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REPORT

OF THE

ACTING SUPERINTENDENT OF THE
YOSEMITE NATIONAL PARK

TO THE

SECRETARY OF THE INTERIOR

1908



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REPORT OF THE ACTING SUPERINTENDENT OF THE YOSEMITE
NATIONAL PARK.

DEPARTMENT OF THE INTERIOR,
YOSEMITE NATIONAL PARK,
OFFICE OF THE SUPERINTENDENT,
Yosemite, Cal., September 30, 1908.

SIR: I have the honor to submit the following report of the condition of affairs in the Yosemite National Park and of its management during the fiscal year ending June 30, 1908:

This park is situated in Tuolumne, Mariposa, and Mono counties, Cal., and originally covered an area of about 1,512 square miles. The lands embraced therein were set aside by act of Congress approved October 1, 1890 (26 Stat., 650), and were placed under the supervision of the Secretary of the Interior. By the act of February 7, 1905 (33 Stat., 702), and the joint resolution of June 11, 1906 (34 Stat., 831), the boundaries were changed, excluding a total of 555.94 square miles therefrom and including a total of 168.35 square miles not previously within the reservation, making the present area of 1,124.41 square miles, or 719,622.40 acres. The second change in boundaries included the recession of Yosemite Valley and Mariposa Big Tree Grove to the Federal Government.

The troops detailed by the War Department, in compliance with the request of the Secretary of the Interior and pursuant to General Orders, No. 66, dated March 23, 1908, Headquarters Department of California, for duty in the Yosemite National Park, consisting of Troops I and M, Fourteenth Cavalry, and a detachment of Hospital Corps, U. S. Army, left the Presidio of San Francisco, Cal., on April 16, 1908, and marched to the Yosemite Valley, arriving on April 28. All the supplies and equipment which had been shipped from the Presidio of San Francisco on April 15 were found at the camp on arrival.

The lack of a full quota of officers with the command was a great drawback, but unfortunately could not be remedied, as neither of the two squadrons stationed at the Presidio had more than half the authorized number of officers on duty with them. There were but four officers on duty at headquarters and with the two troops designated for duty in the park. This number is totally inadequate for thorough and careful performance of the duties required of the command, and it is urgently requested that steps be taken looking toward an increase in the number next season.

PATROLS.

Fifteen patrols, varying in size from 2 to 5 men each, were stationed at various points throughout the park, at distances varying from 20 to 75 miles from the main camp, for the purpose of preventing trespassing and other violations of the regulations. These

patrols were visited and inspected by an officer as often as practicable, and they were generally found to be performing their duties in an efficient and satisfactory manner.

GRAZING.

No sheep whatever crossed the border and only an inconsiderable number of cattle have been found within the park limits, and these few have been close to the boundaries. No stock has been driven through the reservation by permission of the acting superintendent.

Mr. J. B. Curtin, owner of patented lands in the park, when endeavoring to secure permission for cattlemen to graze their cattle upon the lands of the Yosemite National Park, made the statement, "In the Yosemite Park there are patented lands which the owners have used for rounding stations, and allowed their cattle to run in the park prior to the enforcement of the rigid rules regarding grazing thereon." This permission, however, was not granted by the Department and Mr. Curtin kept his stock off the park lands. He had previously grazed cattle on some 1,200 acres of land which he owned, or which being patented, was leased to him, and same being all under fence. The fence was erected by him for the most part this summer, under the direction and supervision of an officer on duty with the troops. This land lay within secs. 16, 17, and 18, of T. 2 S., R. 20 E., Mount Diablo meridian. Other than this no stock was pastured within the limits of the national park.

In the suit of *J. B. Curtin v. H. C. Benson*, acting superintendent, et al., instituted in 1905, the court was asked to restrain the acting superintendent from interfering with Curtin's cattle (which had been allowed to stray in the park and the adjoining forest reserve), upon the grounds that paragraphs 9 and 10 of the regulations promulgated April 22, 1905 (now paragraphs 7 and 8 of the regulations of February 29, 1908), were illegal and void. These paragraphs read as follows:

Owners of patented lands within the park limits are entitled to the full use and enjoyment thereof; such lands, however, shall have the metes and bounds thereof so marked and defined that they may be readily distinguished from the park lands. Stock may be taken over the park lands to patented lands with the written permission and under the supervision of the superintendent.

The herding or grazing of loose stock or cattle of any kind on the Government lands in the park, as well as the driving of such stock or cattle over the same, is strictly forbidden, except in such cases where authority therefor is granted by the superintendent.

The case was instituted in the state court, but later removed to the United States circuit court for the northern district of California. The decision of the court upheld the validity of the regulations referred to, but appeal has been taken by the plaintiff to the Supreme Court of the United States. It is not likely to be reached on the calendar during the present term.

FOREST FIRES.

This has been one of the driest years in the history of the park. There were no late spring rains and but very little snow fell during the winter months. Early in June the country was exceedingly dry, and it was only by constant vigilance and quick action that the entire park has not been swept by forest fires. Three fires started on the floor of Yosemite Valley, due unquestionably to lighted cigars or

cigarettes having been thrown from stages, as they were discovered within half an hour after the passing of stages along the roads. These fires were promptly extinguished without any damage. A large fire caused by lightning started on the southern border of the park near Alder Creek, and required the combined efforts of the rangers and a detail of 12 men to extinguish it. About 1 square mile was burned over. A large fire started in the national forest west of the park, near Hog ranch, and before it could be extinguished had extended over about 5 square miles, doing considerable damage to timber. Another fire occurred midway between the Hetch Hetchy Valley and McGill's meadows, and though a large force was sent in charge of officers, it was some two weeks before it could be completely extinguished. Great credit is due to the officers and men, especially to Captain Wells, for their energetic efforts and success in stopping the fire.

GAME.

Game is on the decrease. Each reduction of the park has cut off another portion of the winter resort of game. The western and southwestern portions of the park, as originally established, were the principal habitat of the deer and the only winter resort. This portion has now been thrown into the national forest. There are more hunting permits granted in the State of California than there are deer in the State, and as every person is allowed by law to kill 2 deer, and does kill 4 or 5 if he can, it can readily be seen what small chance a deer has for his life. This portion of the national forest has not been accessible to the general hunter until the present year, but now, with the new railroad, large numbers of hunters infest this country and lie along the border of the park, shooting every animal that is unfortunate enough to cross the boundary to get water. As water exists in but few localities in this portion and mainly in springs or very short streams the deer are forced to seek such points, and their location is readily determined by the deer trail. The so-called hunters secrete themselves along these trails and shoot every animal that passes. Extensive and careful patrolling has been done within the limits of the park to prevent hunting therein, and it is believed that but few hunting parties have succeeded in remaining therein. Had my instructions been complied with by the rangers one hunting party would have been arrested and put out, but by falsehood and misrepresentation this party made the rangers believe that they were without arms and so escaped. I went in person to look them up and followed their trail for over 40 miles in one day, but they had crossed the border before I could overtake them. People who are supposed to be gentlemen, and are ordinarily so rated, for some reason consider that it is not dishonorable to tell a lie about the arms in their possession when they are on a hunting trip. The orders are explicit, that whenever a number of men are encountered anywhere in the park that their packs shall be inspected exactly as a person's baggage is on entering a custom-house. In this way several parties have been detected and ejected from the reservation. Unless, however, steps are taken by the State to insure the arrest and punishment of violators of the law the State of California will soon be without deer. A number of bear have been seen during the season and also a number of grouse and mountain quail; more than were seen last year, but still the number is small.

FISH.

The fish hatchery at Wawona was, as usual, operated this year by the California Fish Commission. About 300,000 fry were hatched and distributed in the waters of the park, the troops distributing about 100,000. In addition to this there were netted from some of the smaller streams, which were dry during the summer, a number of fish, which were then placed in streams that had not been previously stocked. Some of the streams and lakes which were stocked about ten years ago have now become so full of fish that it is impossible to make a cast without having half a dozen immediately rise to the flies, resulting in a double or treble catch. No better fishing ground than the mountain streams of the Yosemite National Park exists anywhere.

FENCING.

It is again recommended that the western boundary of the park be fenced, using therefor barbed wire and international steel posts. There has been no trouble this year from trespassing of cattle or other stock, except upon a portion of the western and southwestern boundary. It is practically impossible to protect the entire western line with the few outposts that can be established, and there results some friction with the owners of cattle that are permitted to graze in the forest reserve immediately up to the boundary, but are not allowed to graze within the park. All of this friction could be easily avoided by the construction of a fence as suggested. It would require about 50 miles of fence, which could readily be put up at a cost of not more than \$10,000; and it is believed that this would be one of the wisest measures that could be adopted for the prevention of friction and misunderstanding with cattlemen.

PATENTED LANDS.

I can but repeat what I said in my last annual report with regard to the patented lands lying within the limits of the park, and urge even more strenuously that action be taken looking toward the acquisition by the Government of these patented lands.

