expected to continue upon the main highway onto the bridge over the railroad tracks and Richardson Bay to San Rafael and San Anselmo, or diverting by connecting roads to Belvedere, Tiburon, Larkspur, Corte Madera, Kentfield, Ross and San Quentin. The other 15 to 20 per cent might be expected to swing off to the right upon a roadway passing under the bridge structure and connecting beyond and on the left to the present highway, which is later to be taken over by Marin County. Similarly, southbound traffic from Mill Valley and its adjacent territory, using the present road, will swerve to the right just before reaching the new highway junction to drive onto the new road a few hundred yards farther south.

(Continued on page 29.)

Conclusions on S. F. Bay Bridge Project Announced by Hoover-Young Commission

COPIES of the report of the Hoover-Young San Francisco Bay Bridge Commission, with the recommendation of that body, have been released to the public through the publication of the Commission's report. This report which is addressed to President Hoover and Governor C. C. Young comprises a most complete and comprehensive analysis of the San Francisco Bay project.

Conclusions of the Commission are as follows:

(a) To meet the present and future needs of the several communities a crossing for traffic between San Francisco and the East Bay cities is necessary.

(b) Consistent with meeting the traffic needs and engineering requirements the type and location of a bay crossing should be such that it will not unreasonably obstruct future navigation nor cause serious interference with or constitute a serious menace to the operations of the Navy in time of war.

(c) Because of the limitations, cost of construction and operation a vehicular tunnel under the bay is inadvisable.

(d) As indicated by the rock explorations the only location upon which to base a high level bridge is on a line from Rincon Hill to Goat Island.

(e) A bridge on the location designated as Location No. 4, from Rincon Hill via Goat Island thence parallel to the Key Route mole, is practicable from an engineering standpoint. It is economically feasible under a proper fiscal plan and will adequately serve the needs of transbay traffic.

(f) The bridge should conform to the following specifications:

(g) The bridge shall provide at least six lanes for vehicular traffic and in addition five lanes for interurban and heavy automobile truck traffic.

(h) The bridge between San Francisco and Goat Island shall consist of not more than four main spans, the westerly one of which shall have a horizontal clearance of not less than 1750 feet between fenders.

(i) The vertical clearance of the two center spans shall be not less than 214 feet above M.H.H.W. at the center of the spans, and this height shall be maintained for approximately 500 feet on either side of the center of the span, and the minimum vertical clearance at the San Francisco pier head line shall be 180 feet above M.H.H.W.

(j) The main channel span in that portion of the bridge between Goat Island and the east shore shall have a minimum vertical clearance of 180 feet above M.H.H.W. and a minimum horizontal clearance of 600 feet between fenders. Consideration should be given in the final plans to a minimum clearance of 700 feet between fenders.

(k) The final design should be such that it will conform with the scenic beauty of San Francisco Bay.

(l) The details of construction of the bridge structure is the function of the State of California working through the California Toll Bridge Authority.

Consideration of traffic distribution on both sides of the bay is of prime importance and should be worked out in cooperation with the authorities of the municipalities in interest.

(m) A right of way across Goat Island must be obtained from the Navy Department and be approved by Congress.

Under the provisions of the federal law after legislative authorization by the State of California, the plans of the bridge must receive the approval of the Chief of Engineers, War Department, and of the Secretary of War before construction is begun.

The legislative authority of the state for the construction of the bridge is vested in the California Toll Bridge Authority. In order that the bridge may be constructed it is necessary that the Bridge Authority authorize and direct its construction.

The Commission having given due consideration to national defense and the needs of commercial navigation and in the light of all facts recommends the approval of a bridge upon Location No. 4 provided the clearances specified are adhered to.

Members of the Commission are:

Mark L. Requa, Chairman;
George T. Cameron, Vice Chairman;
Rear Admiral Luther E. Gregory, C.E.C., U.S.N. Ret'd.;
Rear Admiral W. H. Standley, U.S.N.;
Brigadier General G. B. Pillsbury, U.S.A.;
Lieutenant Colonel E. L. Daley, U.S.A.;
Senator Arthur H. Breed,
Charles D. Marx,
C. H. Purcell.

ESTIMATED COSTS

The estimated cost of the Rincon Hill-Goat Island location structure is $72,000,000.

TRAFFIC FINDINGS

Relative to probable traffic that the bridge will serve, the Commission finds as follows:

The present facilities for crossing the bay between San Francisco and the East Bay district consist of automobile, passenger and freight ferries. In 1929 the auto ferries carried a total of 4,490,513 cars and 10,174,028 passengers, showing an annual increase of 8.2 per cent. Passenger ferries carried a total of 35,923,855 passengers, a decrease of slightly less than 3 per cent under 1928. The origin and destination of auto traffic in San Francisco is at the Civic Center. In Oakland it is at the intersection of Moss and Oakland avenues.

The origin and destination of commuter traffic in San Francisco is near Fifth and O'Farrell streets. In Oakland it is near Moss and Oakland avenues.

(Continued on page 20.)

Director Meek Sends His Resignation to Gov. C. C. Young

B. B. Meek, director of the Department of Public Works, forwarded his resignation to Gov. C. C. Young on November 25, 1930, to become effective on or before January 5, 1931.

In his letter of resignation, Mr. Meek refers to the fact that when he first accepted the appointment from Governor Young, it was understood that he would serve only until the then newly created Department of Public Works was organized. The letter states that he continued to hold office despite a very considerable sacrifice to his private business, because of the absorbing interest that he found in the work.

Mr. Meek further writes that he has sent word to Governor-elect Rolph that in his capacity as a private citizen he will do everything in his power to aid and assist his successor in carrying on the work of the department. Because of the place that highway building has in the upbuilding of California, and its present emergency importance in providing employment, Director Meek voices the hope that there will be no interruption in the big highway program now underway. He also emphasizes the importance of aggressively pushing to completion the San Francisco Bay bridge project; of translating into a definite program of action the studies and investigations into the water resources of California and of further developing the ten-year building program for state institutions prepared by the Division of Architecture.

The letter expresses appreciation for the aid given by Governor Young in the administration of the affairs of the Department of Public Works. On this point Mr. Meek writes as follows:

If, during the last three and a half years, the department has been able to accomplish what is was designed to accomplish, it has been because of the confidence you have constantly given me. You have never in a single instance asked this department to discharge a political debt. This has made possible the building of both a very human and a very efficient organization.

As I have frequently stated it is my desire to retire to private life the day you become a private citizen. And, in spite of the intense interest, I have in the work of the department, still the opportunity to devote time to my now long neglected personal affairs is most welcome, and I might add, most necessary. At this time I desire again to thank you both for the privilege you have given me to engage in this splendid work, and for the confidence you have had in me, and once more to express my heartfelt appreciation for the wonderful support you have given me.

GRADE CROSSINGS FAST DISAPPEARING FROM ROADS

Grade separations at Glendora

The Division of Highways has, during the past year, carried on an active program of grade separation work on the heavily traveled road connecting Los Angeles and San Bernardino. A subway which completely eliminates grade crossing over the Santa Fe tracks has been constructed at Glendora. About two miles east of Upland existing subway under the Pacific Electric tracks has been remodeled to double the width of highway. At Malaga, approximately eight miles west of San Bernardino, a new wide subway which completely eliminates the highway crossing over the Pacific Electric Railway tracks is nearing completion. In each case the railroad companies contributed part of the cost of the structures.

FRONT COVER PICTURE

The front cover picture on this issue of CALIFORNIA HIGHWAYS AND PUBLIC WORKS shows B. B. Meek, surrounded by views of some of the activities over which he has had charge during his administration as Director of the Department of Public Works.

"Brederin, we'se got to do sumpin' to remedy de status quo."

"Parson, what am de 'status quo'?"

"Dat, my brudder, is de Latin for de mess we'se in."

Ten-year Building Construction Program for State Institutions

By Geo. B. McDougall, State Architect

IN THESE DAYS when the wisdom and necessity of regional planning, city planning and zoning of cities have come to be generally recognized, the State of California is operating so far as the development of its institutions is concerned on the basis of a ten-year building construction program.

Up until 1925 no consideration was given to the suggestion more or less frequently made that building development programs should be worked out for the State's institutions.

Geo. B. McDougall

In that year the financial set up for the Division of Architecture was altered so as to make it possible to start the development of plot plans of the 26 major institutions then existing. Prior to that time the determination as to what building construction development should be provided for at any given meeting of the Legislature was based almost wholly on isolated consideration of a particular proposed structure and its location, rather than upon a comprehensive development scheme taking into account the certain ultimate growth for each institution.

Early in his administration Governor Young, in order that he might have information needed for formulating an orderly program of building construction, requested Mr. B. B. Meek, Director of Public Works, to have made a tentative building construction program to cover a period of ten years. The director delegated this task to the Division of Architecture. This division, with the Division of School House Planning of the State Department of Education, worked out a program which with modifications was approved and adopted by the Governor and submitted by him to the Legislature of 1929, with his budget of proposed expenditures and estimated revenues of the state.

FACTORS IN PROGRAM

The following principal factors constituted the basis of this program:

First: The ultimate capacity of each institution in patients, students or inmates.

Second: Present and future needs during succeeding bienniums for patient, student or inmate accommodations so as to bring the several institutions up to their proper ultimate capacities by the end of ten years or sooner.

Third: Probable amounts of money that can reasonably be expected to be made available for expenditure for building projects during succeeding bienniums for ten years.

Fourth: Available building sites on the various properties taking into account areas now owned by the state and areas that can be expected to be added.

CAPACITY OF INSTITUTIONS

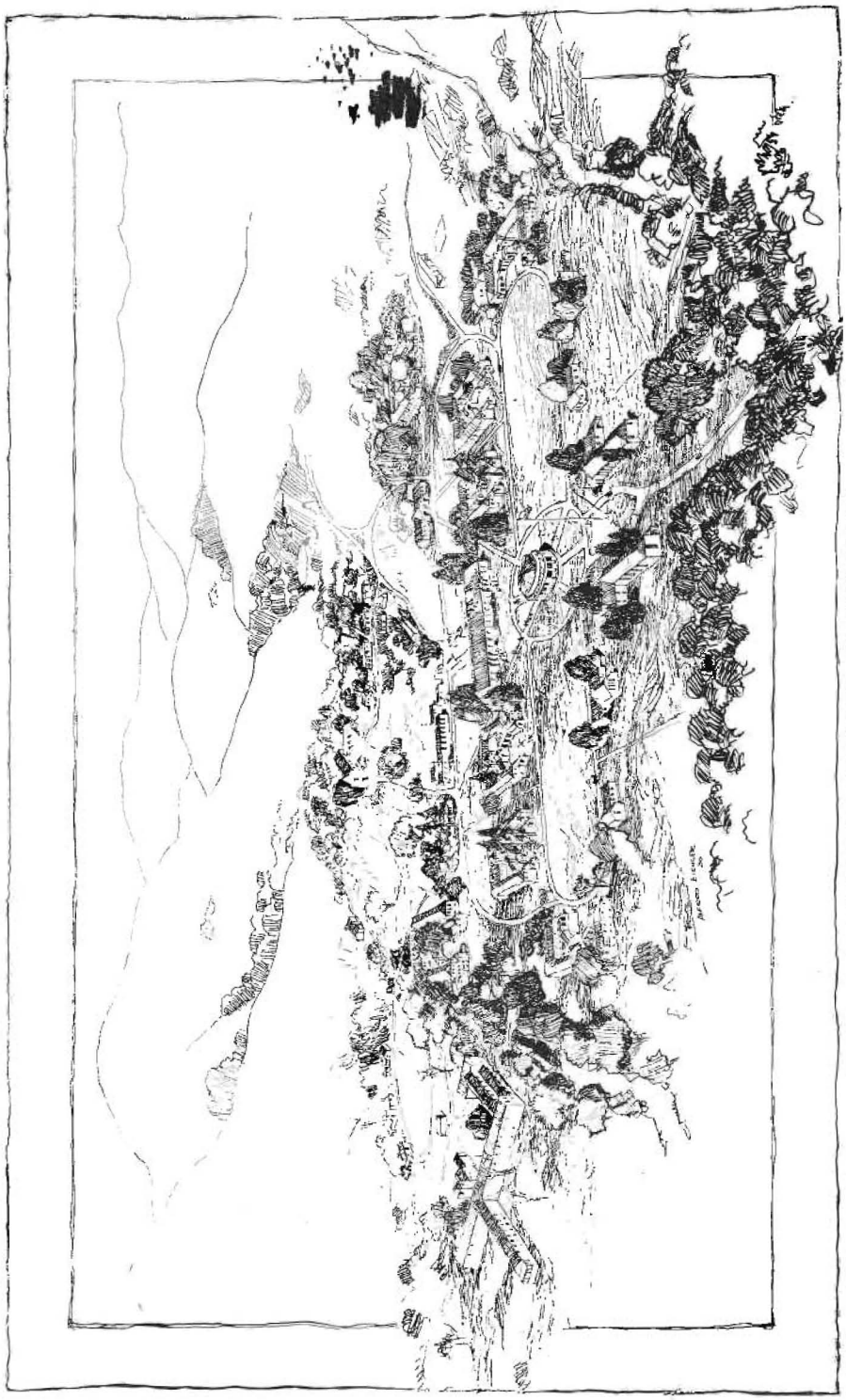
As to the first factor, the ultimate capacity, the various state departments and institution heads, after extended careful consideration, made this determination.

ESTIMATES OF INSTITUTIONAL GROWTH

Second, figures of probable growth during the ten-year period were arrived at on the basis of the average growth during the preceding twenty years. The figures so obtained were in numerous cases checked against estimates arrived at by discussions of probable growth with the institution heads, and the two sets of figures were found to check very closely.

COST ESTIMATES

Third, it was conservatively figured that provision can probably be made for expenditure for building construction at the institutions exclusive of the state university of about



THE VETERANS' HOME AT YOUNTVILLE

$5,000,000 for each biennium, or a total of $25,000,000 during the ten-year period.

BUILDING SITES

Fourth, as to available building sites, the plot plans already mentioned which are available for 26 different institutions, show all existing buildings and the locations of all additional buildings required during successive bienniums to house the portion of estimated numerical growth during ten years which it is thought should be assigned to the several institutions. The plot plans constitute probably the most important single element in bringing about the total result in connection with the ten-year building program.

The preparation of these plans has required several years time. The Division of Architecture is retaining the originals and keeping them up to date.

OLD FAULTS CORRECTED

Following are some of the defects in earlier institution development which are being corrected by the ten-year program:

First: Provision of proper living quarters for employees in institutions where required was almost entirely neglected except in the most haphazard way. One result was increasingly serious difficulty in administration, and another now being encountered is the necessity for successive expenditures for this need which are out of proportion to expenditures required for inmate housing; a portion of this financial burden for employees' quarters should have been borne in the past.

Second: The replacement of temporary structures was given practically no consideration, resulting in too long continued use of insufficient, unsanitary and fire-inviting structures. These replacements are now requiring disproportionately large expenditures from which no increased inmate capacity is resulting.

Third: Absence of foresight has resulted in serious overcrowding in many of the institutions so that it is not possible to operate with full efficiency nor to accept as patients many who should be admitted.

Fourth: Sites for particular buildings have in numerous cases been unwisely selected because without reference to the effect of such selections on necessary future development.