There are no persons now living upon patented lands within the limits of the Yosemite National Park, with the exception of Mr. Kibby, at Lake Eleanor. All patented lands upon which people were living were excluded from the park by the joint resolution of June 11, 1906. The only patented lands now retained are timber claims and a few claims that were taken up under the homestead act and were never occupied as homesteads, but simply used as a pretext for bringing in stock to stray upon the public lands. These private lands are no longer of any value to their owners as there is not sufficient grazing on them to keep half a dozen animals during summer. The timber claims are valuable and are becoming more so each year. Some of the finest sugar-pine timber in California lies within the limits of the park, along the line of the road from Wawona to Chinquapin station. Lumbermen from Michigan have been in the park this year inspecting this timber and have obtained an option for its purchase. The large tract of timber land which formerly was in the park, but was excluded by the act of February 7, 1905, has already been purchased by a lumber company, and a railroad is being constructed directly into this timber, and active steps are being taken to put the lumber upon the market. The Sugar Pine Lumber Company, which

formerly was operating about 40 miles south of the Yosemite National Park, has now completed its logging road (a steam narrow-gauge railroad) to within 2 miles of the former southern limit of the park, and the mountains are rapidly being denuded of all timber. This is what will happen to the timber upon all the patented lands within the limits of the park in a very short time unless these patented lands are purchased by the Government and all private rights within the limits of the park extinguished. This is a matter which needs urgent attention and should no longer be neglected. It would be greatly to the interests of the Government to purchase all private claims within the park and thus extinguish them. The necessity of preserving the forest in this portion of the park and of reducing the number of private claims to such an extent as would justify the Federal Government in purchasing the remaining claims was one of the main points which caused the Yosemite Commission of 1904 to recommend the reduction of the area of the park. This commission, as has every other person who has been charged with the welfare of the park or with making any recommendations with regard to it, recommended that the Government immediately purchase and extinguish all private rights. The acreage of timber and homestead claims in the park is approximately 19,827 acres.

TELEPHONE SERVICE.

Through the courtesy of the War Department, sufficient material was obtained for constructing a telephone line from the Yosemite Valley to Hetch Hetchy, connecting with three outposts, one at Crane Flat, one at Hog ranch, and the other at Hetch Hetchy. This line was well put up in an exceedingly short space of time by Captain Wells, of the Fourteenth Cavalry, he having completed the entire 35 miles within fifteen days. The work of patrolling that portion of the park has been greatly facilitated by the use of this telephone line, and the connection has also served very materially in the work on forest fires. Immediate information in regard to fires at Hog ranch and Hetch Hetchy were transmitted by this means, enabling large details to leave the valley immediately and arrive there about two and one-half days earlier than they otherwise would have been able to do. Incidentally, it was found of great convenience by the reporters who accompanied the supervisors of San Francisco when they were inspecting the Hetch Hetchy as a possible reservoir site for a water system for San Francisco. The Pacific Telephone and Telegraph Company, by permission of the department, constructed a line from El Portal, the terminus of the Yosemite Valley Railroad, to the Sentinel Hotel, in Yosemite Valley, so that now both telegraphic and telephonic communication can be had with the outside world, which greatly facilitates business and adds much to the convenience of the visitors.

ROADS, TRAILS, AND BRIDGES.

The condition of the roads in and about the Yosemite Valley is deplorable. The one great drawback to the visitor's pleasure is the fact that he is driven over rough roads so dusty that when he arrives at his destination his dearest friend could not recognize him. Nearly every visitor states "I can not see why something is not done to the roads." Many add, "We have just come from the Yellowstone, where

all the roads are watered, and we understood that such was the case here; had we known it was so dreadful we never would have come." It would be useless to attempt to put in a water system by which the roads could be sprinkled until the roads themselves are properly constructed, as the entire pipe line would be destroyed in the work necessary to properly build the roads. The roads should be widened, macadamized, and watered. No macadamized road can be prevented from raveling unless it is watered occasionally, either by natural rains or artificially by sprinkling. In this climate, where there is often a period of four or five months in which no rain falls, the use of sprinkling carts on the roads is absolutely essential, both to keep down the dust and to prevent the road from breaking up. The location of the main road from the terminus of the Yosemite Valley Railroad to the Sentinel Hotel is definitely fixed, and consequently the work on this road can be proceeded with when there are funds available for the purpose. The other roads should be carefully laid out with the view to having them placed in the best location for artistic effects and the general plan adopted at once before any great amount of work is put upon them. It is urgently requested that an appropriation of not less than \$150,000 be secured for putting the road from El Portal to the hotels in proper condition. The visitors to the valley are entitled to this consideration, and to my mind it is of first importance.

During the past year about 3 miles of the worst portion of the road was so far macadamized as to be ready for the top dressing. A temporary dressing was put on, which has worked quite well, and this portion of the road is remarked upon by every person coming over it. About \$17,000 was expended under two contracts with the Warren Improvement Company last year, on a percentage basis, which was found to be most satisfactory. A similar contract for aligning, straightening, and macadamizing the road on the south side of the Merced River, which will aggregate about \$13,000, has been let this year to Chadwick & Sykes, and work thereon is in progress.

In addition to the 15 miles of road extending from El Portal to the Sentinel Hotel there are about 15 miles on the floor of the valley. These are all dusty and unpleasant to travel upon, and should receive attention as soon as the main road is repaired. Besides these roads there are 4 miles of road leading in the direction of Wawona, which originally lay within the state grant, and 4 miles leading toward Groveland, which was formerly a part of the Big Oak Flat road. Other than these all roads lying within the park are toll roads, being the Big Oak Flat, Coulterville, and Wawona roads, which are kept in fair condition by the corporations owning them, and the Tioga road, which is not passable except for people on horseback. The owners of the latter road attempt to keep up the appearance of control over said road by sending out a wagon during the last week in August and cutting their way through the woods, sometimes on the old road bed and sometimes off.

There are three main trails leading from the floor of the valley to the top of the rim about the valley. These trails are traveled by about 10,000 people each season and require constant care. They are in quite good condition, but it needs constant work to maintain them. The total length of these trails is about 24 miles. The trails throughout the park proper are in fair condition, but as very little work has

been done on them since they were originally built, some need repairing. This can readily be done at small expense by employing day labor. The following trails have been constructed this season by Thomas H. Carter, working under contract, for the sum of \$3,500: From Rancheria Mountain, via Bear Valley, to Kerrick Canyon; from Kerrick Canyon, via Slide Canyon, to Matterhorn, connecting with existing trails. The northern part of the park is now practically supplied with trails, except a portion leading from Lake Eleanor over toward Twin Lakes.

The following bridge improvements have been made during the past year: The Pohono bridge has been replaced, and the iron bridge near the Sentinel Hotel repaired, for \$2,385 and \$993, respectively, both jobs having been done under contract by the Mervy-Elwell Company; and the bridge over the Merced River above Kenneyville (upper bridge) has been repaired by day labor, the total expenditure being \$939.75.

HETCH HETCHY VALLEY.

The Hetch Hetchy has been brought more prominently to the notice of visitors this year than ordinarily, with the result that a larger number of people have visited it. It is one of the most interesting features of the park and should be made easy of access by a wagon road, which could be built at a very reasonable cost. From this valley numerous side trips by easy trails are available. Lake Eleanor, Lake Vernon, Rancheria Mountain, and Till Till Valley are all within an easy day's ride and return from the valley. Tilden Lake, Pleasant Valley, and Jack Mains Canyon are within an easy day's ride, the return trip being made the following day.

CONCESSIONS.

The following concessions were held in Yosemite National Park during the season extending from November 1, 1907, to October 31, 1908:

Concessions in Yosemite Park.

Name.	For what granted.	Expiration.	Annual rental.
<i>Leases.</i>			
Cook, J. B	Sentinel Hotel	Oct. 31, 1908	\$2,000
Do	Glacier Point Hotel	do	200
Coffman & Kenney	Livery	do	850
Jorgensen, Chris	Studio	Oct. 31, 1914	1
<i>Permits.</i>			
	Numbers.		
Best, H. C	1 Studio; sale of photographs	Oct. 31, 1908	250
Boysen, J. T	2 do	do	250
Clark, Galen	3 Residence	do	1
Coffman & Kenney	4 Blacksmith shop	do	40
Degnan, John	5 Residence	do	20
Degnan, Mrs. John	6 Sale of bread	do	1
Fiske, Geo.	7 Photography	do	20
Foley, D. J	8 Printing office and sale guide books	do	250
Leitch, B. M.	9 Cabin in Mariposa Big Tree Grove, and sale of photographs and curios.	do	20
Salter, Nelson L.	10 Merchandise store and camping out- fits.	do	600
Cook, J. B	11 Public camp	Oct. 31, 1909	500
Curry, David A.	12 do	Oct. 31, 1908	500
Yosemite Stage and Turnpike Co.	13 Transportation and stables	do	1,250
Sell, W. M.	14 Public camp	Oct. 31, 1910	600
Yosemite Transportation Co.	15 Transportation and stables	Oct. 31, 1908	2,000
Pillsbury, A. C.	16 Photography	do	250
Total			9,603

The Coffman & Kenney livery lease includes numerous buildings forming what is locally known as "Kenneyville," also large tracts of land on the floor of the valley. A new lease, running for a period of two years, will be granted for the livery privilege, stables and dwellings, together with a much smaller tract of land. Although this firm had previously indicated that they would very much like to retain the present acreage, but were willing to accept the lease as offered by the department, they later made application through Congressmen for retention of the same. This has been opposed for several reasons, and it was also reported against by Mr. M. O. Leighton, special sanitary expert, sent from the department to investigate the conditions of the water supply and drainage in the Yosemite Valley.

The Jorgensen lease includes about 5 acres of land, two dwelling houses, a stable and other outhouses, located in the immediate vicinity of Sentinel Hotel—one of the finest sites in the valley; for this lease, and the privilege of selling his paintings, he pays the absurdly low price of \$1 a year, having secured this concession for a long term from the state commissioners, when it became apparent that the valley would be ceded to the Federal Government. This is recognized as an unconscionable bargain, but the lease was so framed that its revocation is practically impossible.