A STRIKING EXAMPLE

One of the most marked examples of the effectiveness of long-time planning for the development of an existing institution based on plot plan study is furnished by the Veterans' Home at Yountville. This institution was originally built some fifty or sixty years ago to meet conditions then existing. The old buildings in many cases contain basement, two stories and attic and are of wood frame construction. Various wooden structures have been added to the institution from time to time during the succeeding years, as isolated demands appeared to require.

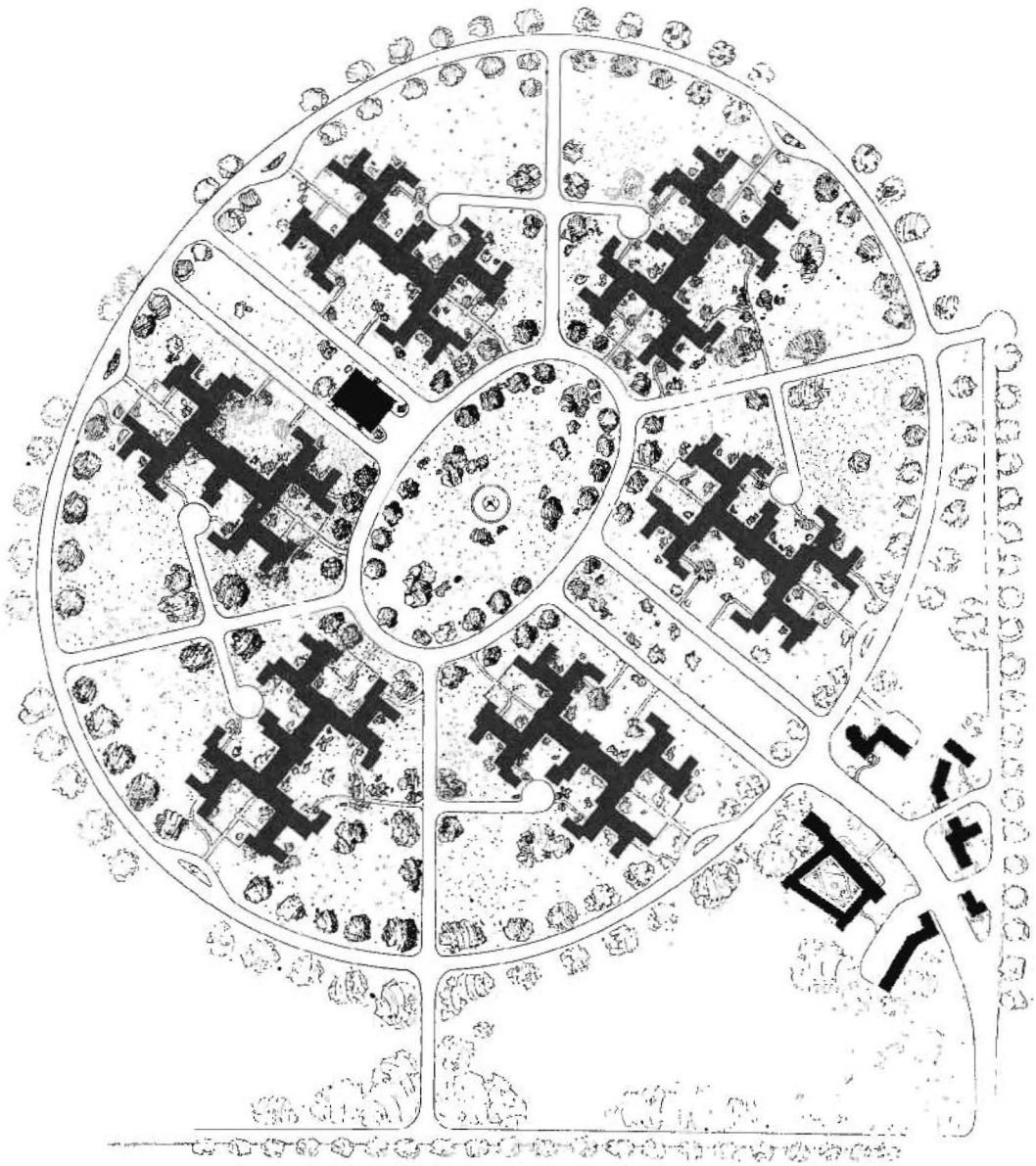
After repeated requests provision was at length made to permit the Division of Architecture to make a survey of the entire institution on the basis of which the Division, with the full cooperation of the institution, has developed an approved scheme for the gradual replacement during a ten-year period of the old insufficient, unsanitary, wooden firetrap buildings with modern reinforced concrete structures carefully designed and planned with reference to the present and future functioning of the home. The most urgent need was barracks buildings for the men. The process of reconstruction therefore started with an appropriation made in 1927 which covered one new barracks building; a second appropriation in 1929 covered two additional barracks buildings which are now completed, and a fourth barracks building is suggested in the proposed 1931 budget on which action is soon to be taken. Since each barracks building provides for 200 beds, the one last finished having an additional capacity of 30 beds, provision has already been made under the ten-year program to transfer 630 men from the old buildings to new modern fire-resisting structures.

SOME OF THE PROBLEMS

This project affecting an old institution was complicated by the necessity of so planning and timing the construction of the new structures as not to interfere with the occupancy of the old for as long as required for continuing operation. The program as a whole is being carried out with entire smoothness and with very little inconvenience to the institution.

The character of the site as to its shape, foliage and surroundings, the harmonious blending with it of architectural forms, materials and colors, and the dovetailing of the designs and plans of the structures with the function and spirit of the institutions, all are being combined and interwoven with one another so that the ultimate result will be one of the most picturesque, beautiful and practically effective institutions of its kind in the country.

The case of the Veterans' Home has been dealt with at some length as being typical and illustrative of the new life which, by the



Ultimate development of Agnews State Hospital

application of the art of architecture and as a result of the operation of the ten-year program, is being created for and injected into all of the older institutions of the state.

The state has within the last two years authorized entirely new institutions for the following: the San Diego State Teachers College; the California Institution for Women; a new state hospital for insane in southern California; and a new state prison for first offenders in southern California.

The principles underlying the ten-year building construction program are being applied in all these cases.

In each case the Division of Architecture has been and is being asked to advise the boards or commissions responsible as to the practicability and desirability of proposed sites. The cases mentioned are the first ones in the history of the Division in which this has been done.

As soon as sites were selected in the cases of the college at San Diego and of the Institution for Women near Tehachapi, surveys

(Continued on page 26.)

Biennial Budget Is Adopted by State Highway Commission

A BUDGET recommending a state highway expenditure of $63,322,500 for all state highway purposes and from all state highway funds for the ensuing two fiscal years was formally voted Thursday, December 18th, by the California Highway Commission. The budget was presented to the Commission with the recommendation of B. B. Meek, Director of Public Works, and C. H. Purcell, State Highway Engineer.

The budget as adopted has been transmitted to Governor C. C. Young and the State Department of Finance. Copies have also been sent to Governor-elect James Rolph, Jr., and to Colonel Walter Garrison, whom Governor-elect Rolph has selected as his Director of the Department of Public Works.

In view of the fact that final decision upon the project items included in the budget will rest with Governor-elect Rolph, Colonel Garrison, the incoming highway commission, and the legislature, it was the decision of the present commission that publicity as to the detailed projects recommended for inclusion in the 1931–1933 state highway program should come from Governor-elect Rolph rather than from the present administration.

Awards Offered for Statewide Safety Campaign Slogans

WITH the object of impressing thoughts of safety upon motorists and the general public, the California Committee on Public Safety yesterday announced that cash awards will be given for the best slogans submitted in a statewide contest. The winning phrases will be used to provide emphasis for the program of educational and enforcement campaigns to be conducted each month by the Committee throughout 1931.

There will be twelve safety subjects, one for each month. For the best set of slogans submitted for the entire series of subjects a cash award of $100 will be given. The second best set will receive $50, and the next ten sets will be given $10 each. The contest will close December 15. Contestants may send their slogans to the Public Safety Department of the California State Automobile Association, 150 Van Ness Avenue, San Francisco.

While no limit has been placed on the number of words in a slogan, the Committee points out that the shortest are usually the most effective, such as, "Taking a chance may take a life." The list of subjects for the monthly campaigns on which the contestants may base their slogans is as follows:

January—Failure to yield the right of way at intersections.

February—Unlawfully passing standing street cars.

March—Failure to give required arm signals; failure to keep in proper lane when turning; cutting-in.

April—Excessive speed at intersections where view is obstructed.

May—Disobeying boulevard stop regulations and Stop and Go signals.

June—Endangering safety of children at play—speed or inattention.

July—Railway stop signals (wig-wags).

August—Failure to keep to the right—hogging the road.

September—Unlawful speed in school zones.

October—Inadequate brakes.

November—Glaring and illegal headlights.

December—Disobeying regulations for pedestrian protection.

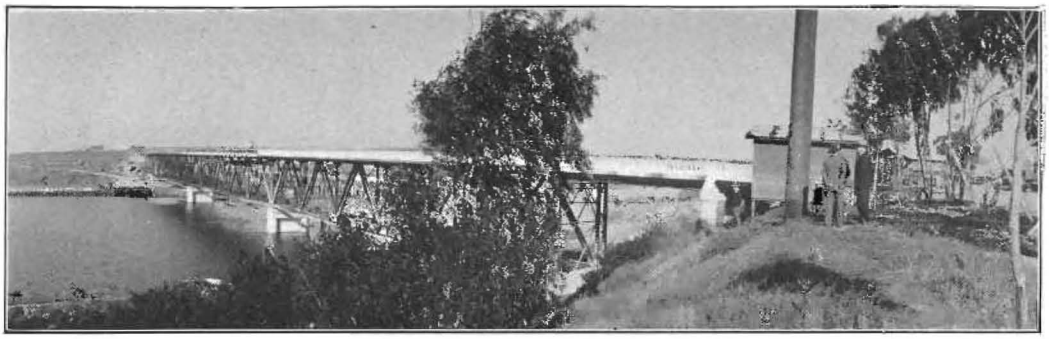
Each contestant must send in original slogans, and the committee reserves the right to use any or all of the winning ones. Contestants must use a single sheet of paper and write on one side only, giving their name and address in the upper left-hand corner. The months to which the slogans are applicable must be specified.

SOME ACCIDENT THIS; JUST WHAT HAPPENED?

The following is a verbatim copy of a letter received by the Division of Motor Vehicles:

Mr. Okamoto, my good friend, is going to Japan, so I want to see him for shakeing hand with he and Mrs. Okamoto. This morning, 5 AM, got up from the bed, six started from my home, Hawthorne, came to Gardena, thought to buy gasoline more, and did repair for safety, did examined generata, choker and coil or other place, was very good condition, no trouble, after three minutes waited 3 gasoline men, 1 gasoline lady, open and gave gasoline. Then started again and come to Mr. Okamoto's house. After Mr. and Mrs Okamoto met with, he was busy to other place first. Then after ten minutes, came out to the front of his house that is the Wilmington. Saw his car John Welch's car too was far about 405. Telephone electric post, it is not danger. Rightway, broken my car right front car wheel all broken crooked 1 or 2 time. Crooked steel piece or broken when all over the street I went. His car too much speed and too fast. Because I never such Big trouble before, His the most seed is not, it is the big accident I believe. It is all the same dream, I think. My insurance yato tell about all this, as It is better one.

New Bridge to Span San Luis Rey



The New San Luis Rey Bridge

REPLACING a narrow pile trestle structure which was hastily thrown across the San Luis Rey River after the disastrous flood of 1916, the Division of Highways is building a new high level, wide, modern bridge on improved alignment.

The new structure, which was designed by Bridge Engineer Chas. E. Andrew of the Division of Highways, is 927 feet long. Including sidewalks, the width is 50 feet. The main spans are each 265 feet in length. The central piers of concrete which extend deep below the stream bed are founded on long timber piles.

Before designing the bridge, extensive explorations were made which revealed that sand and silt had filled the scoured channel of the river bed to a depth of about 175 feet.

Gutleben Brothers of Oakland, contractors, are building the structure at a contract price of $281,542. The construction work is being supervised by Resident Engineer A. S. Kennedy.

Seek to Establish Radio Communication for Highway Patrol

Research experiments are being made by the California Highway Patrol to determine the possibility of establishing radio telephonic connection between highway patrolmen working on their beats and their district and central offices, it was announced here today.

A special type of radio telephone light enough to be carried on a motorcycle but powerful enough to have a range of several hundred miles is being considered. If successful this will enable the district inspector or squad captain to get in immediate communication with his men in case of accident or any other reason necessitating a quick move of officers from one place to another.

The preliminary plan of experiment involves the establishment of a 200-watt transmitter at the headquarters of the highway traffic school at Mather Field, near Sacramento.

Four cars equipped with receiving sets will be sent to different parts of the state to pick up the messages sent out from the transmitter. One of these will operate in the extreme northern counties, another in the southern counties, another along the coast and a fourth in the interior valley.

These cars will make daily observations to determine where the socalled "dead spots" are located.

Information secured by the patrol indicates radio telephones are being used to good advantage by police patrols in a number of American cities, a notable success having been attained with them in Detroit.

Perfect communication, however, has thus far been possible where the distance between transmitters and receivers is relatively small.

The problem of the California patrol is to work out a system by which the officer may communicate with his superiors and receive their orders when at a considerable distance from his base.

KENTUCKY—National Representative Thatcher of Louisville advocates a park-to-park highway system in the East, similar to that linking western parks. Plans include linking the three largest national parks of the East—Mammoth Cave, the Great Smoky Mountain, and the Shenandoah National Park.

"De choir will now sing, 'I'm Glad Salvation Is Free,' while Deacon Jones passes de hat. De congregation will please 'member dat, while salvation am free, we has to pay de choir for singin' about it. All will contribute accordin' to his means, an' not for his meanness."

Teaching Californians to Drive

By FRED P. WILLIAMS, Head of the Bureau of Drivers Licenses

THE driver's license, properly issued and properly controlled, can and should be a most potent factor in the reduction of motor vehicle accidents on the highways.

No other factor in the control of the authorities offers such possibilities for weeding out the incompetent, for keeping reckless within bounds and for actually educating the person who wants to know something about the subject in the common, everyday rules of safety.

Although it is far from perfect, the legislature two years ago gave California a fair system of control of licenses. Outstanding features of the system are:

1. Provision for the examination of all new drivers, such examination to include inquiry into the applicant's physical and mental conditions and ability to drive.

2. Provision for the renewal of all outstanding licenses every two years with power for the state to demand an examination if deemed necessary.

3. Authority for the revocation or suspension of driver's licenses for cause.

When the new law became effective in the summer of 1929 we at once undertook the renewal of approximately 1,350,000 drivers' licenses issued prior to January 1, 1927. This task was accomplished in a period of three months.

Obviously, it was impossible to give this number of persons an extended examination in so short a time with the imperfect machinery that we had at that time at our disposal. The work was therefore confined, for the most part, to stressing the educational features and to weeding out those found to be actually unfit.

We were able to note some surprising results in the public reaction even in this short time. Almost immediately we noted marked improvement in the manner in which arm signals were given. We noted also that drivers paid more attention to sirens on emergency vehicles than before and apparently were more careful about keeping to the right and obeying traffic signs.