HOTELS AND CAMPS.

Attention is again invited to the lack of first-class hotel accommodations. There is but one hotel on the floor of the valley, which was built many years ago, when it was very difficult to bring in material, and, as is to be expected, it is not a hotel supplied with modern conveniences. It is well managed and the best service given that can be expected under the conditions, but a new hotel, equipped in a first-class manner in every respect, is quite essential. This lease includes considerable land not now occupied or used by Mr. Cook, which, as has been recommended, should be omitted from any future concession. A heating plant and other improvements to the hotels have been installed by the department, at a cost of \$4,000.

As yet no conclusions have been reached by Mr. Frank A. Miller in the selection of a site for the erection of a \$500,000 modern hotel, in pursuance of his approved application for such privilege, for which a ten-year contract will be executed at the proper time. In the absence of definite action by Mr. Miller the department has signified its willingness to extend the lease of the Sentinel and Glacier Point hotels to Mr. J. B. Cook for the period of one year from November 1, 1908, in order that tourists may not be without the necessary accommodations. Certain portions of the tract now leased, however, which are valuable for other purposes, are likely to be eliminated from such new lease.

"Camp Yosemite," located near Yosemite Falls, was enlarged and newly equipped during the past season by Mr. Cook, the licensee; "Camp Curry," immediately beneath Glacier Point, was newly equipped and continued without increase in facilities; "Camp Ahwahnee," W. M. Sell, licensee, situated near the foot of the Glacier Point trail, was installed this year. The latter camp is practically under the same management as the hotel at El Portal, just outside of the park boundary. By the enlargement of the first-mentioned camp

and the establishment of a new one all visitors have been comfortably cared for and there has been no overcrowding during the season.

RIGHTS OF WAY.

By the acts of February 7, 1905, and June 11, 1906, certain portions of the park were eliminated and included in the Sierra National Forest (a part of which is now known as Stanislaus National Forest), and for rights of way over such segregated portions the Secretary of the Interior was authorized to exact a compensation, the proceeds from such sources to be applied to the Yosemite National Park revenue fund and used for the improvement thereof. The following cases have been considered under the provisions of such legislation:

The Yosemite Valley Railroad Company, running from Merced, Cal., was, under date of September 5, 1905, granted a right of way up the Merced River Canyon to the park boundary, for which it pays an annual rental of \$1,000. On account of topography a wagon road was necessary to get the passengers from the terminus, El Portal, into the Yosemite Valley, and this the company constructed, with the permission of the department, at a total cost of approximately \$80,000 for about $4\frac{1}{2}$ miles of road, and when completed the road was turned over to the Government to be a public highway, subject only to the control of the United States.

The Fresno Traction Company in 1906, during the pendency of the joint resolution accepting the recession by the State of the Yosemite Valley and Mariposa Big Tree Grove, urged Members of Congress to have the bill amended so as to eliminate from the park a strip of land on the southwest, to enable it to secure a right of way for an electric railroad to reach a point near Yosemite Valley via Wawona, to carry only passengers, baggage, and incidental freight, but not to include the conveyance of any timber, lumber, or like materials cut at any point within the Yosemite National Park, or nearer thereto than Wawona, without the permission of the Secretary of the Interior, and stipulating that it would purchase not less than \$25,000 worth of patented timber lands along such route (in the segregated portion), with a view to the better preservation of the forests, subject to an option of the Government to purchase, and that a wagon road would be constructed from its terminus to the system of roads reaching Yosemite Valley. Although it was upon these representations that the second segregation took place, the Fresno Traction Company has as yet taken no action toward securing the right of way referred to.

An application was filed by Augustus H. Ward for a right of way for conduit to convey water from the Merced River at a point lying on patented lands alleged to be in his ownership to a power house on other patented lands owned by him, all lying in the segregated portion of Yosemite National Park, for the purpose of generating electrical power for commercial purposes. He has, however, up to the present time refused to consent to pay the compensation fixed by the department and was not permitted to commence construction work.

Application was made by H. C. Oakley et al. for rights of way for dams, flumes, power houses, transmission lines, etc., within the Sierra National Forest, a portion lying within T. 4 S., Rs. 26 and 27 E.,

M. D. M., in the first segregation from the park, and permits were issued last year by the Forest Service, providing, among other things, that the permittees should "begin bona fide construction within twelve months and complete within four years after notice from the forester that construction may begin, unless the time is extended by written consent of the forester." An extension of time was granted to September 1, 1908, but no construction work was done, and a compensation contract has not yet been executed with the Interior Department.

The Sierra Ditch and Water Company (transferee of William Ham Hall) was, under date of July 30, 1908, granted a right of way for the Cherry Valley reservoir site, in secs. 16, 17, 20, 21, 27, 28, 32, and 33, T. 2 N., R. 19 E., M. D. M., covering about 630 acres of land owned by the United States, located entirely upon the segregated portion now in the Stanislaus National Forest. The compensation was fixed by the department at \$945 per annum, the company to pay additional amounts for the timber cut or submerged.

Under date of May 20, 1908, the Pacific Telephone and Telegraph Company was granted special-use permits to extend its line through the Sierra National Forest to the Yosemite National Park boundary, and from such point into Yosemite Valley, the consideration being the free use of such facilities for government business to or from the park, with a provision that a rental may be exacted when the circumstances warrant.

One H. M. Kuns secured a permit from the Forest Service during the present year to construct a ditch to convey water from the Merced River for the operation of a stamp mill for crushing ore taken from a mine owned by him, the Interior Department consenting, in this and other instances to make no charge where the exercise of the privilege inures only to the benefit of the applicant. The right is reserved, however, to exact compensation when commercial use is made of the privileges granted.

SAN FRANCISCO WATER SUPPLY.

In 1907 the Secretary of the Interior granted a hearing at San Francisco in regard to reopening the matter of granting reservoir rights of way in the Hetch Hetchy Valley and at Lake Eleanor, in the Yosemite National Park, for the furnishing of an adequate supply of Sierra water for the city of San Francisco, under an application of James D. Phelan, former mayor of the city, which had been filed October 15, 1901, later assigned to the city, and denied by the department. Mr. Marsden Manson, C. E., city engineer, department of public works, was given authority to act for the city, and after extended hearings, conferences, and the submission of briefs for and against the proposition, the Secretary, in the exercise of the discretion vested in him by the act of February 15, 1901, reinstated the Phelan application on May 11, 1908, and granted the option which the city of San Francisco desired, until the matter could be submitted the voters and definite action taken, upon the filing of certain stipulations affording ample protection to the park lands and to the rights of the Modesto and Turlock irrigation districts to the use of the flow of the Tuolumne River. The stipulations also provide,

among other things, that the Lake Eleanor site shall be developed to its full capacity before beginning the development of the Hetch Hetchy site.

EMPLOYEES.

There are 5 regular employees in the park administrative force; a supervisor, at \$1,200 per annum; a chief electrician, at \$1,200; a plumber, at \$1,000; one park ranger, at \$1,000, and one at \$900. The following are employed during the tourist season only: An assistant electrician, at \$90 per month, and a stenographer, at \$75 per month.

BUILDINGS.

There are 46 buildings in the valley, all but 1 are frame, the exception being the Le Conte memorial lodge, which is constructed of stone. These buildings constitute the residences, barns, stables, and out-houses used by the concessioners and the department. The power house is a frame building, in good condition, but the installing of the machinery was very poorly done, and there is great need of repairs. The barns and stables are all in good condition. The residences are, for the most part, unsightly and totally unsuited to the valley. The building occupied by the supervisor is a log cabin, built forty-odd years ago and is in imminent danger of collapsing. The house occupied by Mr. Degnan is rather an attractive cottage and is in good condition. The hotel buildings in the main are very old and rather dilapidated, and are not in keeping with the valley itself. The superintendent's office is a frame building, the most recently constructed of any; this was simply a patched-over building moved from another locality, but it is still serviceable. The village, so called, has grown up since 1900, and resembles the temporary houses built for a county fair more than the residences and offices of a government institution.

POWER PLANT, WATER DISTRIBUTION, AND SANITATION.

The power plant is at present in a precarious condition, due to the fact that the pipe furnishing the water runs through a tunnel of loose earth and rock, which tunnel has already caved in, and there is imminent danger of the plant being put out of commission at any moment. The reports submitted to the department by Mr. Leighton on September 22 and December 4, 1907 (Appendix B), are respectfully referred to as showing the urgency of this matter. The pipe of this line is of very thin material, being of the riveted form made in sections with slip joints similar to ordinary stove pipe. The installation of the machinery was also very defective, as is shown by the report of the chief electrician herewith (Appendix C). The capacity of the plant should be increased. All the power that it can supply is now disposed of, and as it is highly probable that there will be an increased demand for both power and light it would also be a good business proposition. The matter of increasing the water supply for the power house is closely connected with the installation of a proper water distribution system throughout the valley. At present the system is very imperfect; the water supply itself is excellent, coming from a spring at the head of one of the small canyons, but the dis-

tributing system is in a deplorable condition. It consists of the cheapest form of riveted pipe, which has been laid for some time, and is constantly breaking and causing an infinite amount of trouble and annoyance. As shown by Mr. Leighton's estimate, it would cost about \$40,000 to put in the proper pipe for supplying the power house and the water for the distributing system as far as the power house. The distributing system for the valley proper would cost \$122,370 more. It is earnestly requested that at least \$40,000 be secured during the next fiscal year. Early in the season certain suggestions of Mr. Leighton relative to sewage disposal at Camp Ahwahnee, Camp Curry, and Kenneyville, the collection of garbage from hotels, etc., were carried out.

UNDERBRUSH.

Attention is again invited to the necessity for removing the underbrush and young trees that have taken complete possession of the floor of the valley during the last fifteen years. As it is at present, the floor of the valley resembles a jungle. The views from nearly all points along the road have been cut off, and the trees are so thick that none of them can possibly amount to anything. If the trees were thinned out, careful selection being made to leave the best, a beautiful forest could be secured instead of the thicket which now exists.

VISITORS.

The total number of visitors to the valley during the past season of 1908 was about 8,850, an increase of 1,748 over the previous year. Of this number, about 7,381 came in over the Yosemite Valley Railroad, and were transported from El Portal to the valley by the Yosemite Transportation Company. This number was, however, largely made up of excursions for which reduced rates were paid. One thousand four hundred and sixty-nine people came in by private conveyance, either in wagons or on horseback. Of the 7,381 tourists, 3,012 took the trip from the valley to the Mariposa Big Tree Grove with the Yosemite Stage and Turnpike Company. Many of the people who came in by private conveyance also drove through to the Mariposa Big Tree Grove, though the percentage was probably not very great.

The 7,381 tourists were distributed among the camps and hotels approximately as follows: Sentinel Hotel, 2,777; Camp Yosemite, 2,004; Camp Curry, 1,350; and Camp Ahwahnee, 1,250. About 2,000 of these also spent one night at Glacier Point Hotel or camp.

ESTIMATES.

The following are the estimates for the expenditures required during the fiscal year ending June 30, 1910:

Estimates for fiscal year 1910.

FOR THE PROTECTION AND IMPROVEMENT OF YOSEMITE VALLEY.

1. Day labor in repairing existing trails, roads, culverts, etc.....	\$4,000
2. Care of camps, policing, sanitation, etc.....	3,000
3. Pay of chief electrician.....	1,200
4. Pay of assistant electrician, seven months.....	630
5. Pay of supervisor.....	1,200
6. Pay of plumber.....	1,000
7. Pay of stenographer, ten months.....	750
8. Pay of stenographer, two months.....	100
9. Purchase of draft animals.....	600
10. Purchase of three water carts to be used in the watering of roads.....	2,100
11. Purchase of three teams for water carts.....	2,400
12. Purchase of forage for three teams to be used on water carts.....	1,500
13. Purchase of forage for draft teams.....	500
14. Purchase of material and installation of water system as far as the power house.....	40,000
15. Purchase of material and installation of water distribution system.....	123,000
16. For construction of macadamized roads.....	150,000
17. For the removal of underbrush, dead timber, etc.....	20,000
18. Building of quarters for the supervisor to replace present unserviceable building.....	2,500
19. For the purchase of the necessary pipe and water tanks to provide for road sprinkling.....	18,000
Total.....	372,480

FOR THE PROTECTION AND IMPROVEMENT OF THE YOSEMITE NATIONAL PARK PROPER.

1. For the necessary wire, brackets, insulators, and nails to construct a telephone system connecting Yosemite Valley with outposts, 200 miles.....	\$2,000
2. Pay of two park rangers.....	2,000
3. For the construction of a barbed-wire fence with international steel posts along the western boundary of the park, about 60 miles.....	10,000
4. For the construction of a trail from Mirror Lake via Mount Watkins to Lake Tenaya, 15 miles, more or less.....	3,500
5. Construction of a trail from Merced Lake up the Merced River Canyon to the head of the Merced near Isberg Pass, 25 miles, more or less.....	5,000
6. Construction of trail from the head of Lyell Fork meadows to the foot of the glacier on Lyell, 8 miles, more or less.....	1,000
Total.....	23,500

RECOMMENDATIONS.

1. It is urgently recommended that an appropriation of not less than \$150,000 be secured for the widening, macadamizing, and watering of the main road leading from El Portal to the Sentinel Hotel. This is of first importance.

2. That the water system be enlarged and the power plant increased.

3. That ample hotel accommodations be provided.

4. That all patented lands lying within the present limits of the park be condemned and purchased by the Government, especially the timber claims, on which the timber is likely to be soon destroyed if not purchased.

5. That the western boundary be fenced.

6. That a permanent military post be established.

7. That Congress enact a law defining what is prohibited in the Yosemite National Park and fixing a penalty for the violation of the same. Every acting superintendent of the park has felt the necessity for and has recommended the enactment of laws prescribing penalties for violations of the rules and regulations. Even when laws or regulations are violated, no way is provided for bringing the offenders to trial, there being no United States commissioner or district court within 100 miles of the park. I strongly recommend that the Yosemite National Park be made a United States court district and a resident commissioner be appointed. The rangers could serve as deputy marshals without interfering with their other duties. If appropriate legislation is enacted and a commissioner appointed, trespassing upon the park could more readily be brought to an end and without causing the friction which sometimes arises from enforcing the rules and regulations with the means at hand. The rigorous enforcement thereof with the present facilities puts a stop to trespassing, but causes complaint.

Very respectfully,

H. C. BENSON,
Major Fourteenth Cavalry,
Acting Superintendent Yosemite National Park.

The SECRETARY OF THE INTERIOR.

APPENDIXES.

APPENDIX A.

ROADS IN YOSEMITE NATIONAL PARK.

DEPARTMENT OF THE INTERIOR,
UNITED STATES RECLAMATION SERVICE,
Phoenix, Ariz., December 10, 1907.

DEAR SIR: In accordance with your orders I visited the Yosemite Park and consulted with Major Benson concerning roads already built and to be built in and about the park.

Since you were there Major Benson has built about a mile of road on the left-hand side of the river and has very greatly improved a section of the road on the right-hand side of the river just above the entrance to the park. The first roads to be constructed and made into first-class highways are as follows:

First. The main road leading from the entrance of the park just above El Portal to the Yosemite Valley. This road as now constructed is too narrow in most places, too irregular in its grades, and improperly surfaced. It will be necessary to widen it, so as to have a total width of from 14 to 20 feet, depending upon the topography. It will probably be cheapest to surface the lower end of this road with material to be found along the line of the railroad a comparatively short distance below El Portal. The material above El Portal is nearly all a very fine-grained granite, which under traffic will crush into dust. This road should be kept watered, as over it will pass practically all the traffic that enters the park. This can readily be done by building water tanks at frequent intervals and supplying these tanks from the springs and small waterfalls along the line. It will require quite a large amount of pipe and a number of tanks, but with the material at present in the park it will be impossible to maintain this road in any shape unless it is kept well watered.

Second. The roads within the boundaries of the valley leading to the various points of interest. These roads now exist as simple driveways cut out through the undergrowth and with the least amount of work done on them that was possible. By careful location and construction they can be made into first-class roads 20 feet wide without serious expense per mile.

Third. Roads leading from the valley to points of interest at the top of the cliffs surrounding the valley. One of these roads will start near the Sentinel Hotel, follow up, in a general way, the Merced River above the present power house, thence winding upward past Vernal and Nevada falls, turning westward until it crosses Illilouette Creek, will finally reach Glacier Point. This road, if properly located, could be built so as to give along almost its entire course a magnificent view of the Yosemite Valley.

Fourth. Another road joining this road at Glacier Point can be built following along the top and as near the edge of the cliffs as possible, in a general westerly direction until it finally joins the present Wawona road, winding back down this road, or better, over a new road built later to take its place, back into the Yosemite Valley.

Later on other roads can be laid out along the same general lines on the north side of the valley.

About \$150,000 can be most advantageously spent next year upon the roads already existing in the valley and the road from El Portal to Yosemite. If a regular appropriation of about \$150,000 a year can be secured after this, the roads and trails in and around this valley will after a few years compare favorably with those in the Yellowstone Park. An appropriation of a much

less amount would necessitate an organization which would increase the price per mile of the road materially.

In the future I would suggest that all bridges be made arch bridges of either reinforced concrete or granite. The cost of a first-class reinforced concrete bridge, including its abutments and approaches, is really not so very much greater than that of a steel bridge when its abutments and approaches are taken into consideration. The concrete bridge is much more satisfactory from a maintenance as well as from an artistic point of view.

I would also recommend that all structures of whatever kind forming parts of these roads be of the most permanent character, as experience on the roads constructed in Arizona has proved that first-class construction is more economical in the end. In four years we have practically replaced every wooden structure we had on our road, except some of the main bridges which are located in places where they can readily be inspected and painted. We would not have used wooden bridges at all on our roads if the roads had been designed for permanent use.

Appropriations for building and repair of roads in the Yosemite National Park should be in such form that the details of its expenditure should be left to the judgment of the man in charge. It is almost impossible to foresee how much of the money available must be spent on bridges, on equipment, and on labor. If possible, the appropriation should be obtained in such form as not to hamper Major Benson in any way.

Very respectfully,

LOUIS C. HILL,
Supervising Engineer.

HON. JAMES R. GARFIELD,
Secretary Department of the Interior, Washington, D. C.