This, we believe, did not come from any fear that had been instilled into the minds of the drivers by the examinations but merely from the fact that the driving public had been informing itself concerning the law.

Our records show there are now 2,731,490 persons in California licensed to drive, inclusive of the 157,490 who operate under chauffeurs' licenses.

We are now issuing new licenses at the rate of about 34,000 every month. Examinations are given at the home office at Sacramento, at the six branch offices of the Division of Motor Vehicles, at several smaller branches, and at the county offices of all squads of the California Highway Patrol. In addition, examinations are given by some 109 branch offices of the automobile clubs and by numerous police departments and sheriffs' offices.

Under our law we must give an examination on every original application for a California license. This examination is three-fold, including an inquiry as to the applicant's knowledge of the rules of the road as set up in the vehicle act, a test of his hearing and eyesight and ability to read and understand highway signs, and an actual examination of the applicant's ability to operate a motor vehicle under the supervision of the examining officer.

The records of our own offices show that about 20 per cent fail to pass the initial examination. However, the percentage actually refused licenses is very small as it is our policy to be liberal and grant the applicant more time to study the regulations and to learn to drive. A second or third trial usually enables the applicant to pass successfully.

Those finally eliminated are usually found to be suffering from some physical or mental defect making it absolutely unsafe to permit them to drive.

We do not refuse a license because of a physical defect unless we are convinced such defect interferes with safe operation. In other words we have no objection to granting a one-armed or one-legged man a license if he can show us he is able to drive safely.

Our examinations frequently uncover minor defects which may be easily remedied to the lasting benefit of the applicant. This is notably true in our examination of the eyes of young applicants.

We have received practically no complaints that our examinations are too difficult; on the contrary many have complained that they are too easy.

Great tact is required on the part of our

examiners as applicants are frequently inclined to be nervous upon their first appearance. Careful and courteous treatment generally puts the applicant at his ease.

The examination of prospective drivers is a wide subject and one worthy of deep study on the part of our legislators. Throughout the country there is a growing tendency to tighten the regulations and to require more and more from the driver. Twelve states have adopted rigid systems for regulating drivers' licenses and many others are considering it.

The power given us to revoke licenses for cause is already bearing fruit in our war against the drunken driver. From January 1st to November 1st of this year 750 of the 1333 licenses revoked were for this cause.

Another innovation is the checking up of all persons involved in three or more accidents during any one year. When we find such cases we start an immediate investigation to determine if the driver is reckless or physically incompetent. Proceedings to revoke the licenses are started if justified by the facts.

NEXT TEN YEARS IN HIGHWAY BUILDING

(Continued from page 4.)

of over $38,000,000 is encountered in the north section of the state; whereas, the secondary roads in the south section can be brought to an adequate standard within the ten-year period.

During the next ten years, moderate changes in the expected volume, character, and speed of traffic would not alter the type and, therefore, the costs given in the estimates. An increase above the probable estimated revenues that would accumulate a sum sufficient to bring about an adequate status of highways sooner than herein set forth, would have to be a material regular increase, which is improbable. A decrease in the estimated revenues would create a deficit, while the demand for improvement will still be as insistent and necessary as is now predicted. Such a deficit would protract indefinitely the period of attaining the satisfactory status. Such a contingency should not induce an over-optimistic attitude nor permit withdrawal from present anticipated revenues for other purposes.

The prospect of bringing the state highway system to an adequate standard does not infer either than the entire system will be completed during the stated period, or that in the immediate years revenues are sufficient to take full advantage of making improvements on the basis of strict economics of service to cost of service. Many roads must receive stage construction, reconstruction, and heavy maintenance, while the increase in annual revenues accumulates the necessary funds for permanent type. Some roads would still have a low type surface, although they will be of a type temporarily equal to the traffic requirements.

Highway Patrol Is Commended for Courtesy and Help

The following letter was addressed to Roy H. Youngblood, Assistant Superintendent of the California Highway Patrol by John J. Crowley, Chancellor of the Diocese of Monterey-Fresno:

Press of other business has prevented me from acknowledging ere now your extreme kindness and courtesy in furnishing an escort for Cardinal Hayes during his stay in central California. The escort was one of the features of the visit of his Eminence that pleased him highly, and which also relieved the minds of Bishop MacGinley and all of us who felt responsible for his safety while in our environs.

Cardinal Hayes personally assured your officers of his appreciation, and I want to add here, on behalf of Bishop MacGinley and all of us who were in the party that the cooperation and upstanding gentlemanly conduct of officers Sloat and Farr, if it can be taken as an example of the efficiency of the reorganized State Highway Patrol, bespeaks an organization that is second to none. We were proud of them.

Again thanking you for this signal service, and with the compliments of the Right Reverend Bishop, I am,

Very sincerely yours,

JOHN J. CROWLEY,
Chancellor.

Supplied Lost Power.

The following letter was received from Ruel Baker, assistant cashier of a San Francisco bank:

I wish to thank the California Highway Patrol for the courteous assistance given me by Herbert Bolton and Thos. Taylor, state traffic officers, on the night of November 26th on the state highway between North Sacramento and Roseville.

These gentlemen very graciously pushed my car back to a garage when engine trouble developed. They refused to accept a tip and I wish to express my sincere appreciation of their kindness.

What do you do?

I keep house, scrub, scour, bake, wash dishes, cook, do the laundry, iron, sew.

And the census taker listed her: Housewife—no occupation.—Louisville *Courier-Journal.*

Highway Policy Pronouncement Made by Association of State Highway Officials

RESOLUTIONS adopted by the American Association of State Highway Officials in annual convention at Pittsburgh, Pennsylvania, in November, comes a number of matters of interest in highway circles the nation over. Among the matters on which the association expressed itself were the following:

Recommendations for ways and means of increasing highway construction as an aid to unemployment;

Methods of securing a larger measure of roadside beauty;

Recommendations relating to financing of highways of secondary importance;

Greater uniformity in gasoline taxes and motor license fees;

Expression of views on toll bridge construction;

Recommendation that funds be provided for road construction in the public domain, and that the limitation of federal aid to $15,000 a mile be removed;

Recommendation for the coordination of the highway and airway service.

ROAD BUILDING TO AID UNEMPLOYMENT

An increased federal program for road building to aid unemployment was advocated and specific recommendations asked:

1. That prompt measures should be taken to stimulate and enlarge the present cooperative state and highway building program to the fullest extent;

2. That a substantial emergency federal appropriation be set up and be expended under the existing federal highway legislation, and only through such legislation; that in addition thereto a substantial emergency fund be set up by the federal government to be advanced to the several states, to be used by such states to match federal funds, said advances to be later repaid from state revenues or from future installments of the federal highway appropriation.

3. That the amendments necessary to expedite the placing under construction of federal highway funds be made and that the benefits of the emergency appropriation and this recommended legislation be limited to those states which shall in no way decrease or remove from the control of the State Highway Department the present incomes or adversely change the sources of revenue.

4. That a substantial emergency federal appropriation be made to be used to expedite the completion of the forest highway system to be expended by established agencies.

FAVOR ROADSIDE BEAUTIFICATION

Roadside beautification and its varied activities are advocated as reducing highway maintenance costs by checking erosion, preventing slides and controlling drifting snow; reducing accidents; increasing adjacent property values; promoting civic pride; equalizing temperatures; opening and revealing natural beauty; advertising the state and providing a healthful recreation and enjoyment for all highway users.

Specific measures to secure more beautiful highways are outlined as follows:

1. Adequate width of highway right-of-way be acquired at the earliest time to provide for future widening and a detailed plan of beautification.

2. Conservation of natural growth be recognized of first importance and that unnecessary destruction of roadside plants be prohibited.

3. The absolute control of the right-of-way be vested in the Department of Highways.

4. Responsibility for roadside beautification be vested in a competent person to carry out the work of the department and to encourage individuals and organizations to assist in beautifying town entrances and the roadsides in their localities.

FINANCING IMPROVEMENTS FOR SECONDARY ROADS

As there is considerable agitation for improvement of secondary roads, in some cases classed as farm-to-market roads, with a resultant demand for diversion of state funds now available for state systems in the several states, the association expressed itself as follows:

1. That until such time as the primary

routes have reached an advanced stage of improvement federal funds, exclusively, and the major portion of state funds should be used entirely to expedite work on this system;

2. That when the present designated federal aid systems have been improved to an advanced degree advantage should then be taken of the provision of the Federal Highway Act to increase the mileage of federal aid system, upon which federal aid funds may be used by applying said federal money to what might now be considered secondary roads;

3. That when the primary routes have reached a reasonably advanced stage of improvement, in keeping with traffic demands, then the states should recognize their responsibility to traffic on the secondary system of highways or county trunk highways, which supplement the general traffic and farm-to-market service of the primary routes, and the states should stimulate such improvement by the allocation of a definite and reasonable proportion of state collected funds for such secondary system of highways or county trunk highways, if the state has not as yet made such funds available for such systems;

4. That the expenditure, however, of all such state funds, allotted for the improvement of the secondary systems or county trunk highways, should be made with such state supervision as will insure tangible, well planned, worth-while improvements, all administered on a sound business and economical basis;

5. That where state trunk highways, roads of the secondary system or county trunk highways pass through municipalities funds available for the improvement of such routes may logically be used under proper supervision for the construction and maintenance of such routes through such municipalities, but such funds should not become available to the municipalities to be used on thoroughfares which are not used by the traffic carried on such routes.

The resolutions recited that "in general it may be stated that approximately 10 per cent of the public road mileage in the several states composes the combined federal aid and state systems, which may be called primary roads, and an additional 20–25 per cent composes the principal county trunk or state aid highways, which may be called secondary roads, and the remaining 65–70 per cent composes purely local township or third class roads."

GASOLINE TAXES

On the subject of gasoline taxes the association expressed an opinion favoring "the principle of a gasoline or motor fuel tax, which tax shall be considered as a charge for the use of the highway system; that this tax, however, shall not be in lieu of motor vehicle license fees or personal property taxes; and that such gasoline or motor fuel taxes shall be as uniform in rate in the several states as practical and consistent with the constitutions, road bond obligations or road needs of the individual states."

MORE UNIFORM MOTOR LICENSE FEES

It is declared desirable that the rate of taxation for motor vehicles in each of the several states should be as uniform as possible. To secure this a recommendation is made favoring "a fixed charge per annum by each state for each class or weight of motor vehicle, which charge shall be considered as a legal protection charge and as a 'ready to serve' charge for the highway system; that this may take the form of a motor vehicle license fee, which is in lieu of all other property taxes or a combination of personal property taxes and motor vehicle license fees; and that the total rate of such taxes for each class or weight of vehicle in the several states shall be as uniform in amount as practical and as consistent with the constitutions, road bond obligations or road needs of the individual states."

TOLL BRIDGES

The fact that toll bridge legislation is proposed in many states and in the Congress of the United States makes it necessary and desirable to reiterate and amplify the position of the association on toll bridge matters. This position is declared to be:

1. Enactment of the Burtness bill now before congress;

2. That in the meanwhile no franchise for privately owned toll bridges be granted which does not comply with the requirements of the Burtness bill;

3. That the several states be urged to continue the policy of either purchasing toll bridges or else erecting free bridges to replace toll bridges;

4. That no toll bridges be constructed except where urgent necessity exists and that provision in every case be made for redemption and making free of tolls.

FUNDS FOR ROADS THROUGH PUBLIC DOMAIN

A request is made that congress provide funds to make the Colton-Oddie bill effective. This bill provides for the construction of roads through the public domain, but no appropriation has been made to carry out its provisions.

REMOVAL OF FEDERAL AID LIMITATIONS

As the present limitation of $15,000 per mile on federal participation in highway construction has no relation to the cost of any project, it was recommended that this be removed and that the Secretary of Agriculture be authorized to approve projects at 50 per cent of the cost of construction.

AIRWAYS AND HIGHWAYS

The full coordination of highways and airways is recommended, including the coordinated service of the personnel and equipment of the existing federal and state governmental agencies now having administration of highways and airways.

THE "BRAIDED" CROSSING, LATEST PHASE IN THE EVOLUTION OF EXPRESS HIGHWAYS

(Continued from page 7.)

In this way all traffic will leave or enter the highway on the right side, going in the same direction as the line of traffic it is leaving or entering, and the job of sorting out 3500 cars per day from a peak traffic of 18,000, without loss of speed and a minimum hazard of accidents, impresses upon us the importance of this safety measure.

The connecting link of this highway between Waldo and the Golden Gate Bridge will be completed by the time that structure is finished. Many reports of the commencement of private construction projects, just starting or soon to begin, show the impetus given by the strong sentiment expressed at the November 4th election in favor of this bridge. Upon consummation of the bridge and the highway serving it, traffic demands between Sausalito and San Rafael will be doubled and safety demands more than doubled. Only then will be realized the full value of the braided crossing, in sorting out without delay and with a minimum of hazard some 20 per cent of its traffic.

PARIS—An appropriation of 700,000,000 francs, or about $27,510,000, was voted recently by the municipal council of Paris. The money will be used in widening roads leading into the city and in building new roads connecting the suburbs.

PENNSYLVANIA—Samuel Eckels, chief engineer of the state highway department and president of the American Association of State Highway Officials, recently appointed a committee of highway officials from eight states to study toll bridges for testimony before a Congressional committee.

KEEP SCRAPPIN'

When you're sick as the deuce, and you think, "What's the use?"
And you're tired out, discouraged, afraid;
And you keep asking why they don't let you die
And forget the mistakes you have made;
When you're chock full of pain and you're tired of the game,
And you want to get out of it all—
That's the time to begin to stick out your chin
And fight with your back to the wall!

When you've done all you can to scrap like a man,
But you can't keep your head up much more;
And the end of the bout leaves you all down and out,
Bleeding, and reeling, and sore;
When you've prayed all along for the sound of the gong
To ring for the fight to stop—
Just keep on your feet and smile at defeat;
That's the real way to come out on top!

When you're tired of hard knocks and you're right on the rocks,
And nobody lends you a hand;
When none of your schemes, the best of your dreams
Turn out in the way you'd planned:
And you've lost all your grit and you're ready to quit,
For life's just a failure for you,
Why, start in again, and see if all men
Don't call you a MAN through and through!

—ESTY QUINN, in *Progress.*

CONCLUSIONS ON S. F. BAY BRIDGE PROJECT ANNOUNCED BY HOOVER-YOUNG COMMISSION

(Continued from page 8.)

The traffic centers are slowly moving southward.

Growth of automobile traffic may be expected to steadily increase at the rate of 5 per cent to 6 per cent for the next eight or ten years and thereafter at approximately the rate of population growth, which is about 3 per cent per annum.

Income is computed on approximately this basis. Growth of interurban traffic can not be expected to any great extent.

Probable revenue from tolls which may be expected over a centrally located bay crossing carrying both auto and electric line passengers in 1940 is approximately $7,400,000 per year. It is estimated that this will increase at the rate of 3 per cent per annum.

Bill Johnson sleeps beneath this lid—
He always claimed he couldn't skid—
The fact remains, he could—and did!

Bill: It's tough when you have to pay 50 cents a pound for meat."

Will: "Yes, but it's tougher when you have to pay 25 cents a pound."