DEPARTMENT OF THE INTERIOR,
UNITED STATES RECLAMATION SERVICE,

DEAR SIR: Your letter of December 16 was received upon my return from Roosevelt. Some of the information desired by you can only be obtained after careful surveys have been made over the lines of the proposed roads. The following, however, is an approximate statement as to the length and average cost of these roads. Excepting that portion of the road in the canyon just above El Portal, all the roads in the bottom of the park proper should average \$12,000 to \$15,000 per mile. The road from Yosemite to Glacier Point, which will pass Vernal and Nevada Falls and swing along the edges of the bluff, will have a length of about 14 miles, 5 miles of which might cost as high as \$40,000 per mile and the remaining 9 miles with surfacing will probably average about \$25,000 per mile. The road from Glacier Point running generally in a westerly direction along the tops of the cliffs joining the Wawona road and following it part of the way down into the valley, will have a length of about 18 miles and will probably ultimately cost \$20,000 a mile, including surfacing.

I did not investigate, and can not very well do so from the maps, the roads on the north side of the Yosemite River which should, some time in the far future, be built to the top of El Capitan and to the top of Yosemite Falls. These roads will probably cost somewhat less per mile than those on the south side of the river.

Of course, the costs stated here are estimates based simply on the knowledge of the cost of building roads in a somewhat similar country. An accurate estimate could only be made after careful surveys of the proposed roads had been made.

The road from Yosemite via Vernal and Nevada Falls to the top of Glacier Point would make the road down at Fish Creek appear rather insignificant. The highest point at Fish Creek is about 800 feet above the bottom, while at Glacier Point the highest point is about 3,500 feet above the valley.

I recommended that a sum of money be appropriated to have surveys made of the proposed roads in order that the appropriation for the roads can be expended to the best advantage by Major Benson, as it can be when he has the whole scheme mapped out beforehand.

Very respectfully,

LOUIS C. HILL,
Supervising Engineer.

HON. JAMES R. GARFIELD,
*Secretary Department of the Interior,
Washington, D. C.*

APPENDIX B.

SANITARY CONDITIONS AND WATER SUPPLY.

EN ROUTE FROM DULUTH, MINN.,
September 27, 1907.

MY DEAR MR. SECRETARY: In compliance with your request, made during the visit of the Inland Waterways Commission to Cleveland, that I prepare a statement concerning the conditions in Yosemite Valley, I respectfully present the following:

Shortly after leaving Yosemite Valley I forwarded, through the Director of the Geological Survey, a recommendation that no further concession be granted for Camp Curry on its present site, and setting forth briefly my reasons therefor. Since that time the proprietor of Camp Curry has forwarded to you a protest against the enforcement of any change in his camp site, a copy of which he kindly sent to me. I am of the opinion that if he desires to confine the capacity of his camp to 200 guests, there will be no difficulty in making sanitary the surroundings at the present site. The principal reason for my original recommendation was that it was Mr. Curry's professed intention to increase his capacity to 500 guests. In view of his statement that he would prefer to reduce his capacity, rather than be compelled to move his camp, I recommend that a concession be granted for the present site, on condition that he confine the capacity of his camp to 200 guests, and upon the further condition that he immediately construct a sewerage and a sewage-disposal system, according to plans approved by the Secretary of the Interior.

The most important consideration in connection with the maintenance of Yosemite Valley as a tourist resort is the water supply. The present supply is entirely inadequate, although of superior quality. It is derived from a spring at the foot of Glacier Point. Occasionally it is necessary to draw upon the power pipe line running from an intake on Merced River, about one-half a mile above the power house, to the site of the present power plant. It may confidently be expected that with the increase of travel into the valley the capacity of the spring will be overtaxed within a short time. Indeed, if proper distribution equipment were installed in the valley it would have been insufficient during the last season. I am therefore of the opinion that it will be necessary to abandon the spring as a source of supply for the valley, and draw the entire supply from the upper Merced River. This change should be made as soon as possible, and there is involved the expenditure of a considerable sum of money.

The present pipe line, power plant, water-distribution service, etc., were installed when the valley was in state ownership. The pipe line conducting the water to the power house is constructed of the cheapest possible material, a thin riveted pipe, made in sections with slip joints, somewhat similar to those of the ordinary stovepipe. No riveting was done at these joints, and the pipe along its entire length is constantly in a leaky condition. In addition to this, the material is so thin that it has rusted through in several places. Furthermore, through a part of the distance the pipe was laid in a sort of tunnel, constructed through an accumulation of loose boulders, sand, etc. The tunnel is entirely without reinforcement and is constantly caving, so that at the present time it is impossible to inspect the pipe line for a considerable distance, and there is imminent danger that the caving tunnel will release a boulder of sufficient weight to collapse the thin pipe and shut off the power plant entirely. The whole construction, so far as the pipe line is concerned, is an engineering botch, suggesting an entire lack of responsibility on the part of former authorities in charge of the valley, or worse. It is absolutely necessary that some steps be taken at the earliest moment to replace the pipe line; otherwise the valley may be in darkness during the next tourist season.

Inasmuch as it will be necessary to replace the pipe line, I recommend that it be made of a size sufficient to supply all the power that may reasonably be needed in the valley and also to supply at least 1,000,000 gallons a day for consumption by settlers and campers. It is probable that there are only a few days in any tourist season that the consumption of 1,000,000 gallons per day would be required, nevertheless I believe it wise to install up to that capacity, principally by reason of the fact that it would insure an excellent fire protection, and again because no one can tell how heavy the traffic into the valley will become under the new management and increased transportation facilities.

I will present later, in a detailed report, specifications and estimates of cost for such a pipe line.

The water-distribution service in the valley is worse, if it is possible, than the pipe line above described. It is built largely of the same material, has an enormous leakage, and is a constant source of annoyance and expense for repairs. It is my purpose to recommend a new distribution system, consisting of two 6-inch mains running down the valley along the two main roads on each side of the river, and after being reduced to 3 inches in diameter a short distance below the Sentinel Hotel to be carried down to a junction at El Capitan Bridge. Proper taps should be made from this water main, and especially should there be hydrants located along the roads for fire protection. Smaller hydrants should also be installed at the camp sites. I will present specifications and estimates for this in a later communication.

At the present time the public camp sites in the valley are all above Yosemite Hotel, the reason being that the water in Merced River below is polluted, and, with the exception of Bridal Veil Creek, there is no other water supply in the lower part of the valley. It is for this reason that I propose to recommend a somewhat extended water distribution system as far as El Capitan Bridge. With proper hydrant facilities, campers will not be forced to use the polluted Merced water. After considerable thought I am forced to the belief that it will be impossible to maintain the waters of Merced River in a condition fit for domestic consumption in the raw state. It would, of course, be possible to purify the sewage matter now discharged into the river from the Sentinel Hotel and other places similarly situated, but this will in no wise guarantee a sufficiently pure water supply from the Merced River. Wherever people are closely gathered in camps, hotels, etc., it may be expected as a certainty that the natural drainage of this occupied land will be sufficiently contaminated to be dangerous. In fact, the surreptitious pollutions from camp sites may always prevail, unless a battalion of troops be placed in charge of the valley, and I doubt whether this number of guardians would be effectual. Therefore it is my belief that the Government should accept the position that the pollution of Merced River is unavoidable and prepare its policy and its improvement in Yosemite Valley with that in view. The distribution of water through the pipe lines above noted will obviate the necessity for using the river water, and I will present in a later communication detailed plans and estimates for such protective works as appear to be necessary to install at such places as Yosemite Hotel, Camp Curry, etc.

The present pasturage concession of Coffman and Kenney should be revoked as soon as the legal requirements and proprieties in the matter will permit. This concession is a large one and contains several first-class camp sites, to which visitors in the valley should have free admission.

It is my purpose to recommend further a daily collection of garbage throughout the entire valley during the tourist season. This work should be placed in the hands of a superintendent, and not left to the individual concessioners.

Very respectfully, yours,

M. O. LEIGHTON,
Chief Hydrographer, U. S. Geological Survey.

THE HONORABLE SECRETARY OF THE INTERIOR.

DEPARTMENT OF THE INTERIOR,
UNITED STATES GEOLOGICAL SURVEY,
WATER RESOURCES BRANCH,
Washington, D. C., December 4, 1907.

SIR: I have the honor to submit herewith a report of my investigation of the sanitary conditions in Yosemite Valley, California, together with certain recommendations designed for the improvement of these conditions.

Yosemite Valley may be divided into two parts with reference to its sanitary condition—that above Sentinel Hotel and that below. This condition is largely controlled by the quality of water in Merced River. Above Sentinel Hotel the river is regarded as unpolluted and the campers are accustomed to use the water for drinking purposes. Below this hotel the water is grossly polluted and the superintendent of the park very properly refused to permit campers to occupy any of the sites along the lower portion of the valley. There is little

water during the camping season except that from the Merced. There are many excellent camp sites in the lower end of the valley, fully as attractive as those in the upper end; yet, under the present conditions, they will continue to be unavailable.

It will be impossible to exclude polluting substances from Merced River after it reaches the valley camps. This is especially true of that part below Sentinel Hotel and the surrounding village. A large amount of sewage must be discharged from these buildings, and, although it is possible to introduce sewage-purification systems which will render the effluent nonputrescible and chemically satisfactory, these systems furnish no absolute safeguard against the escape into the river of disease germs that may be in the sewage. Such escape would surely occur occasionally and it is these occasional pollutions of water supplies that have caused the greatest and most explosive outbreaks of typhoid fever that have occurred in the United States.