Progress on Dam Inspection

Flood Control and Reclamation Activities

November Activities

In the

Division of Water Resources

EDWARD HYATT, Chief of Division

Preparing for Snow Surveys

Barrier and Water Resources Investigation

DAMS

The activities of this department have been directed during this period not only to studying and inspecting existing dams, but also to work on new construction and repairs.

To date 720 applications for approval of existing dams have been filed; 54 applications for approval of plans for construction or enlargement of dams; and 94 applications for approval of plans for the repair or alteration of dams.

APPLICATIONS RECEIVED FOR APPROVAL OF PLANS AND SPECIFICATIONS FOR CONSTRUCTION OR ENLARGEMENT

Dam	County	Owner	Est. Cost
*Tiger Creek Afterbay	Amador and Calaveras	Pacific Gas and Electric Co.	$350,000
*Digger Creek	Shasta	G. L. Childs & A. P. Waller	2,517
*Dennis Martin No. 2	San Mateo	A. Schilling	1,200
*Kathriner	Siskiyou	Frank Kathriner	9,000
**Port Costa Reservoir	Contra Costa	California Water Service Company	5,484

*New.
**Enlargement.

The Tiger Creek Afterbay is to be a variable radius arch dam on the North Fork of the Mokelumne River and will link Amador and Calaveras counties. It will be 85 feet high and store 3800 acre feet of water which will help regulate the flow and divert it for power purposes in the Pacific Gas and Electric system.

APPLICATIONS RECEIVED FOR APPROVAL OF PLANS FOR REPAIRS OR ALTERATIONS

Twenty-eight such applications have been received during this period, indicating the cooperation of owners in their desire to put their dams in the shape required by the department.

PLANS APPROVED FOR ENLARGEMENT, REPAIR OR ALTERATION

One application for enlargement and 20 for repair or alteration have been approved by the State Engineer.

Orders authorizing use pending formal approval were issued to the following owners of dams:

Dam	County	Owner
Kelly Lake	Placer	Pacific Gas and Electric Company
Lower Blue Lake	Alpine	Pacific Gas and Electric Company
Meadow Lake	Alpine	Pacific Gas and Electric Company
Twin Lakes	Alpine	Pacific Gas and Electric Company
Upper Blue Lake	Alpine	Pacific Gas and Electric Company

FLOOD CONTROL AND RECLAMATION

MAINTENANCE OF SACRAMENTO AND SAN JOAQUIN DRAINAGE DISTRICT

Routine maintenance work has been carried on in connection with the flood control project during this period, consisting of clearing second growth timber in the by-pass, overhauling pumping plants and structures, and other miscellaneous work. An average of fifteen men have been employed during this period.

FLOOD CONTROL PROJECT MAINTENANCE—BANK PROTECTION

Construction has been commenced on one tree current retard in cooperation with Reclamation District No. 70 at the Yates place, approximately four miles south of Meridian, to cost $2,100. Bank protection work, also in cooperation with this district, at Girdner Bend has been commenced. This will cost $800.

At Andrus Island, on the Reardon ranch, 220 feet of bank is being protected with rock in cooperation with the Division of Highways and Reclamation District No. 556. This work will cost $2,300. All other bank protection work under way has been completed.

Surveys were completed for bank protection work near Compton Landing, on the left bank of the Sacramento River nine miles above Colusa, for the Colusa Bank, but it has been decided that no construction will be undertaken this year.

SACRAMENTO FLOOD CONTROL PROJECT

Three crews have been engaged during the period in clearing in the Lower Sutter, Butte Slough and Tisdale by-passes, and two camps have been in operation. An average of 64 men have been employed. The five contracts for clearing in the Feather River bottoms near Marysville have been completed.

Much detail work has been done in connection with the flood control construction program for the current year, and various surveys have been made. Plans have been prepared for various units of the work and rights-of-way have been negotiated for and various rights secured.

The California Debris Commission has let contract for the Lake of the Woods extension levee, 8700 feet long, at a price of $65,500. Bids have been called and received for various other units of the work, but contracts have not been let. The Feather River levees at Starr Bend and Lake of the Woods have been completed, and construction is now under way on Lake of the Woods extension levee. With the completion of this levee Reclamation District No. 784 will be closed and protected for the winter.

Surveys have been continued of the timber areas and cut-over areas in the by-passes.

EMERGENCY FLOOD CONTROL AND RECTIFICATION OF RIVERS

In cooperation with Andrus Island Reclamation District No. 317 the San Joaquin River levee between Seven Mile Slough and Mokelumne River has been reconstructed and protected for a length of 3500 feet. The work is complete except for the placing of 2500 tons of rock. A total of 5400 tons of rock will be used. The cost of the entire work will be approximately $20,000.

Some additional tree protection has been installed in the San Joaquin River at Tom Paine Slough, in cooperation with California Irrigated Farms at a cost of $700.

The channel of Big Chico Creek in Butte County has been cleared of obstructions for a length of 6000 feet at a cost of $900, in cooperation with the Division of Parks and Butte County.

SANTA MARIA RIVER

The clearing work in the channel of the Santa Maria River near Guadalupe, which was commenced on September 22, 1930, was completed on November 8th. The channel was cleared for a length of about six miles to a width of 370 feet at a cost of approximately $7,000, an average of 50 men having been employed during the course of the work. This was done in cooperation with the counties of Santa Barbara and San Luis Obispo.

PAJARO RIVER FLOOD CONTROL

A contract has been let to Karstedt and Karstedt of Watsonville for improvement in the channel of the Pajaro River for a length of 8600 feet at a cost of $2,850. This work consists of clearing a width of 60 feet and loosening the bottom material.

SALINAS RIVER

Actual work in excavating the channel to connect the Salinas River with Elkhorn Slough was commenced on October 27th and continued for two days, when the work was discontinued so that the right to proceed could be determined in court. This work is being done for the Division of Fish and Game.

MOKELUMNE RIVER

A foreman and three men have been engaged in burning debris left from the clearing of last year, preparatory to proceeding with the improvement work in cooperation with the county of San Joaquin. The extent to which this work will be carried has not yet been determined.

FLOOD MEASUREMENT AND GAGES

The recording gages to be operated during the winter by this office have been inspected, repaired and put into operation, and preparations have been made for taking flood measurements in the various channels during the winter.

During the period October 15th to November 15th an average of 133 men have been employed in the above described work, exclusive of contractors' employees.

WATER RIGHTS

APPLICATIONS TO APPROPRIATE

During the month of October 14 applications to appropriate were received; 9 were rejected and 21 approved. During the same period 19 permits were revoked and 4 licenses were issued.

ADJUDICATIONS

Shasta River (Siskiyou County). Case pending in superior court of Siskiyou County.

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

North Cow Creek (Shasta County). Referee's final report being prepared.

Oak Run Creek (Shasta County). Case pending in the superior court of Shasta county awaiting the entry of a decree in the North Cow Creek case.

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

Butte Creek (Siskiyou County). Case pending in the superior court of Siskiyou County awaiting action by the parties involved.

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

Davis Creek (Modoc County). The report of referee has been prepared for submission to the superior court of Modoc County.

Mill Creek (Modoc County). A report is in course of preparation covering the administration of the tentative schedule of allotments which was authorized for the 1930 season.

Deep Creek (Modoc County). The report covering the field investigation of water supply and use of water is being prepared.

Franklin Creek (Modoc County). The field investigation of water supply and use of water for the 1930 season was discontinued on October 15.

WATER DISTRIBUTION

Pit River (Modoc and Lassen Counties). Supervision over diversions from Pit River in Big Valley was discontinued on October 15.

CALIFORNIA COOPERATIVE SNOW SURVEY

Field work has occupied the time on this work almost entirely during the past month. This practically completes the fall work comprising the necessary arrangements for the surveys to be made in the spring. These arrangements have included the outline of plans with cooperating agencies, selection of personnel for the surveys, stocking of shelter cabins, distribution of equipment, forms, etc.

In the Tahoe-American Basin a trip was made to the Ward Creek and Rubicon Peak snow courses to clear up brush and rocks at measuring points and to more plainly mark the courses.

Arrangements for the shelter cabin near Church Meadows on the divide between Feather and Yuba Basins were completed. Plans for the Bowman Lake area surveys were checked with the Nevada Irrigation District. Arrangements for experimental precipitation observations by two separate methods, one being that of the U. S. Weather Bureau, were effected for the station at Rasors Lodge in the American Basin.

A trip was made to relocate and brush out the Snow Mountain snow course in the Pit Basin and work was completed at the snow courses in Lassen Volcanic National Park, where it was necessary to mark the courses with pipe standards.

Until the surveys at key courses begin at the end of January, the snow survey work will now be confined chiefly to the large amount of office computations necessary in preparations for the correlation of snow survey data with runoff when the data from the surveys become available.

SACRAMENTO-SAN JOAQUIN WATER SUPERVISOR

Regular field and office work comprising measurements of all diversions, stream flow, and return flow throughout the Sacramento-San Joaquin territory, has continued during the past month and with the submission of this report the field work will be completed except for the maintenance of salinity stations and tide gages. Future office work will be confined to the compilations necessary in the preparation of the 1930 report.

Salinity investigations have been continued through the maintenance of sampling at forty-six stations in Bay and Delta areas. With the decrease in salinity at up-river stations, it is planned to stop the sampling at a number of stations. This will only be done when the salinity remains at about three parts of chlorine per 100,000 or less. At least fifteen stations will be maintained permanently and the North San Pablo Bay stations will be continued throughout the winter.

During the past month the army engineers have taken back the maintenance of the Benicia tide gage and the water supervisor's office is therefore maintaining eight tide gage stations.

The following are comparative data for 1929 and 1930:

Station	Salinity in parts of chlorine per 100,000 10/28/30	10/28/29
Bullhead Point	1080	1140
O and A Ferry	240*	450*
Collinsville	100	240
Antioch	140	204
Jersey	10**	60**
Emmaton	4**	21**
Webb Pump	7	11
Rio Vista	2	2
Isleton	1	----

*October 26th.
**October 30th.

Station	Discharge in second-feet 10/28/30	10/28/29
Sacramento River at Sacramento	6350	5600
San Joaquin River near Vernalis	1450	1290
Combined flow to Delta	7800	6890

WATER RESOURCES

SALT WATER BARRIER INVESTIGATION

Substantial progress has been made during the past month on the investigations of the economic aspects of the proposed salt water barrier. The industrial survey of the upper San Francisco bay area with special reference to the proposed salt water barrier has been completed and a report rendered by a special committee composed of Dean W. E. Hotchkiss, Stanford Graduate School of Business, as chairman; Dean H. S. Grady, College of Commerce, University of California; and Mr. A. D. Schindler, consulting engineer. This report presents the results of about six months of intensive studies and investigations of the industries within the area which would be affected by the proposed barrier, and is one of the most important parts of the investigation of the economic aspects of the barrier.

Other special reports and investigations which have now been completed include the study of sewage and industrial waste pollution in relation to the quality and redeemability of fresh water in the proposed barrier lake, the effect of the barrier on the fishing industry, the geology of the region adjacent to the salt water barrier sites, the feasibility and suitability of the proposed salt water barrier as a highway crossing and evaporation and transpiration from the proposed barrier lake.

Detail studies have been completed on the yield of the proposed barrier lake, with special regard to its conservation value. Studies were continued on the agricultural developments of irrigation and reclamation as related to the barrier, with special investigations of the present and estimated future needs of the areas adjacent to the proposed barrier lake and studies of sources and methods of supply to take care of present and future demands. This includes a specially intensive study of a proposed conduit extending from the Delta along the south side of Suisun Bay to serve the industrial and agricultural demands in Contra Costa County and immediately take care of any shortages which now exist.

Special studies covering the design and cost of the proposed barrier at various sites have been continued during the past month with special reference to the provisions for locks and flood gates in the proposed structure. Studies have also been continued on the effect of the proposed barrier to the present reclamation developments especially in the delta of the Sacramento and San Joaquin rivers.

The results of the investigations completed up to this time were carefully reviewed by the Consulting Committee on the salt water barrier investigation at a regular meeting held on November 3. Preliminary conclusions on several of the important aspects of the investigation were under discussion by the Consulting Committee. Work is now actively under way on the preparation of the complete report of the investigation.

SACRAMENTO VALLEY INVESTIGATION

Yield Studies. Studies were made to determine the irrigation yield of the Table Mountain reservoir with three heights of dam and also to determine the irrigation yields of the Kennett reservoir operating in combination with the Table Mountain reservoir.

Studies were also made to determine the yields of the Kennett reservoir and the Table Mountain reservoir with a capacity of 3,000,000 acre-feet in each case operating for irrigation on the Sacramento River, navigation, salinity control at Antioch and irrigation supplies to the San Joaquin Valley and delta area. A similar study was started for the American River units.

Studies to determine the power output of the reservoir operating primarily for power were completed for the Auburn, Coloma and Folsom reservoirs and the Pilot and Webber Creek plants and from the Narrows and Table Mountain reservoirs.

Additional studies were made to determine the value of power from the Kennett, Narrows and Oroville plants operating both primarily for power and as initial units.

Studies to determine the economic installation at the Folsom, Pilot, and Webber Creek plants were made.

Water Requirements. A revision was made of certain of the water service areas so that they can be given a dependable supply for all of the irrigable areas from the water supply of the stream from which they are served.

Flood Flow Investigations. Studies of the flood flow concentrations of five points in the Sacramento

Valley were slightly revised and a final report covering this subject was written.

Studies for the determination of the flood frequencies at the foothill gaging stations on the main streams in the Sacramento River Basin and curves of the reservoir space required to control floods at these same points were completed.

Ground Water Studies. Measurements of the depth to water in a large number of wells over the entire Sacramento Valley floor were completed with the exception of two or three wells. These measurements have been taken to determine the ground water condition in the fall of 1930.

Storage Works. A meeting of the Sacramento Engineering Advisory Committee was held at which the detailed cost estimates for the irrigation reservoirs for the major units of the State Plan were discussed and approved. An inspection trip was also made by the committee to view the latest geological explorations at the Kennett and Table Mountain dam sites.

A thorough investigation was made by Dr. Ransome of the exploration work and the geology at both the Kennett and Table Mountain sites. Work on seven test pits and one tunnel at the Table Mountain dam site was completed by the contractor during the month and bids were called for by the U. S. Engineer Office on the drilling of nine test holes at the Table Mountain dam site.

Estimates of the cost of power features were completed for the Kennett, Oroville, Narrows, Folsom, Auburn and Coloma reservoirs.

SAN JOAQUIN VALLEY INVESTIGATION

Water Supply. Yield studies of San Joaquin River at Friant Reservoir, Kings River at Pine Flat Reservoir, Kern River at Isabella Reservoir, Tule River at Pleasant Valley Reservoir, and Kaweah River at Ward Reservoir were completed for use in connection with the solution of the economic capacities of these various developments.

An estimate has been made of the flow to the San Joaquin Delta from the San Joaquin Basin under assumed conditions of the diversion of the grass land and surplus waters.

Land Classification. Final check and summary of land classification areas of the Upper and Lower San Joaquin Basin have been completed and base map extended to cover supplementary foothill classifications. A new key map has been prepared.

Ground Water Investigation. Base map of the Upper San Joaquin Valley has been completed and a similar map for the Lower San Joaquin Valley is half finished. Maps of lines of equal total lowering for the period 1921 to 1929 for Upper San Joaquin Basin are complete. Computations of ground water depletion and graphs showing the relation between ground water fluctuation and inflow for the various Upper San Joaquin Valley divisions were made. Report of Mr. Hyde Forbes on the absorptive areas of the San Joaquin Basin was completed and computations made on the absorptive capacities of the Madera, Mormon Slough and Mokelumne areas.

Economic Studies. Economic studies of proper relation between storage capacity at Friant and canal capacity for diversion of water to Upper San Joaquin Valley and of storage on the Kings River at Pine Flat and the Kern River at Isabella have been completed. The economic capacities of power development at Friant and Pine Flat have been determined.

Reservoirs. Final plans, details, tracings and cost estimates of storage reservoir at Friant site on San Joaquin River have been completed and tracings of Windy Gap and Buchanan dam sites, and Fresno Flat reservoir have been made. Also plane table survey of Ward Dam site on scale 100 ft. per inch, completed.

Cooperative Work with U. S. R. B. Temperance Flat dam site plane table survey scale 100 ft. per inch and differential levels from Friant to Kerckhoff Reservoir completed during the present month.

General. Folio of data covering results of studies to date, prepared and submitted to Engineering Advisory Committee at meeting held October 22d and 23d. A trip of inspection was made by members of the Engineering Advisory Committee to various dam sites on San Joaquin River tributaries November 5th, 6th and 7th.

MOJAVE RIVER INVESTIGATION

Progress report for the year 1930 was practically completed during the month. There have been many demands that this office drill a dam site on the West Fork of the Mojave and as this is the key reservoir in control of the Mojave it is important that it should be drilled, but funds are lacking.

Three new gaging stations were installed by the U. S. Geological Survey on the Mojave under cooperative agreement during the past month.

SANTA ANA INVESTIGATION

Two meetings of the Consulting Board were held on final draft of the report which has been sent to interested parties in the Santa Ana Basin for criticism. With some minor revisions the report will be complete and ready for the printer at an early date.

VENTURA COUNTY INVESTIGATION

Typing of the progress report for the year 1930 is under way in the Sacramento office.

PIT RIVER (MODOC AND LASSEN COUNTIES)

Routine field work was continued throughout the month. Plotting of the irrigated areas is about 95 per cent completed. Work on the resident engineer's progress report for the 1929-1930 season was commenced on October 20th.

NAPA VALLEY INVESTIGATION

During the month of October the wells under investigation in connection with this project were connected up with a line of levels. The wells were spotted as to location on a map to accompany the report and a second set of water levels was taken to cover the low level period.

SANTA CLARA INVESTIGATION

Office work in connection with the progress report covering the Santa Clara Investigation has proceeded and it is expected that a report covering the work during the past year will issue at an early date.

IRRIGATION, WATER STORAGE DISTRICTS AND BOND COMMISSION

The report on irrigation district activities for the year ending 1929 has been completed and is now ready for distribution. The State Engineer reviewed the contents of this report and announced its release at the meeting of the Irrigation Districts Association held in Stockton on November 20, 1930.

Data are now being prepared on irrigation and water storage districts for inclusion in the biennial report of the Division of Water Resources for the period 1929-1930.

Visits were made during the present month to the Butte Valley Irrigation District in Siskiyou County,

Hot Springs Valley Irrigation District in Modoc County, Brown's Valley Irrigation District in Yuba County, Nevada Irrigation District in Nevada and Placer counties and El Dorado Irrigation District in El Dorado County, to advise with their officers in connection with the maintenance and operation of these districts.

A conference was held with the officials of the Richvale irrigation district to consider proposals of the district relative to purchasing an interest in the Sutter-Butte Canal Company.

No meetings of the California Bond Certification Commission were held during the present month.

CALIFORNIA IRRIGATION AND RECLAMATION FINANCING AND REFINANCING COMMISSION

Meetings were held at Stockton August 28, Los Angeles September 19, Fresno October 3, and at San Francisco on October 10 and 17. These meetings were held to provide an opportunity for various irrigation and reclamation districts in different portions of the state to appear and submit financial problems affecting their operations.

LEGISLATIVE WATER COMMITTEE AND HOOVER-YOUNG COMMISSION

The eleventh hearing of the Legislative Water Committee and Hoover-Young Commission convened in Oakland October 27 and 28.

On October 27, a number of representatives from various sections of California appeared to submit water problems concerning their sections of the state. Each representative appearing was requested to file a brief covering his district for study by members of the two bodies.

The twelfth hearing of the same bodies convened in Oakland, November 10, when compendium of data including conclusions of investigations conducted by the Division of Water Resources was submitted. Experiments bearing upon the behavior of salt water in lock operation were attended by the committee and commission at the College of Mechanical Engineering, University of California, Berkeley, during the afternoon.

MISCELLANEOUS

The Imperial Irrigation District has been advised by the Secretary of the Interior that contracts for delivery of water in the All-American Canal can not be completed until this division has ruled on the amounts which shall be allocated to the different claimants in California. Presumably this is true also of the situation with regard to the Boulder Reservoir. It had been assumed by many interests using or proposing to use water from the Colorado River that the government would allocate the water.

A final report was completed on the extent of and use of water on riparian and overflow lands of the Sacramento and American rivers in the valley floor.

In continuation of the field trips which have been made from time to time during the past year by representatives of the state, the U. S. Army Engineers and the U. S. Geological Survey for the location of gaging stations, a trip was made during the past month for the location of gages on the Sacramento and McCloud rivers. Locations were made on the Sacramento River at Antler and on the McCloud River at Baird and the Hearst Estate near McCloud. The Baird and Antler stations have been maintained previously by staff gages and observers, but provision is now made for the installation of automatic water registers. The Hearst station is entirely new. This work is a part of the program for the location of some eighteen new gaging stations and the installation of recorders at eighteen old stations throughout the Sacramento-San Joaquin drainage basin in accordance with a federal-state cooperative agreement.

NOVEMBER REPORT OF DIVISION OF MOTOR VEHICLES

FRANK SNOOK, Chief

MOTOR VEHICLE REGISTRATION GAINS

The registrations for the first ten months of 1930 compared against the same period of 1929 show a gain in registrations of automobiles 63,399, pneumatic trucks 15,738, pneumatic trailers 6719, and a loss in solid trucks of 5050, motorcycles 142, and solid trailers 1026. In the first ten months of 1929 we reported 564,379 transfers, against 492,787 in 1930. This apparent reduction of 71,592 is in reality the difference due to the reduction in transfer fees occasioned by the change in the law reducing transfers in some cases from $2 to $1.

As of November 1st, the Division has registered the following number of vehicles as to classification:

Automobiles	1,916,037
Solid trucks	15,442
Pneumatic trucks	81,556
Motorcycles	9,198
Solid trailers	9,477
Pneumatic trailers	38,037
Transfers	492,787

During the first ten months of 1930 the Division has issued 75,901 nonresident permits, which is 5171 more than were issued in the same period of 1929.

As of November 14, 1930, 34,804 state, county, city, public service and U. S. automobiles, motorcycles and trailers have been registered. This is an increase in total over 1929 of 2227.

DRIVE AGAINST FAULTY LIGHTS

During the past month the Bureau of Lights of the California Highway Patrol has launched another extensive drive against glaring headlights, as well as vehicles being operated with one headlight and no taillight. During the month of October, 20,897 vehicles were reported tested on testing screens by officers of the patrol. Of this number 6335 were found in violation of the law and arrest citations were issued. In Los Angeles County two inspectors were assigned for duty with the police departments of twenty-two small cities, and 8343 vehicles were tested, of which 2331 were given arrest citations. The city of Los Angeles has advised that they will use ten officers to work continuously on lights every night in the week.

BRAKE INSPECTION ACTIVITIES

The Bureau of Brakes reports shows a substantial number of cars tested last month and a slight decrease in the percentage of defective brakes. In addition to handling many questions of a technical nature concerning the mechanical and legal regulations of com-

mercial vehicles, the Bureau handled their regular routine of reports, applications, etc. The following is a resume of brake and truck activities for the month of October:

Number of new applications for brake adjusting stations	33
Total number of applications received to date	1638
Total number authorized	1197
Total number pending and incomplete	441
Number of adjusters authorized	2703
Total number of communications	101

Brake Tests.

Number found defective	1040
Number found satisfactory	8561
Total number of brakes tested	9601
Percentage found defective	10%

Trucks.

Number of trucks checked	1884
Number of trucks warned	898
Number of trucks arrested	544
Number of trucks arrested in October, 1929	170

LICENSE APPLICATIONS

During the month of October 35,637 applications for operator's and chauffeur's licenses were received. Of this number 29,144 licenses were issued. The remaining number failed to pass the examination at their first attempt.

HIGHWAY PATROL SCHOOL

The fifth class of the California Highway Patrol Training School, composed of 49 men, reported for instructions on October 4th. This class was composed entirely of new men or men appointed subsequent to the passage of the 1929 act.

Notice has been received from the War Department that the lease on the barracks and dining hall at Mather Field has been canceled. The commanding officer of the field, however, has permitted the school to remain until such time as the buildings are actually needed.

During the month of October the men in the Highway Patrol covered a total mileage of 868,592 miles.

NOVEMBER REPORT OF DIVISION OF ARCHITECTURE

GEORGE B. MCDOUGALL, Chief

During November contracts have been awarded totaling $322,218.86. The projects included in these contracts include the construction of a ward, kitchen and steam plant building at the Agnews State Hospital; a receiving ward building and auditorium at the State Narcotic Hospital; a hatchery building, superintendent's cottage and improvements to the water and sewer system at the Almanor Fish hatchery.

Projects now out for bids have an estimated total cost of $295,250. These include a men's gymnasium at the San Jose Teachers College; an industrial building and a hospital building at the Stockton State Hospital; a superintendent's cottage at the Preston School of Industry, and a physician's cottage at the Agnews State Hospital.

DIVISION OF ARCHITECTURE

Awards for Month of November

AGNEWS STATE HOSPITAL—Contract for general work on ward, kitchen and steam plant building, which includes additional wing, awarded to J. F. Shepherd of Stockton, $207,961; contract for electrical work, to Roy M. Butcher, San Jose, for $7,629; contract for heating, ventilating and plumbing, to Hateley and Hateley of Sacramento, $41,880.

TEN-YEAR BUILDING CONSTRUCTION PROGRAM FOR STATE INSTITUTIONS

(Continued from page 13.)

were made and plot plans for the ultimate institutions developed by the Division and approved, before further steps were taken, with the result that orderly building construction programs are now under way. The college will move into $750,000 worth of new structures during January, 1931, and the Institution for Women will move into its first new buildings, which it is expected may include some structures to be provided for by the 1931 Legislature, during the latter half of 1931.

Numerous suggested sites have been examined for the new prison for first offenders and the hospital for insane, and final selections will soon be made. Orderly, effective, long time building programs based on all the considerations involved in the ultimate institutions, will be made in these cases.

Governor Young's wise and far-seeing policy referred to at the outset of this statement has been abundantly justified by results already and so soon obtained.

War on illegal signs along the highways has been declared by the Department of Highways in Pennsylvania. Caretakers of the department have just completed the destruction of 32,225 roadside signs embodying every type of blur, daub, scrawl and tattered legend that came within the definition of illegal advertising.

An old man went to a rejuvenation specialist and asked how much it would cost to rejuvenate him.

"To make you feel like 30 again, it will cost you $1,000," said the surgeon, "but to make you look like 25 again will cost $2,000, and anything below that age will be $5,000."

"I don't care about the cost; just make me 18 again," said the oldster.

The operation was a success. But when the surgeon sent in his bill, the rejuvenated one sent it back with this notation:

"You can't collect from a minor!"

Progress on State Highway System

MAJOR PROJECTS COMPLETED, UNDER WAY AND ADVERTISED AS REPORTED TO GOVERNOR'S COUNCIL ON NOVEMBER 6th

C. H. PURCELL, Chief of Division of Highways.

PROGRESS OF WORK

Between October 28th and November 25th contracts have been awarded and work advertised as follows:

Work placed under contract	$768,800
Contracts pending and projects advertised	2,011,400
Total	$2,780,200

COMPLETED PROJECTS

Among the contracts which have been completed during the past month the following are included:

Foothill Boulevard.

In Los Angeles County the heavily traveled Foothill boulevard between Los Angeles and San Bernardino has been widened and resurfaced from Citrus avenue, in Azusa, to Glendora. This contract consisted of building up the shoulders to a roadbed width of 56 feet and placing an asphalt concrete pavement 30 feet wide, giving a three-lane pavement with 13-foot shoulders on the mile of state highway between these two cities. This improvement was made at a cost of $44,600.

Owens Valley Highway.

Costing $254,500, over twenty-one miles of the highway through the Owens Valley has been constructed to modern standards of desert highway improvement. The sector of this highway covered in this project extended from Coso Junction, about 68 miles north of Mojave, to Olancha, along the Haiwee Reservoir of the Los Angeles water supply. The work consisted of placing a 20-foot oil treated crushed rock surface on a standard roadbed 36 feet wide. This project completes the improvement in Inyo County from the southerly boundary to Alabama Gate, about 11 miles south of Independence.

A short section of this highway, as it traverses the high Sierra to the east of the divide, has been revised in alignment and grade at a cost of $58,800. This improvement covered the sector from the Mattly Ranch to Leevining in Mono County, a distance of about two miles. The roadbed was constructed 24 feet wide and surfaced with bituminous crusher run base 20 feet wide.

Cuyama Lateral.

The easterly end of the Cuyama lateral in Kern County has just been reconstructed on a new alignment for a distance of ten miles from the San Emigdio road to the Valley Route just south of Bakersfield. This project is an improvement of a high standard of construction, consisting of a 36-foot graded roadbed with a surface of oil treated crushed rock 20 feet wide with an adequate drainage system to keep the road passable at all times. It will replace the old county road over this portion of the lateral, and joins the easterly end of the twelve miles of newly constructed and surfaced highway between Pentland Junction and San Emigdio road, which was completed in July of this year. The new road will afford a more direct route for traffic between the Valley road and the Maricopa and adjoining oil fields as well as being an important improvement on this connecting link between the San Joaquin Valley and the Coast Route at Santa Maria. The cost of the reconstruction of this ten miles amounted to $144,600.

Truckee-Meyers Road.

Two miles of the Truckee-Meyers road as it traverses the rugged granite slopes along the shores of Lake Tahoe at Emerald Bay have just been reconstructed. The improvement is located between Bay View Rest and Eagle Falls, and was graded at a cost of $193,800. Numerous hazardous curves, steep grades and narrow sections were eliminated, making this popular highway through the Lake Tahoe resort area of suitable width and grade for safe and comfortable travel over its entire length.

Pacific Highway (West Side).

Progress on the improvement of the West Side Highway in the Sacramento Valley is noted by completion of three contracts. Two of these are on that portion of this important arterial between Williams and Maxwell in Colusa County. They consist of the widening of three reinforced concrete bridges and the construction of a 39-foot graded roadbed to the west of the existing pavement so that the center line of the ultimate paving will coincide with the center line of the recently acquired 100-foot right of way. The grading of this 8.3 miles is the first of three stages of construction in the building of the highway. The second stage, consisting of placing a heavy gravel base for the new pavement, has been started, and the pavement will be laid during the next biennium. Particular care was taken in the grading project to secure adequate drainage as the road passes through heavily irrigated rice fields. The third project on this interstate highway comprised the placing of a Portland cement concrete pavement over the five miles between Logandale and Willows, in Glenn County, as the final stage of a similar improvement. The cost of these three improvements amounted to $242,100.