Above Sentinel Hotel there is no direct pollution; nevertheless, the water can not be regarded as fit for human consumption at all times. Wherever people congregate in large or small numbers it may be regarded as certain that there will be incidental and sometimes surreptitious pollutions that can not be guarded against and that are the result of thoughtlessness or intent. In addition to this, the drainage from occupied land into the river can not be regarded as at all times safe. Therefore, my first recommendation is that no attempt be made to retain Merced River in its pristine purity, and that, while sewage-purification systems should be installed so that the river will not become foul, no dependence should be placed on this part of the river as a source of water supply. It is therefore recommended that a new water supply system be installed, the specifications concerning which are given in the following paragraphs:

SEWAGE DISPOSAL.

The present methods of sewage disposal in the public camps seem to be fairly satisfactory. This is largely due to the diligence of the superintendent. With the increase of travel in the valley and the occupation of new camp sites, and especially if water supplies are conducted to these sites, special provisions should be made for taking care of the sewage. Each site should be provided with an improved form of sink and drain, the proper use of which should be enforced.

The sewage-disposal system at Camp Yosemite is sufficient for the present needs. It is a broad irrigation system which will probably give satisfaction for a few years. The ground upon which the sewage is now turned is not the best that could be desired, but, so long as it works with the present satisfaction, I recommend that no change be made.

The sewage-disposal system at Camp Curry is quite unsatisfactory. Certain references were made to this in a preliminary report, and a recommendation was made that the proprietor of this camp be allowed to retain his concession provided he limits the capacity of his camp to 200 guests and installs a sewerage system in accordance with instructions. I recommend in this case that a line of pipe be laid from the various receptacles in the camp across the road and terminate in the orchard which is now a part of the Coffman and Kenney concession. This ground is well suited for subirrigation, and a series of distribution pipes should be laid so that the effluent from the camp will be distributed over a wide area. The pipe from the camp should lead into a small, tightly cemented cesspool, from near the top of which the distribution system should run. This will provide retention for the solid matter in the sewage and only the overflow or liquid matter will be distributed into the ground.

A similar arrangement should be made for the group of buildings in the section known as Kenneville and for such other sections as from time to time grow up in the valley.

The main village, the nucleus of which is Sentinel Hotel, should be provided with a main intercepting sewer of a diameter of 8 inches, which shall conduct all the sewage down along the river bank to a point at which there is a suitable area for the construction of a septic tank in which the sewage can be partially purified before it is discharged into the river.

No special directions can be given concerning the details of the various sewerage systems above recommended. The construction should be in charge of a competent person, and the work should be done at the expense of the concessioners. The adaptability of any particular system of sewage disposal depends on local conditions, and wherever small systems are installed, like

those above recommended, the details of construction must be varied according to these conditions. I respectfully submit as an appendix to this report some detailed specifications concerning the sewage-disposal system proposed at Curry Camp, which is the most urgent at the present time. In view of the expense and the uncertainties attached to the sewage-disposal system at the main village and the present fairly satisfactory conditions there, I recommended that the consideration of this matter be postponed for another year. Other improvements hereinafter recommended will occupy the entire attention of the Yosemite Valley administration and will consume all the money that Congress can be expected to provide.

WATER-SUPPLY SYSTEM.

The main water supply of the valley has been discussed above and it has been suggested that an artificial system be installed and so extended that it can be used at the various public camps in the valley as well as by the concessioners.

The water supply now delivered in pipes to certain concessioners in Yosemite Valley is derived from a spring at the foot of Glacier Point. The distribution system is inadequate in every way, and the pipe material is of the cheapest sort and is rapidly deteriorating. The system requires constant supervision and numerous repairs. The quality of this water is above reproach, but even now it is taxed beyond the limit of capacity. It has been found necessary to provide an auxiliary by tapping the power pipe line running to the electric light station. With the great increase of camping in the valley and the consequent extension of the distribution system this supply will be quite insufficient. I recommend that a new supply be installed, the source of which shall be Merced River up above the valley and near the point of the present intake of the power house. The river above this point, and in fact the entire drainage area, can be maintained in sanitary condition. Campers can be excluded and the whole situation will be ideal for the conservation of purity.

The proposal to install a new water supply involves other considerations immediately related thereto, and which can not well be considered separately. These matters relate to the present power plant and appurtenances, together with the water-distribution system in the valley. The condition of the pipe line leading from the intakes to the power plant has been described in a preliminary report. It is in a precarious condition and liable to be totally disabled at any time. It will be necessary to install a new pipe line if the electric light plant is to be maintained. In installing this new pipe line it will be advisable to make it of a capacity sufficient to produce twice the amount of power now afforded at the station. This additional power will be needed in a short time, as the capacity of the generators does not greatly exceed present demands. In addition to this, the new pipe should be made large enough to supply to the valley a maximum of 1,000,000 gallons of water per day. This is a considerably greater amount of water than is needed for domestic consumption in the valley except during the heaviest tourist season, which obviously covers only a few weeks of each year. Nevertheless the heaviest demands should be satisfied. The main purpose, however, of so large a supply is fire protection. This is especially necessary. Its usefulness would not be confined merely to subduing fires in buildings now erected in the valley, but, if the system were properly installed, it would be extremely useful in quenching incipient forest fires, which, as you are well aware, are exceedingly serious in that part of the country. This would involve the purchase and maintenance of several hose reels equipped with long lines of fire hose.

Pipe lines.—No instrumental surveys were made at the time of my visit to the valley, and therefore the estimates hereinafter given are not based on precise measurements. Distances were measured principally by foot traverse and by scaling the new Yosemite Valley topographic sheet recently made by the Geological Survey. Liberal factors of safety have been allowed. It is recommended that the new pipe line be taken out of the river about 400 feet south of the present intake, that is, farther up the river, and be conducted to the power house by a new route, which is for many reasons far better than that now used by the present pipe line. The approximate distance along this route to the power house is 3,000 feet. The construction of a new road from the power house to the intake point is involved in this project. Along this route could be provided a suitable grade for the new pipe line. Such an improvement would cost not over \$4,500. It will be necessary in any event to construct a road over which to transport materials of construction, and the additional expense involved in making a permanent highway will be small.

If a single pipe line is laid it should be 30 inches in diameter. In many respects it would be better to install two pipe lines 21 inches in diameter. The first cost would be greater if the smaller pipes were laid, but they would be far easier and less expensive to transport and handle, and there would be the additional advantage that if one of the lines were disabled the water supply would not be completely cut off. It may be stated in passing that the transportation charges constitute an unusually heavy proportion of the expense, the prevailing rate from San Francisco to the valley being \$0.015 per pound. The pipe should be of wrought iron or steel, coated with tar, asphaltum, or similar material to provide against corrosion. The weight of 30 inches of spiral riveted pipe would be 79 pounds per linear foot, or about 120 tons; and if provided in 15-foot lengths, would consist of about 200 pieces. I estimate the cost of this pipe, including transportation charges and laying, as follows:

3,000 feet wrought-iron pipe, 30-inch, at \$7.56 f. o. b. San Francisco, Cal.....	\$22, 600
Freight on 240,000 pounds above pipe, from San Francisco to Yosemite Valley, at \$0.015 ^a	3, 600
Excavation and laying, at \$2 per foot ^b	6, 000
Four 15-inch valves, two low-pressure for head of lines, and two high-pressure for foot of lines, including transportation and installation.....	800
Engineering, contingencies, etc., 15 per cent.....	5, 000
Total.....	38, 000

In addition to the above, there should be constructed a low dam, consisting of very heavy stone laid across the narrow part of the channel just below the proposed intake, so that a sufficient head may be retained on the intake during seasons of low water. This need not be a tight dam, but may be constructed by placing heavy bowlders in the river to provide a partial obstruction of the channel and thereby increase the stage. This would cost about \$1,500.

About 15 yards of concrete construction would be necessary for retaining walls and forebay, which, at \$8 per cubic yard, would cost \$1,200.

The total estimate for the pipe line is therefore about \$40,000.

Whether or not the remainder of the improvements herein proposed are provided for during the next season, this pipe-line improvement should be insisted upon. The conditions there at the present time are grave.

Distribution system.—There is recommended a distribution system consisting of 6-inch and 3-inch mains laid along the route shown on accompanying map. The route marked in black indicates 6-inch pipe, while that marked in red indicates 3-inch pipe. There is proposed in all about 33,700 feet of 6-inch pipe, the total cost of which, including materials and laying and exclusive of freight and transportation charges, would be \$30,330. There would also be necessary 54,800 feet of 3-inch pipe, the total cost of which, on the same basis, would be \$43,840. The distribution system would have to be supplied with gates, as marked on the map. Those proposed consist of twenty 6-inch gates, which, at \$15 each, would cost \$300; and twenty 3-inch gates, which, at \$5 each, would cost \$100. The total charge for pipe, laying, gates, including transportation, is estimated as follows:

Pipe system ^c	\$74, 170
Fire hydrants.....	8, 500
Gates.....	400
Engineering, contingencies, etc.....	12, 500
Freight from San Francisco ^d	26, 800
Total.....	122, 370

^a Could be greatly decreased by using United States teams from El Portal.

^b Based on costs at Philadelphia, which involved deep trenches and back filling. Pipe now under consideration would lie mostly on surface of ground, with very little trenching. No deduction made from rates (Philadelphia) on this account, and factor of safety is thereby afforded.

^c This does not include cost of fittings, such as bends, Y's, elbows, etc., but the cost of laying here included is based on experience at Washington, D. C., where there is deep trenching. The system at Yosemite would lie close to the surface and, therefore, the cost of trenching would be nominal; the balance would more than provide for cost of fittings.