Redwood Highway.

The past month has seen the completion of nearly one million dollars worth of work and $550,000 in projects advertised and pending award on the Red-

wood Highway. The completed contracts included five projects on various portions of this scenic coastal route extending from Ignacio in Marin County to Wilson Creek in Del Norte County.

The largest of these projects consisted of the reconstruction of the highway from Ignacio, about seven miles north of San Rafael, to Petaluma in Sonoma County. This work, costing $581,700, consisted of constructing a 36-foot graded roadbed and placing Portland cement concrete pavement 20 feet wide, except over fills where settlement is expected, the surfacing consisted of twenty feet of bituminous macadam. Several necessary betterments in line and grade were made, eliminating 6 per cent grade and short radius curves, saving some 4000 feet of length, and unsatisfactory drainage conditions were remedied.

In Humboldt County the mile and a half from the southerly boundary to Richardson's Grove was graded and surfaced with untreated crushed rock on an improved alignment and grade. The contract amounted to $59,500.

Portland cement concrete pavement was placed on about five miles of the highway in Humboldt County covering three short sections, one at Scotia and a second from Fortuna to Loleta and the third over the half mile immediately south of Eureka. The roadbed on these three sections had been previously constructed to modern standards. This work, covered by two contracts, amounted to $190,000, and increases the concrete pavement on the Redwood Highway in Humboldt County to approximately 35 miles.

The thirteen miles from the southerly boundary of Del Norte County to Wilson Creek was surfaced with untreated crushed rock 20 feet wide. The alignment and subgrade on this portion of the road have been brought to modern standards within recent years, and the present surfacing gives a smooth riding surface along the steep mountain slopes and through the thick forests which this section of the Redwood Highway traverses. The cost was $95,500.

A small but much needed improvement on this route will be the replacing of the timber lift span on the bridge across Eureka Slough at Eureka, for which bids were opened during the past period. To cost less than $5,000, this project is of a temporary character, as the complete reconstruction of this structure will be made within a few years. The present bridge was constructed by the state in 1919.

The completion of construction on the new alignment of the Redwood Highway between San Rafael and Sausalito is forecast by the advertising and opening of bids on that sector between Alto and Waldo. Bids were opened on November 19th for the construction of three miles of roadway between these two points. The graded roadbed is to be 46 and 56 feet wide, and the surfacing will be a bituminous macadam pavement 30 and 40 feet wide. This project will connect at its northerly end with that portion of this new alignment from Alto to San Rafael, upon which surfacing is now being placed. As a unit of the south portion of this relocation a project for the construction of bridge and overhead crossing at Manzanita was advertised for bids on October 29th. This structure will cross the tracks of the Northwestern Pacific Railroad and an arm of Richardson's Bay. The bridge and overhead will consist of a 56-foot plate girder lift span on concrete piers with pile foundations, a 45-foot steel stringer span on concrete bents with pile foundations and 2340 feet of timber trestle on pile and frame bents; the roadway will be 44 feet wide and paved with asphalt concrete. The cost of these two projects will be approximately $560,000. This new routing between San Rafael and Sausalito will avoid the narrow and crooked Corte Madera grade and materially shorten the distance between these two points.

BID OPENINGS

Other important projects for which bids have been opened during the past four weeks include the following:

Cholame Lateral.

The construction of a graded roadbed 36 feet wide and Portland cement concrete paving 20 feet wide on the Cholame Pass lateral at the grade separation near Wasco in Kern County will cost $26,000. The steel and concrete separation structure is now being built by the Atchison, Topeka and Santa Fe Railroad, and the state will construct the highway through the subway. This project will be a marked improvement on this portion of this lateral which connects the Coast Road at Paso Robles with the Los Angeles-Sacramento highway at Famosa, just to the north of Bakersfield.

Bay Shore Highway.

Further progress on the new Bay Shore Highway, which is being built between San Francisco and San Jose as an alternate route to the coast road down the peninsula, is evidenced by the opening of bids for the construction of a reinforced concrete girder bridge across Redwood Slough at Redwood City. This structure will connect the newly constructed roadway from San Mateo to Redwood City with the section, now under construction, between Redwood City and Willow road.

A project of the first magnitude will be the erection of a steel cantilever bridge across the North Fork of the Feather River at Pulga in Butte County. Bids for placing the concrete piers and abutments were opened on November 19th, and advertising for the erection of the steel superstructure was published on the fifth of November. These projects will comprise a unit of the Oroville to Quincy lateral, which is being constructed up the Feather River Canyon. Grading of the adjoining roadway to the south of this crossing is now under way along the precipitous wall of the canyon. The deck of the highway bridge will be 170 feet above high water and 130 feet above the top of the Western Pacific Railroad bridge which passes diagonally under the state's proposed structure. The project for the substructure calls for placing two reinforced concrete abutments and two reinforced concrete piers. The erection of the superstructure will include one 350-foot steel arch span, two 62-foot plate girder spans, and one 44-foot plate girder span. The roadway width of the bridge will be 24 feet. At a cost of $280,300 another link will be added to this new all-year highway to Quincy and Plumas County.

PROJECTS ADVERTISED

Advertisements for the past period also include the following projects:

El Centro-Yuma Highway.

Construction on six miles of the transcontinental highway which enters California via Yuma, Arizona, will consist of grading a roadbed 36 feet wide and placing 20 feet of asphalt concrete pavement between the Colorado River bridge at Yuma to Arizona in Imperial County. This project will be a much needed

improvement to the most southerly entrance to California. The new pavement will be placed on a gravel subbase, which will raise the grade of the highway sufficiently to give proper and adequate drainage.

Coast Route.

Two projects of prime importance to the improvement of the heavily traveled coast route connecting Los Angeles and San Francisco were advertised for bids during the month.

The one, in Santa Barbara County, calls for the construction of a graded roadbed and the placing of a 20-foot Portland cement concrete pavement over the three miles of this road as it passes through the picturesque Gaviota Canyon 32 miles north of the city of Santa Barbara. The project will extend from Gaviota Station to Las Cruces. The existing sharp curves and adverse grades through the canyon are to be reconstructed to modern standards of highway alignment. To accomplish this end much heavy grading along the canyon walls will be necessary. Under a separate contract a reinforced concrete arch bridge will be constructed at a crossing of Gaviota Creek.

The other project comprises the grading and paving of eleven miles of the coast route in San Luis Obispo County from Paso Robles to the Monterey County line. In this instance the pavement will be asphalt concrete, and portions will be placed over the existing 15-foot Portland cement concrete pavement. The new pavement is to be placed with a "one-way crown" so that future widening may be done on the west side away from the tracks of the Southern Pacific Railroad which parallel the highway. An important phase of this improvement is the modification of the dangerous curve at the northerly entrance to Paso Robles. As a unit of the improvement between the limits of this work will be the construction of a new bridge across San Marcos Creek. This structure will be built as a separate project, and will be advertised in the near future.

Pacheco Pass.

In Santa Clara County nearly eleven miles of the Pacheco Pass lateral is to be reconstructed from San Felipe to one mile east of Bell's Station. The present improvement will involve the placing of a 20-foot bituminous macadam pavement with eight-foot shoulders on an improved alignment and grade. This lateral, connecting as it does the Valley Route at Califa with the coast road at Gilroy, carries a rapidly increasing amount of traffic, especially high speed commercial trucking, and this work is so designed that the road may better care for the travel it is called upon to bear. The improvement is estimated to cost $274,000.

HIGHWAY BIDS AND AWARDS
For Month of November

BUTTE COUNTY—Substructure of a bridge across North Fork of Feather River at Pulga. Dist. II, Rt. 21, Sec. C. M. H. Slocum, Los Angeles, $34,901; Gutleben Bros., Oakland, $34,332; B. B. Boyd, San Diego, $36,146; Lord & Bishop, Sacramento, $37,087; Gist & Bell, Arcadia, $39,246; Paul M. White, Santa Monica, $43,103; Peter McHugh, San Francisco, $36,954; Rocca & Caletti, San Rafael, $37,281; Ward Engineering Co., San Francisco, $38,333; Fred J. Maurer & Son, Eureka, $44,586. Contract awarded to R. B. McKenzie, Red Bluff, $32,370.

HUMBOLDT COUNTY—The building of a truck shed at Garberville maintenance station. Dist. I, Rt. 1, Sec. A. Mercer-Fraser Co., Eureka, $5,466; Oliver S. Almlie, Crescent City, $5,983. Contract awarded to McCarthy & Johanns, San Francisco, $4,488.

KERN COUNTY—Improvement of maintenance station at Delano; Dist. VI, Rt. 4, Sec. F. Currie & Dulgar, Bakersfield, $2,498. Contract awarded to R. Hodgson & Sons, Porterville, $1,995.

KERN COUNTY—Near Wasco, about 0.2 of a mile to be graded and paved with Portland cement through underpass. Dist. VI, Rt. 33, Sec. D. Hartman Construction, Bakersfield, $22,894. Contract awarded to Valley Paving and Construction Company, $22,819.50.

KERN COUNTY—Four timber bridges from 17 to 21 miles west of Wasco, 1 composed of 12 19-ft. spans, 2 composed of 2 19-ft. spans and 1 composed of 4 19-ft. spans with concrete footings. Dist. VI, Rt. 33, Sec. C. Finnell Co., Inc., Sacramento, $32,242; Donald E. Metzger & Son, Los Angeles, $30,458; V. R. Dennis, San Diego, $25,728; Gist & Bell, Arcadia, $29,735; Geo. J. Ulrich, Modesto, $26,714; R. B. McKenzie, Red Bluff, $25,870; G. A. Graham, Bakersfield, $25,682. Contract awarded to M. H. Slocum, Los Angeles, $25,118.20.

LOS ANGELES COUNTY—Between La Canada and 2¾ miles north, 2.4 miles to be oiled. Dist. VII, Rt. 61, Sec. A. Leonard C. Pulley, Long Beach, $6,135; P. J. Akmadzich, Los Angeles, $6,338; Geo. Gardner & Sons, Redlands, $7,135; Southwest Paving Co., Los Angeles, $8,048; H. E. Cox & Son, Pasadena, $12,431. Contract awarded to Charles A. Ladeveze, South Gate, $5,633.75.

LOS ANGELES COUNTY—Reinforced concrete girder bridge over the A. T. & Santa Fe R. R., at Manhattan Beach. Dist. VII, Rt. 60, Sec. C. Bodenhamer Const. Co., San Diego, $33,155; Herbert M. Baruh, Los Angeles, $29,936; Houghton & Anderson, Los Angeles, $31,196; Carpenter Bros., Beverly Hills, $32,230; Oberg Bros., Los Angeles, $32,509; J. S. Metzger and Son, Los Angeles, $29,969; O. A. Gierlich, Monrovia, $31,913; Ralph E. Hamann Co., Los Angeles, $35,821; General Engineer Corp., Los Angeles, $39,611. Contract awarded to Robert F. McKee, Los Angeles, $29,785.

MARIN COUNTY—Between Alto and Waldo, 3 miles to be graded and surfaced with bituminous macadam. Dist IV, Rt. 1, Sec. C. H. W. Rohl Co., Los Angeles, $197,904; E. C. Coats, Sacramento, $194,092; Lewis Const. Co., Los Angeles, $204,012; O. A. Lindberg, Stockton, $236,776; Peninsula Paving Co., San Francisco, $189,725; M. J. Beyanda, Stockton, $198,086; Skeel & Graham Co., Roseville, $259,128; W. H. Hauser, Oakland, $262,724; Finnell Co., Sacramento, $293,557; D. McDonald, Sacramento, $329,875; R. G. Le Tourneau, Inc., Stockton, $217,986; Hemstreet & Bell, Marysville, $239,635; Frederickson & Watson Const. Co., Oakland, $201,586; Healy-Tibbits Const. Co., San Francisco, $208,850; Utah Const. Co., San Francisco, $277,032; Guy F. Atkinson Co., San Francisco, $253,202; George Pollock Co., Sacramento, $223,782; J. F. Knapp, Oakland, $225,257. Contract awarded to Granfield, Farrar and Carlin of San Francisco for $189,633.40.

SAN LUIS OBISPO COUNTY—Repairs to San Carpojo Creek bridge. Dist. V, Rt. 56, Sec. A. Wm. Lane, Paso Robles, $10,520. Contract awarded to San Atlas Const. Co., San Luis Obispo, $9,483.25.

SAN MATEO COUNTY—Reinforced girder bridge across Redwood Creek, near Redwood City, consist-

ing of three 35-foot spans and one 22-foot span on concrete pile bents. District IV, Rt. 68, Sec. C. A. W. Kitchen, Piedmont, $39,267; R. B. McKenzie, Red Bluff, $37,141; Healy-Tibbits Const. Co., San Francisco, $41,890; H. C. Vensona & Co., San Francisco, $41,224; C. J. Nystedt, Oakland, $43,633; Geo. J. Ulrich, Modesto, $37,289; Fredrickson & Watson, Oakland, $38,097; Ben C. Gerwick, Inc., San Francisco, $33,117. Contract awarded to Bodenhamer Const. Co., San Diego, $35,756.

SANTA BARBARA COUNTY. At Nojoqui Creek, about 0.3 of a mile to be graded and paved with Portland cement concrete (approaches to new bridge). Dist. V, Rt. 2, Sec. D. Cornwall Const. Co., Santa Barbara, $31,006; W. A. Dontanville, Salinas, $28,349; Santa Maria Const. Co., $25,273. Contract awarded to Macco Const. Co., Clearwater, $22,518.50.

WATER APPLICATIONS AND PERMITS

Application for Permit to Appropriate Water Filed with the Department of Public Works, Division of Water Resources, During the Month of November, 1930.

NEVADA COUNTY—Application 6824. Gordon M. Bettles, Box 863, Nevada City, Cal., for 3.0 c.f.s. from South Fork of Poorman Creek tributary to South Fork of Yuba River to be diverted in Sec. 15, T. 18 N., R. 11 E., M. D. B. and M., for power purposes (290 h.p.). Estimated cost $8,000.

RIVERSIDE COUNTY—Application 6825. Edward Molitor, Keen Camp, Riverside County, Cal., for 0.05 c.f.s. from unnamed stream tributary to San Jacinto watershed to be diverted in Sec. 26, T. 5 S., R. 3 E., S. B. B. and M., for irrigation and domestic purposes (20 acres). Estimated cost $600.

MONO COUNTY—Application 6826. Dr. J. A. Jeffery, c/o Preston & Braucht, 309 Bank of Italy Bldg., Merced, Cal., for 1.0 c.f.s. and 300 ac. ft. per annum from Milner Creek tributary to Hammil Valley watershed to be diverted in Sec. 15, T. 4 S., R. 33 E., M. D. B. and M., for irrigation purposes. Estimated cost $2,500.