^d Could be greatly decreased by using United States teams from El Portal.

It will be noted from the above that no provision is made for taps and local connections. This has purposely been omitted from the present estimate for two reasons: First, it will not be possible to put the new water-supply system into commission during the next season, and therefore an estimate of the tap and connections is not an immediate necessity; second, before making such an estimate it would be necessary to consider all the local conditions in connection with the needs for taps, etc. This largely depends upon the future policy with reference to the maintenance of camps and permanent improvements now erected or to be erected in the valley.

If it is proposed to open up the camp sites below Sentinel Hotel for occupancy, the entire system above proposed will be necessary. If, however, it is believed unwise to make a request for the total appropriation at the present time, certain portions of the system can be judiciously omitted and the cost thereby reduced. It will be noted upon examination of the map that the proposed distribution system provides for cross-distribution, so that if any particular length of line is ever disabled the supply will not be cut off, but will be continued through the several by-passes. It would be possible, for example, to omit the 3-inch main running along the north side of the river from the present military post to El Capitan Bridge, and provide for the development of the camp sites only on the south side of the river at the present time. The 6-inch main, running on the south side of the river from the power house to Sentinel Hotel, could be omitted and the local usage on that side could be supplied with branches running across the river to such places as Curry Camp, Le Conte Memorial, etc. If it is believed wise to develop the system in this way, I shall be pleased to submit estimates of the proposed cost.

It is respectfully suggested that, in the event that it shall be deemed unwise to request an appropriation covering the entire improvement, an estimate be made of the cost of a new pipe line and a small additional sum to provide for proper instrumental surveys, and a minute consideration of the distribution system. This would involve a request for an appropriation of \$42,000. In addition to this, it is recommended that the sum of \$3,000 be included for survey of reservoir sites on Yosemite and Bridal Veil creeks, and for estimate of cost of building reservoirs to supply water for Yosemite and Bridal Veil falls during the summer season, when said falls are usually dry. It is strongly recommended that no camping be allowed in the vicinity of or above Mirror Lake. This body of water should be kept free from pollution, as it provides an excellent source of ice supply for the valley.

A system of garbage removal is recommended, the same to be conducted by the federal authorities during the camping seasons, with strict regulations concerning the administration of the same, and, if possible, proper charges should be made to the campers for maintenance thereof.

Very respectfully,

M. O. LEIGHTON,
Chief Hydrographer.

Approved:

H. C. RIZER,
Acting Director.

To the Honorable the SECRETARY OF THE INTERIOR.

APPENDIX C.

POWER PLANT.

YOSEMITE, *September 24, 1908.*

SIR: By the consent of Maj. H. C. Benson, superintendent in charge, I respectfully submit this report regarding the condition of our electric plant and water-power system. The feed pipe is 2,250 feet long, 22 inches in diameter, of about No. 16 sheet-iron pipe, riveted together on seams, and pressed together at joints. The gauge pressure at nozzles is 65 to 70 pounds per square inch. The headgate consists of a flimsy wooden affair, raised and lowered by crowbars. This headgate is set at the lower end of an open forebay, which is about 75 feet in length, which is a regular trap for snow and ice in winter, and for drift, sand, and leaves in summer.

The feed pipe enters a tunnel 200 feet in length just below the headgate. The tunnel was cut through broken up surface formation consisting of bowlders and earth, liable to shift at any time; in fact, a part of the tunnel is now caved in on the pipe. This took place while the State still had charge here. After the department took charge, we entered the tunnel and retimbered where it was badly needed and drove lagging between the pipe and ground at the cave, finding it impossible on account of the condition of the surrounding ground to remove the earth resting on the pipe and to retimber. In the electric plant we have two generators connected with two water wheels. The foundations are very poor, being all of wood set on the ground, then filled in around with concrete, which extends down only about 2 inches from the top of mud sills. This allows a great deal of vibration, although we have braced every way we could to prevent it, yet as long as the foundations are in their present condition it will continue and cause unsatisfactory operation. The high tension wiring in the station is laid in shallow wooden gutters resting on the ground under the floor and is supported on porcelain knobs. In fact, the wiring of buildings throughout the valley was originally done in a dangerous and unworkmanlike manner; we are overcoming this danger, however, by rewiring the buildings, more than half of which was completed last winter, and the balance can probably be done this fall and winter.

I would respectfully recommend a new electric plant and water-power system for the Yosemite Valley, with a capacity of 250 or 300 horsepower, as all future wants would thus be provided for. The capacity of the present plant will soon be taxed should we have a call for more lights, which we no doubt will, even if every part of the system were in first-class condition. As the load increases the strain on the plant also increases, and sooner or later, under the present conditions, there will be a breakdown.

With a new plant of larger capacity we could run twenty-four-hour service, thus providing electric power to consumers for heating, culinary purposes, and in any place where heat or power is used. This would greatly increase the income from the plant. The water power could be obtained without detracting from the beauty of the waterfalls, etc., and the tunnel mentioned could be eliminated from the new line, as it would be less expensive to run around the hill than to fix up the tunnel. I would also recommend that the supply cables be run in an underground conduit. The poles the State put in will soon have to be renewed; some of them are pretty badly decayed now. With the underground system this expense would be overcome, as from time to time the poles will all have to be renewed, since this locality causes poles to decay quite rapidly. Also we would thus do away with unsightly pole lines running through the park.

Very respectfully,

C. W. TUCKER,
Chief Electrician.

SECRETARY OF THE INTERIOR,
Washington, D. C.

APPENDIX D.

RULES AND REGULATIONS.

REGULATIONS OF FEBRUARY 29, 1908.

The following rules and regulations for the government of the Yosemite National Park, including the Yosemite Valley and Mariposa Big Tree Grove, are hereby established and made public, pursuant to authority conferred by the acts of Congress approved October 1, 1890, February 7, 1905, and June 11, 1906:

1. It is forbidden to injure or disturb in any manner any of the mineral deposits, national curiosities, or wonders on the government lands within the park.

2. It is forbidden to cut or injure any timber growing on the park lands, or to deface or injure any government property. Camping parties will be allowed to use dead or fallen timber for fuel.

3. Fires should be lighted only when necessary and completely extinguished when not longer required. The utmost care must be exercised at all times to avoid setting fire to the timber and grass.

4. Hunting or killing, wounding or capturing any bird or wild animal on the park lands, except dangerous animals when necessary to prevent them from destroying life or inflicting an injury, is prohibited. The outfits, including guns, traps, teams, horses, or means of transportation used by persons engaged in hunting, killing, trapping, ensnaring, or capturing such birds or wild animals, or in possession of game killed on the park lands under other circumstances than prescribed above, will be taken up by the superintendent and held subject to the order of the Secretary of the Interior, except in cases where it is shown by satisfactory evidence that the outfit is not the property of the person or persons violating this regulation and the actual owner thereof was not a party to such violation. Firearms will only be permitted in the park on written permission from the superintendent thereof.

5. Fishing with nets, seines, traps, or by the use of drugs or explosives, or in any other way than with hook and line is prohibited. Fishing for purposes of merchandise or profit is forbidden. Fishing may be prohibited by order of the superintendent in any of the waters of the park, or limited therein to any specified season of the year, until otherwise ordered by the Secretary of the Interior.

6. No person will be permitted to reside permanently, engage in any business, or erect buildings, etc., upon the government lands in the park, without permission, in writing, from the Secretary of the Interior. The superintendent may grant authority to competent persons to act as guides and revoke the same in his discretion. No pack trains will be allowed in the park unless in charge of a duly registered guide.

7. Owners of patented lands within the park limits are entitled to the full use and enjoyment thereof; such lands, however, shall have the metes and bounds thereof so marked and defined that they may be readily distinguished from the park lands. Stock may be taken over the park lands to patented lands with the written permission and under the supervision of the superintendent.

8. The herding or grazing of loose stock or cattle of any kind on the government lands in the park, as well as the driving of such stock over the same, is strictly forbidden, except in such cases where authority therefor is granted by the superintendent.

9. No drinking saloon or barroom will be permitted upon government lands in the park.

10. Private notices or advertisements shall not be posted or displayed on the government lands within the reservation, except such as may be necessary for the convenience and guidance of the public.

11. Persons who render themselves obnoxious by disorderly conduct or bad behavior, or who may violate any of the foregoing rules, will be summarily removed from the park and will not be allowed to return without permission, in writing, from the Secretary of the Interior or the superintendent of the park.

No lessee or licensee shall retain in his employ any person whose presence in the park shall be deemed and declared by the superintendent to be subversive of the good order and management of the reservation.

12. The superintendent designated by the Secretary is hereby authorized and directed to remove all trespassers from the government lands in the park and enforce these rules and regulations and all the provisions of the acts of Congress aforesaid.

INSTRUCTIONS OF FEBRUARY 29, 1908.

1. Interference with or molestation of any bear or other wild animal in the park in any way by any person not authorized by the superintendent is prohibited.

2. *Fires.*—The greatest care must be exercised to insure the complete extinction of all camp fires before they are abandoned. All ashes and unburned bits of wood must, when practicable, be thoroughly soaked with water. Where fires are built in the neighborhood of decayed logs, particular attention must be directed to the extinguishment of fires in the decaying mold. Fire may be extinguished where water is not available by a complete covering of earth

well packed down. Care should be taken that no lighted match, cigar, or cigarette is dropped in any grass, twigs, leaves, or tree mold.