TRINITY COUNTY—Application 6827. Humboldt Placer Mining Co. (a corp.), by Geo. E. Waggoner, attorney in fact, 427 East McCloud Ave., Stockton, Cal., for (1) 100 c.f.s., (2) 25 c.f.s., (3) 40 c.f.s., (4) 10 c.f.s., from (1) Stuart's Fork of Trinity River, (2) Owens Creek, (3) Van Matre Creek, (4) Slate Creek, tributary to Trinity River to be diverted in (1) Sec. 30, T. 37 N., R. 9 W., M. D. B. and M., (2) Sec. 12, T. 35 N., R. 10 W., M. D. B. and M., (3) Sec. 24, T. 35 N., R. 10 W., M. D. B. and M., (4) Sec. 4, T. 34 N., R. 9 W., M. D. B. and M., for mining and domestic purposes.

PLACER COUNTY—Application 6828. Archie L. Ware, Lincoln, Placer County, Cal., for 0.25 c.f.s., from unnamed spring tributary to Coon Creek and Sacramento River to be diverted in Sec. 1, T. 13 N., R. 6 E., M. D. B. and M., for irrigation and domestic purposes (38.17 acres). Estimated cost $1,000.

TUOLUMNE COUNTY—Application 6829. Turlock and Modesto Irrigation Districts, c/o R. V. Meikle, Chief Engineer, Turlock, Cal., for (1) 150 c.f.s., (2) 200 c.f.s., and (1) 27,000 ac. ft. per annum, (2) 43,000 ac. ft. per annum, (3) 5000 ac. ft. per annum. Total from all sources not to exceed 80,000 ac. ft. for storage from (1) Middle Fort Tuolumne River, (2) South Fork Tuolumne River, (3) Big Creek tributary to Tuolumne River to be diverted in (1) Sec. 22, T. 1 S., R. 18 E., M. D. B. and M., (2) Sec. 34, T. 1 S., R. 18 E., M. D. B. and M., for power purposes (56,951 h.p.). Estimated cost $1,885,000.

SAN DIEGO COUNTY—Application 6830. La Mesa, Lemon Grove and Spring Valley Irrigation District, c/o E. P. Hyatt, La Mesa, San Diego County, Cal., for 50 c.f.s. and 18,000 ac. ft. per annum, from Santa Ysabel Creek tributary to San Dieguito River to be diverted in Sec. 19, T. 12 S., R. 3 E., S. B. B. and M., for municipal purposes.

SAN DIEGO COUNTY—Application 6831. La Mesa, Lemon Grove and Spring Valley Irrigation District, c/o E. P. Hyatt, La Mesa, San Diego County, Cal., for 50 c.f.s. and 18,000 ac. ft. per annum, from Santa Ysabel Creek tributary to San Dieguito River to be diverted in Sec. 19, T. 12 S., R. 3 E., S. B. B. and M., for irrigation and domestic purposes.

HUMBOLDT COUNTY—Application 6832. Emmett Lewis, c/o Maple Creek Stage, Korbel, Cal., for 0.062 c.f.s. from unnamed spring tributary to Mad River to be diverted in Sec. 7, T. 3 N., R. 4 E., H. B. and M., for irrigation and domestic purposes (3 acres).

SISKIYOU COUNTY—Application 6833. Fred J. Blakeley, c/o Butler, Van Dyke, Desmond & Harris, Attorneys, Capital National Bank Bldg., Sacramento, Cal., for 25 c.f.s. and 4000 ac. ft. per annum, from Elliott Creek tributary to Applegate River, Oregon, to be diverted in Sec. 24, T. 48 N., R. 10 W., M. D. B. and M., for irrigation purposes (6000 acres). Estimated cost $50,000.

SIERRA COUNTY—Application 6834. Langdon Smith, c/o R. F. Taylor, Downieville, Cal., for 0.003 c.f.s. from unnamed spring tributary to Spanish Ravine and North Fork Yuba River to be diverted in Sec. 5, T. 19 N., R. 10 E., M. D. B. and M., for domestic purposes. Estimated cost $500.

HUMBOLDT COUNTY—Application 6835. Benbow Power Co., Benbow, Humboldt County, Cal., for 320 c.f.s. from South Fork of Eel River tributary to Eel River to be diverted in Sec. 36, T. 4 S., R. 3 E., H. B. and M., for power purposes (982 h.p.).

MARIPOSA COUNTY—Application 6836. Mrs. Estelle L. Fraser of Coulterville, Mariposa County, Cal., for 39 c.f.s. from North Fork of Merced River tributary to Merced River to be diverted in Sec. 7, T. 3 S., R. 18 E., M. D. B. and M., for power purposes (151 h.p.).

MONTEREY COUNTY—Application 6837. Henrietta T. Austin, P. O. Box 522, Salinas, Cal., for 0.075 c.f.s. from unnamed stream tributary to Carmel River to be diverted in Sec. 2, T. 17 S., R. 2 E., M. D. B. and M., for irrigation and domestic purposes (4 acres).

SAN DIEGO COUNTY—Application 6838. Larry Dominquez, Box 27, Julian, Cal., for 1.875 c.f.s. from spring tributary to Carrizo Creek to be diverted in Sec. 34, T. 14 S., R. 7 E., S. B. B. and M., for irrigation and domestic purposes (80 acres). Estimated cost $5,000.

Permits to Appropriate Water Issued by the Department of Public Works, Division of Water Resources, During the Month of November, 1930.

SAN BERNARDINO COUNTY—Permit 3600, Application 6706. Geo. Tillitt, Highland, Cal., November 3, 1930, for 0.003 c.f.s. from unnamed spring in Sec. 23, T. 2 N., R. 2 W., S. B., for domestic use. Estimated cost $560.

EL DORADO COUNTY—Permit 3601, Application 6761. John M. Ochsner, Sacramento, Cal., November 6, 1930, for 0.0003 c.f.s. from unnamed spring in Sec. 23, T. 11 N., R. 15 E., M. D., for domestic purposes. Estimated cost $60.

LOS ANGELES COUNTY—Permit 3602, Application 5555. John Kasper, Taft, Cal., November 6, 1930, for 25 c.f.s. from Fall Canyon in Sec. 13, T. 5 N., R. 15 W., S. B., for mining purposes. Estimated cost $2,500.

SANTA CRUZ COUNTY—Permit 3603, Application 5297. Felton Water Co., Felton, Cal., November 6, 1930, for 0.232 c.f.s. from Bennett Creek and Shingle Mill Creek in Sec. 21, T 10 S., R. 2 W., M. D., for domestic purposes. Estimated cost $5,000.

SANTA CRUZ COUNTY—Permit 3604, Application 5298. Felton Water Co., Felton, Cal., November 6, 1930, for 0.232 c.f.s. from Bennett Creek and Shingle Creek in Sec. 21, T. 10 S., R. 2 W., M. D., for irrigation on 283.4 acres. Estimated cost $5,000.

SANTA CRUZ COUNTY—Permit 3605, Application 5299. Felton Water Co., Felton, Cal., November 6, 1930, for 0.232 c.f.s. from Bennett Creek and Shingle Mill Creek in Sec. 21, T. 10 S., R. 2 W., M. D., for municipal purposes. Estimated cost $5,000.

SAN DIEGO COUNTY—Permit 3606, Application 6360. Robert C. McCull, Imperial, Cal., November 7, 1930, for 2 c.f.s. from stream in Storm Canyon in Sec. 35, T. 14 S., R. 5 E., S. B., for irrigation and domestic uses on 120 acres. Estimated cost $5,000.

ALAMEDA COUNTY—Permit 3607, Application 6707. East Bay Municipal Utility District, Oakland, Cal., November 7, 1930, for 42 c.f.s. and 41,436 ac. ft. per annum from seven streams tributaries to San Leandro Bay in Sec. 6, T. 2 S., R. 2 W., M. D., for municipal use. Estimated cost $1,377,000.

SACRAMENTO COUNTY—Permit 3608, Application 6758. A. L. White, Sacramento, Cal., November 7, 1930, for 1 c.f.s. from Sacramento River in Sec. 35,

T. 10 N., R. 3 E., M. D., for irrigation use on 80 acres. Estimated cost $2,000

SAN JOAQUIN COUNTY—Permit 3609, Application 6767. E. E. Hahn, Stockton, Cal., November 7, 1930, for 0.55 c.f.s. from French Camp Slough in Sec. 6, T. 1 S., R. 7 E., M. D., for irrigation use on 75.4 acres. Estimated cost $3600.

SAN MATEO COUNTY—Permit 3610, Application 5670. Butano Land and Development Co., Los Altos, Cal., November 10, 1930, for 0.67 c.f.s. Butano Creek in Sec. 17, T. 8 S., R. 4 W., M. D., for domestic purposes. Estimated cost $10,000.

SAN MATEO COUNTY—Permit 3611, Application 5671. Butano Land and Development Co. of Palo Alto, California, November 10, 1930, for 0.083 c.f.s. from 3 unnamed springs and an unnamed stream in Sec. 17, T. 8 S., R. 4 W., M. D., for domestic purposes. Estimated cost $1,000.

SAN MATEO COUNTY—Permit 3612, Application 6121. Bertha A. Wildes, Piedmont, Cal., November 10, 1930, for 0.2 c.f.s. from 4 springs and Butano Creek in Secs. 19 and 20, T. 8 S., R. 4 W., M. D., for use for irrigation, domestic and maintenance of fish ponds on 200 acres.

PLUMAS COUNTY—Permit 3613, Application 6691. J. W. McKay and Merritt J. Reed, Meadow Valley, Cal., November 12, 1930, for 0.02 c.f.s. from Deadwood Creek in Sec. 29, T. 24 N., R. 8 E., for mining and domestic purposes. Estimated cost $200.

SAN BERNARDINO COUNTY—Permit 3614, Application 6751. J. Richard Haas, Glendale, Cal., November 17, 1930, for 0.01 c.f.s. from an unnamed spring in Sec. 5, T. 2 N., R. 2 E., S. B., for domestic, stock and garden purposes. Estimated cost $50.

SUTTER COUNTY—Permit 3615, Application 6486. Scott F. Ennis and Edward S. Brown, Sacramento, Cal., November 19, 1930, 60 c.f.s. from Sacramento River in Sec. 15, T. 14 N., R. 1 E., M. D., for irrigation use on 2482 acres. Estimated cost $41,000.

RIVERSIDE COUNTY—Permit 3616, Application 6633. W. R. Peeler, Elsinore, Cal., November 20, 1930, for 0.0025 c.f.s. from a spring in Sec. 24, T. 6 S., R. 5 W., S. B., for domestic purposes. Estimated cost $500.

LOS ANGELES COUNTY—Permit 3617, Application 4039. City of Arcadia, November 24, 1930, for 2 c.f.s. and 2500 ac. ft. per annum from Santa Anita Creek in Sec. 10, T. 1 N., R. 11 W., S. B. M., for municipal and domestic purposes. Estimated cost $5,000.

LOS ANGELES COUNTY—Permit 3618, Application 4058. City of Sierra Madre, November 24, 1930, for 4 c.f.s. and 2000 ac. ft. per annum from Big Santa Anita Creek in Sec. 10, T. 1 N., R. 11 W., S. B., for domestic purposes. Estimated cost $75,000.

LOS ANGELES COUNTY—Permit 3619, Application 3498. Security First National Bank of Los Angeles, Los Angeles, Cal., November 24, 1930, for 3000 ac. ft. per annum from Santa Anita Creek in Sec. 10, T. 1 N., R. 11 W., S. B., for domestic use. Estimated cost $100,000.

LOS ANGELES COUNTY—Permit 3620, Application 5997. Security First National Bank of Los Angeles, Los Angeles, Cal., November 24, 1930, for 3000 ac. ft. per annum from Santa Anita Creek in Sec. 10, T. 1 N., R. 11 W., S. B. M., for domestic use. Estimated cost $100,000.

SUTTER COUNTY—Permit 3621, Application 6726. B. P. Lilienthal, trustee, San Francisco, Cal., November 25, 1930, for 5 c.f.s. from Sacramento River in Sec. 11, T. 15 N., R. 1 W., M. D., for irrigation use on 200 acres. Estimated cost $5,000.

MONTEREY COUNTY—Permit 3622. Application 6718. El Sur Land and Cattle Co., Pebble Beach, Cal., November 28, 1930, for 12 c.f.s. from Big Sur River in Sec. 16, T. 19 S., R. 1 E., M. D., for irrigation use on 1024 acres. Estimated cost $56,030.

RIVERSIDE COUNTY—Permit 3623, Application 1752. Temescal Water Co., Corona, Cal., November 29, 1930, for 12,000 ac. ft. per annum from San Jacinto River in Sec. 3, T. 4 N., R. 7 W., S. B. M., for irrigation of 5000 acres. Estimated cost $100,000.

RIVERSIDE COUNTY—Permit 3624, Application 2341. Lake Hemet Water Co., Hemet, California, November 29, 1930, 18,000 ac. ft. per annum from Strawberry Creek, Dry Creek and Harthom Creek in Secs. 23, 25 and 35, T. 5 S., R. 2 W., S. B., for irrigation and domestic use on 12,508.64 acres. Estimated cost $665,000.

"Ma, is it right to say that you 'water a horse' when you give him a drink?"

"Yes, son."

"Well, then, I'm going to milk the cat."

DAM APPLICATIONS AND APPROVALS

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 November, 1930.

SIERRA COUNTY—Packer Lake Dam No. 294–6. E. A. and J. O. Hayes, San Jose, owners; rock and earth, 7.7 feet above streambed with a storage capacity of 70 acre-feet, situated on Packer Creek tributary to North Fork Yuba River in Sec. 5, T. 20 N., R. 12 E., M. D. B. and M., for storage purposes for power use.

SIERRA COUNTY—Deer lake Dam No. 294–7. E. A. and J. O. Hayes, San Jose, owners; earthfill, with a storage capacity of 70 acre-feet, situated on tributary of Salmon Creek tributary to Yuba River in Sec. 31, T. 21 N., R. 12 E., M. D. B. and M., for storage purposes for power use.

SHASTA COUNTY—Hat Creek No. 1 Diversion Dam No. 97–97. Mt. Shasta Power Corp., San Francisco, owner; rock crib, 6½ feet above streambed, situated on Hat Creek tributary to Pit River in Sec. 5, T. 35 N., R. 4 E., M. D. B. and M.

TUOLUMNE COUNTY—Big Dam No. 97–103. Sierra and San Francisco Power Co., San Francisco, owner; crib dam, 35 feet above streambed with a storage capacity of 1890 acre-feet, situated on South Fork Stanislaus River tributary to Stanislaus River in Sec. 9, T. 4 N., R. 9 E., M. D. B. and M.

TRINITY COUNTY—Lower Stuarts Fork Dam No. 212. La Grange Placers, Inc., Los Angeles, owner; rock fill, 15 feet above streambed, situated on Stuarts Fork Creek tributary to Trinity River in Sec. 3, T. 36 N., R. 10 W., M. D. B. and M., for storage purposes for mining use.

SAN MATEO COUNTY—Fleishhacker Dam No. 609. Mortimer Fleishhacker, Woodside, owner; earth fill, 30 feet above streambed with a storage capacity of 11.75 acre-feet, situated on unnamed creek tributary to San Gregorio Creek.

PLUMAS COUNTY—Taylor Lake Dam No. 288. J. L. and Elizabeth Robinson, Reno, Nevada, owners; rock and earth dam, 10 feet above streambed with a storage capacity of 200 acre-feet, situated on Hungry Creek tributary to Indian Creek in Sec. 35, T. 27 N., R. 11 E., M. D. B. and M., for storage purposes for irrigation use.

TEHAMA COUNTY—Stewart Dam No. 262. Jesse I. Selvester, Cottonwood, owner; earth dam, 11 feet above streambed with a storage capacity of 10 acre-feet, situated on drainage tributary to Cottonwood Creek.

MODOC COUNTY—Ralston Dam No. 151–2. James M. Fitzhugh, Alturas, owner; timber dam, 5 feet above streambed with a storage capacity of 50 acre-feet, situated on Pit River tributary to Sacramento River in Sec. 3, T. 41 N., R. 10 E., M. D. B. and M., for diversion purposes for irrigation use.

MONO COUNTY—Dexter Creek Dam No. 532. Wm. Symons, Hammil, owner; earth dam, 18½ feet above streambed with a storage capacity of 536.68 acre-feet, situated on Dexter Creek tributary to Adobe Creek in Sec. 12, T. 1 S., R. 29 E., M. D. B. and M., for diversion purposes for irrigation use.

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 November, 1930.

CONTRA COSTA COUNTY—Port Costa Reservoir No. 581–2. California Water Service Company, San Francisco, owner; earth dam, 39 feet above streambed with a storage capacity of 41.7 acre-feet, located in Sec. 3, T. 2 N., R. 3 W., M. D. B. and M., for storage purposes for domestic and industrial use. Estimated cost of enlargement $5,434. Fees paid $54.34.

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 November, 1930.

CONTRA COSTA COUNTY—Port Costa Dam No. 581–2. California Water Service Company, San Fran-

cisco, owner; earth dam, located in Sec. 3, T. 2 N., R. 3 W., M. D. B. and M.

CONTRA COSTA COUNTY—Chenery Dam No. 581. California Water Service Company, San Francisco, owner; earth fill dam, located in Sec. 13, T. 2 N., R. 2 W., M. D. B. and M.

MODOC COUNTY—Bayley Dam No. 128–3. Modoc Feeding Company, Likely, owner; earth dam, situated on Crooks Canyon tributary to South Fork Pitt River in Sec. 32, T. 40 N., R. 12 E., M. D. B. and M.

SIERRA COUNTY—Lower Fairplay Dam No. 296–4. W. P. Stiles, Shreveport, Louisiana, owner; earth dam, situated in T. 20 N., R. 9 E., M. D. B. and M.

SAN BERNARDINO COUNTY—Running Springs Dam No. 806. Running Springs Park, Inc., Los Angeles, owner; earth dam, situated on tributary to Deep Creek.

SAN BERNARDINO COUNTY—Chino Ranch No. 1, No. 801. Wm. Rowland Estate, Scott Investment Co. and Chandis Sec. Co., Los Angeles, owners; earth fill, situated on Branch of Brea Canyon in Sec. 13, T. 2 S., R. 9 W., S. B. B. and M.

SACRAMENTO AND PLACER COUNTIES—Baldwin Reservoir A and B, No. 324–2. North Fork Ditch Company, San Francisco, owner; earth fill, situated on unnamed creek tributary to Linda Creek in Sec. 14, T. 10 N., R. 7 E., M. D. B. and M.

LASSEN COUNTY—Lexalt Dam No. 248. Peter Laxalt, Madeline, owner; earth dam, situated on McDonald Creek tributary to Madeline Plains in Sec. 2, T. 36 N., R. 13 E., M. D. B. and M.

MODOC COUNTY—White Reservoir No. 151. James M. Fitzhugh, Alturas, owner; earth dam, situated on unnamed gulch tributary to Pit River in Sec. 26, T. 41 N., R. 10 E., M. D. B. and M.

MODOC COUNTY—Courtwright Dam No. 155. R. Anchordoguy, Red Bluff, owner; earth dam, situated on Happy Camp Creek in Sec. 15, T. 42 N., R. 7 E., M. D. B. and M.

SAN BERNARDINO COUNTY—Chino Ranch No. 2, No. 801–2. W. Astley, Los Angeles, owner; earth dam, situated on Branch of Brea Canyon in Sec. 13, T. 2 S., R 9 W., S. B. B. and M.

SAN BERNARDINO COUNTY—Chino Ranch No. 3, No. 801–3. W. Astley, Los Angeles, owner; arch dam, situated on Branch of Brea Canyon, located in Sec. 13, T. 2 S., R. 9 W., S. B. B. and M.

CONTRA COSTA COUNTY—Port Costa Brick Works Dam No. 585. Port Costa Brick Works, Port Costa, owner; earth dam situated on a ravine.

SAN BERNARDINO COUNTY—Los Cerranos Dam No. 808. Davidson Investment Company, Long Beach, owner; earth dam.

RIVERSIDE COUNTY—Alvord (Sanborn) Dam No. 815. Riverside Water Company, Riverside, owner; earth fill dam, located in S½, Sec. 23, T. 3 S., R. 6 W., S. B. B. and M.

RIVERSIDE COUNTY—Mocking Bird Canyon Dam No. 814. Gage Canal Company, Riverside, owner; situated in Mocking Bird Canyon in Sec. 20, T. 3 S., R. 5 W., S. B. B. and M.

PLANS APPROVED

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 November, 1930.

STANISLAUS COUNTY—La Grange Dam No. 68–2. Turlock and Modesto Irrigation Districts, Turlock and Modesto, owners; gravity arch dam, situated on Tuolumne River tributary to San Joaquin River in Sec. 16, T. 3 S., R. 14 E., M. D. B. and M.

ORANGE COUNTY—Peters Canyon Dam No. 793–2. The Irvine Company, Tustin, owner; earth dam, 41 feet above streambed with a storage capacity of 1090 acre-feet, situated on Peters Canyon located in Block 16, Irvine's Subdivision, for storage purposes for irrigation use.

Plans for the Repair or Alteration of Dams Approved by the State Department of Public Works, Division of Water Resources, During the Month of November, 1930.

MODOC COUNTY—Payne Dam No. 143. H. G. and R. A. Payne and G. P. French, Alturas, owners; earth dam, situated on unnamed drainage tributary to South Fork Pit River in Sec. 15, T. 41 N., R. 13 E., M. D. B. and M.

NEVADA COUNTY—Sawmill Dam No. 61–10. Nevada Irrigation District, Grass Valley, owner; rock dam, situated on Canyon Creek tributary to South Yuba River in Sec. 11, T. 18 N., R. 12 E., M. D. B. and M.

NEVADA COUNTY—Middle Lake Dam No. 61–13. Nevada Irrigation District, Grass Valley, owner; rock and earth dam, situated on South Fork Canyon Creek, tributary to South Yuba River in Sec. 23, T. 18 N., R. 13 E., M. D. B. and M.

MODOC COUNTY—Little Juniper Dam No. 136. G. M. and J. E. Clark, Alturas, owners; earth dam, situated on Little Juniper Creek tributary to Pit River in Sec. 4, T 40 N., R. 13 E., M. D. B. and M.

MODOC COUNTY—James Porter Dam No. 142. James C. and Phear F. Porter, Alturas, owners; earth dam, situated on unnamed drainage tributary to Parker Creek, located in Sec. 1, T. 42 N., R. 13 E., M. D. B. and M.

MODOC COUNTY—Janes Flat Dam No. 121. W. O. Blasingame and Fred Huffman, Alturas, owners; earth dam, situated on Mosquito Creek tributary to Willow Creek in Sec. 25, T. 47 N., R. 10 E., M. D. B. and M.

MODOC COUNTY—Antelope Dam No. 121–3. W. O. Blasingame and Fred Huffman, Alturas, owners; earth dam, situated on Antelope Plains tributary to Pit River in Sec. 11, T. 43 N., R. 10 E., M. D. B. and M.

MODOC COUNTY—Essex Dam No. 121–2. S. X. Ranch, Alturas, owner; earth dam, situated on Salsbury Creek tributary to Pit River in Sec. 6, T. 42 N., R. 11 E., M. D. B. and M.

MARIPOSA COUNTY—Mountain King Dam No. 95–11. San Joaquin Light and Power Corp., Fresno, owner; gravity dam, situated on Merced River tributary to San Joaquin River in Sec. 1, T. 4 S., R. 17 E., M. D. B. and M.

LOS ANGELES COUNTY—Mulholland Dam No. 6–17. City of Los Angeles, Los Angeles, owner; gravity dam situated on Weid Canyon in Sec. 3, T. 1 S., R. 14 W., S. B. B. and M.

NEVADA COUNTY—Van Geisen Dam No. 61–9. Nevada Irrigation District, Grass Valley, owner; situated on Bear River tributary to Yuba River in Sec. 2, T. 13 N., R. 8 E., M. D. B. and M.

SANTA CLARA COUNTY—Lake Ranch Dam No. 622. San Jose Water Works, San Jose, owner; earth dam, situated on Beardsley Creek tributary to Los Gatos Creek in Sec. 23, T. 8 S., R. 2 W., M. D. B. and M.

MODOC COUNTY—Bayley Dam No. 128–3. Modoc Feeding Company, Likely, owner; earth dam, situated on Crooks Canyon tributary to South Fork Pit River in Sec. 32, T. 40 N., R. 12 E., M. D. B. and M.

SACRAMENTO AND PLACER COUNTIES—Baldwin Dam No. 324–2. North Fork Ditch Company, Sacramento, Owner; earth dam, situated on unnamed creek tributary to Linda Creek in Sec. 14, T. 10 N., R. 7 E., M. D. B. and M.

SONOMA COUNTY—Lawler Reservoir No. 581–3. California Water Service Company, San Francisco, owner; earth dam, situated on North Creek tributary to Adobe Creek in Sec. 12, T. 5 N., R. 7 W., M. D. B. and M.

LASSEN COUNTY—Lake Leavitt Dam No. 236–2. Lassen Irrigation District, Standish, owner; earth dam located in Sec. 15, T. 29 N., R. 13 E., M. D. B. and M.

SAN BERNARDINO COUNTY—Running Springs Park Dam No. 806. Running Springs Park, Inc., Los Angeles, owner; earth dam, situated on tributary to Deep Creek.

MODOC COUNTY—White Dam No. 151. James M. Fitzhugh, Alturas, owner; earth dam, situated on unnamed gulch tributary to Pit River in Sec. 26, T. 41 N., R. 10 E., M. D. B. and M.

LASSEN COUNTY—Lexalt Dam No. 248. Peter Laxalt, Madeline, owner; earth dam situated on McDonald Creek tributary to Madeline Plains in Sec. 2, T. 36 N., R. 13 E., M. D. B. and M.

SANTA CLARA COUNTY—Upper Howell Dam No. 622–3. San Jose Water Works, San Jose, owner; earth dam, situated on Rundell Creek tributary to Los Gatos Creek in Sec. 31, T. 8 S., R. 1 W., M. D. B. and M.

CONTRA COSTA COUNTY—Port Costa Brick Works Dam No. 585. Port Costa Brick Works, Port Costa, owner; earth dam situated on a ravine.

Green is not used in the color scheme of automobiles in Persia and Asia, as it is considered sacred and in Japan is reserved for members of the imperial family.

STATE OF CALIFORNIA

Department of Public Works

HEADQUARTERS: PUBLIC WORKS BUILDING, ELEVENTH AND P STS., SACRAMENTO

C. C. YOUNG.....Governor

B. B. MEEK.....Director

DIVISION OF HIGHWAYS

CALIFORNIA HIGHWAY COMMISSION

RALPH W. BULL, Chairman, Eureka
J. P. BAUMGARTNER, Commissioner, Santa Ana
M. B. HARRIS, Commissioner, Patterson Bldg., Fresno
JOSEPH M. SCHENCK, Commissioner, c/o United Artists Studio, Santa Monica Blvd., Los Angeles
FRED S. MOODY, Commissioner, 640 Kohl Bldg., San Francisco
C. H. PURCELL, State Highway Engineer, Sacramento
GEORGE C. MANSFIELD, Secretary
HARRY A. ENCELL, Attorney, San Francisco

HEADQUARTERS STAFF, SACRAMENTO

G. T. McCOY, Administrative Assistant
L. V. CAMPBELL, Office Engineer
T. E. STANTON, Materials and Research Engineer
FRED J. GRUMM, Engineer of Surveys and Plans
C. S. POPE, Construction Engineer
T. H. DENNIS, Maintenance Engineer
CHAS. E. ANDREW, Bridge Engineer
R. H. STALNAKER, Equipment Engineer
E. R. HIGGINS, Chief Accountant

DISTRICT ENGINEERS

F. W. HASELWOOD, District I, Eureka
H. S. COMLY, District II, Redding
CHARLES H. WHITMORE, District III, Sacramento
J. H. SKEGGS, District IV, San Francisco
L. H. GIBSON, District V, San Luis Obispo
E. E. WALLACE, District VI, Fresno
S. V. CORTELYOU, District VII, Los Angeles
E. Q. SULLIVAN, District VIII, San Bernardino
F. G. SOMNER, District IX, Bishop
R. E. PIERCE, District X, Sacramento

General Headquarters, Public Works Building, Eleventh and P Streets, Sacramento, California

DIVISION OF WATER RESOURCES

EDWARD HYATT, State Engineer, Chief of Division
J. J. HALEY, Jr., Administrative Assistant
HAROLD CONKLING, Deputy in Charge Water Rights
A. D. EDMONSTON, Deputy in Charge Water Resources Investigation
R. L. JONES, Deputy in Charge Flood Control and Reclamation
GEORGE W. HAWLEY, Deputy in Charge Dams
SPENCER BURROUGHS, Attorney
EVERETT N. BRYAN, Hydraulic Engineer, Water Rights
A. N. BURCH, Irrigation Investigations
H. M. STAFFORD, Sacramento-San Joaquin Water Supervisor
GORDON ZANDER, Adjudication, Water Distribution
KATHERINE A. FEENY, Chief Clerk
MABEL PERRYMAN, Secretary
S. T. HARDING, Irrigation and Special Investigations

DIVISION OF ARCHITECTURE

GEO. B. McDOUGALL, Chief, Division of Architecture
P. T. POAGE, Assistant Architect
W. K. DANIELS, Deputy Chief of Division

HEADQUARTERS

H. W. DeHAVEN, Chief Architectural Draftsman
C. H. KROMER, Structural Engineer
CARLETON PIERSON, Specification Writer
C. O. PALM, Chief Clerk
C. E. BERG, Engineer, Estimates and Costs
J. W. DUTTON, General Superintendent Construction
W. H. ROCKINGHAM, Mechanical Engineer
C. A. HENDERLONG, Assistant Mechanical Engineer
W. M. CALLAHAN, Electrical Engineer

DIVISION OF MOTOR VEHICLES

FRANK G. SNOOK, Chief
EUGENE W. BISCAILUZ, Superintendent of California Highway Patrol

DIVISION OF CONTRACTS AND RIGHTS OF WAY

C. C. CARLETON, Chief

DIVISION OF PORTS

Port of Eureka—F. B. Barnum, Supervisor
Port of San Jose—Not appointed
Port of San Diego—Edgar A. Luce

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

CALIFORNIA STATE PRINTING OFFICE
SACRAMENTO, 1935

81114 12-30 7600