3. *Camps.*—No camp will be made except at designated localities. All campers in Yosemite Valley shall first report at the office of the superintendent for assignment to camping sites, and will not change camps without permission, nor shall fires be lighted in Yosemite Valley or Mariposa Big Tree Grove without the express permission of the superintendent. Blankets, clothing, hammocks, or any other article liable to frighten teams must not be hung near the road. The same rule applies to temporary stops, such as for feeding horses or for taking luncheon.

Many successive parties camp on the same sites during the season, and camp grounds must be thoroughly cleaned before they are abandoned. Tin cans must be flattened, and with bottles, cast-off clothing, and all other débris must be deposited in a pit provided for the purpose. When camps are made in unusual places where pits may not be provided, all refuse must be hidden where it will not be offensive to the eye.

4. *Bicycles.*—The greatest care must be exercised by persons using bicycles. On meeting a team the rider must stop and stand at side of road between the bicycle and the team—the outer side of the road if on a grade or curve. In passing a team from the rear the rider should learn from the driver if his horses are liable to frighten, in which case the driver should halt and the rider dismount and walk past, keeping between the bicycle and the team.

5. *Fishing.*—All fish less than 6 inches in length should at once be returned to the water with the least damage possible to the fish. No one person shall catch more than 50 fish in one day.

6. *Dogs.*—Dogs are not permitted in the park.

7. *Stages.*—Stages entering Yosemite Valley shall stop at each hotel or permanent camp in the order of location, so that passengers may exercise the right of selection.

8. *Driving on roads of park.*—(a) Drivers of vehicles of any description when overtaken by other vehicles traveling at a faster rate of speed shall, if requested to do so, turn out and give the latter free and unobstructed passage-way.

(b) Vehicles, in passing each other, must give full half of the roadway. This applies to freight outfits as well as any other.

(c) Freight, baggage, and heavy camping outfits on sidehill grades throughout the park will take the outer side of the road while being passed by passenger vehicles in either direction.

(d) Transportation companies, freight and wood contractors, and all other parties and persons using the park roads will be held liable for violations of these instructions.

(e) Mounted men on meeting a passenger team on a grade will halt on the outer side until the team passes. When approaching a passenger team from the rear warning must be given, and no faster gait will be taken than is necessary to make the passage, and if on a grade the passage will be on the outer side. A passenger team must not be passed on a dangerous grade.

(f) All wagons used in hauling heavy freight over the park roads must have tires not less than 4 inches in width. This order does not apply to express freight hauled in light spring wagons with single teams.

9. *Miscellaneous.*—Automobiles are not permitted in the park.

No person shall drive or ride faster than a walk over any of the government bridges within the park.

Persons with animals using trails must keep therein; leaving the trails for the purpose of making short cuts will not be permitted.

Persons are not allowed to bathe near any of the regularly traveled roads in the park without suitable bathing clothes.

Campers and all others, save those holding license from the Secretary of the Interior, are prohibited from hiring their horses, trappings, or vehicles to tourists or visitors in the park.

All complaints by tourists and others as to service, etc., rendered in the reservation should be made to the superintendent in writing before the complainant leaves the park.

10. The penalty for disregard of these instructions is summary ejection from the park.

REGULATIONS OF FEBRUARY 29, 1908, GOVERNING THE IMPOUNDING AND DISPOSITION OF LOOSE LIVE STOCK.

Horses, cattle, or other domestic live stock running at large or being herded or grazed in the Yosemite National Park without authority from the Secretary of the Interior will be taken up and impounded by the superintendent, who will at once give notice thereof to the owner, if known. If the owner is not known, notice of such impounding, giving a description of the animal or animals, with the brands thereon, will be posted in six public places inside the park and in two public places outside the park. Any owner of an animal thus impounded may, at any time before the sale thereof, reclaim the same upon proving ownership and paying the cost of notice and all expenses incident to the taking up and detention of such animal, including the cost of feeding and caring for the same. If any animal thus impounded shall not be reclaimed within thirty days from notice to the owner or from the date of posting notices, it shall be sold at public auction at such time and place as may be fixed by the superintendent after ten days' notice, to be given by posting notices in six public places in the park and two public places outside the park, and by mailing to the owner, if known, a copy thereof.

All money received from the sale of such animals and remaining after the payment of all expenses incident to the taking up, impounding, and selling thereof, shall be carefully retained by the superintendent in a separate fund for a period of six months, during which time the net proceeds from the sale of any animal may be claimed by and paid to the owner upon the presentation of satisfactory proof of ownership, and if not so claimed within six months from the date of sale such proceeds shall be turned into the Yosemite National Park fund.

The superintendent shall keep a record in which shall be set down a description of all animals impounded, giving the brands found on them, the date and locality of the taking up, the date of all notices and manner in which they were given, the date of sale, the name and address of the purchaser, the amount for which each animal was sold and the cost incurred in connection therewith, and the disposition of the proceeds.

The superintendent will, in each instance, make every reasonable effort to ascertain the owner of animals impounded and to give actual notice thereof to such owner.

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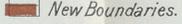
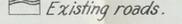
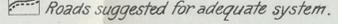
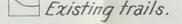
YOSEMITE NATIONAL PARK

SHOWING BOUNDARIES

ESTABLISHED BY ACT OF CONGRESS

APPROVED JUNE 11, 1906

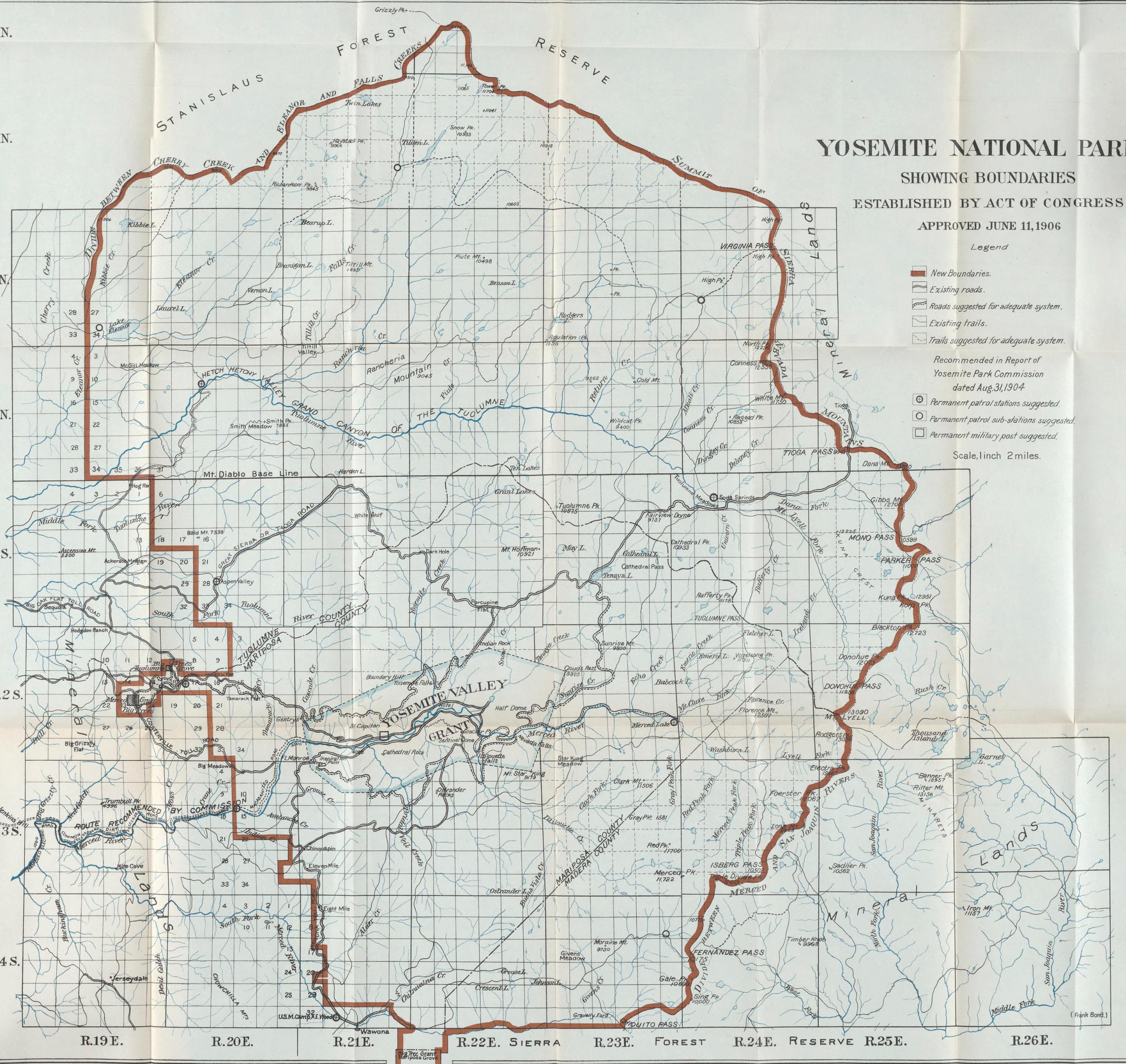
Legend

-  New Boundaries.
-  Existing roads.
-  Roads suggested for adequate system.
-  Existing trails.
-  Trails suggested for adequate system.

Recommended in Report of Yosemite Park Commission dated Aug. 31, 1904

-  Permanent patrol stations suggested.
-  Permanent patrol sub-stations suggested.
-  Permanent military post suggested.

Scale, 1 inch = 2 miles.



(Frank Bond.)