

DEPARTMENT OF THE INTERIOR

R E P O R T

OF THE

DIRECTOR OF
THE NATIONAL PARK SERVICE

TO THE

SECRETARY OF THE INTERIOR

FOR THE

FISCAL YEAR ENDED JUNE 30, 1923
AND THE TRAVEL SEASON, 1923



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CONTENTS.

	Page.
Starting the second half century.....	1
A glance backward.....	1
National park service created.....	2
Service not organized until 1917.....	3
Creating interest in the parks.....	3
A park publicity campaign.....	4
Tourist facilities in parks reorganized.....	4
The parks to-day.....	5
Our priceless possessions.....	6
An antidote for national restlessness.....	6
Interest shown by public officials.....	7
Much still to be accomplished.....	7
Great need for good roads.....	8
Existing roads not built for motor traffic.....	9
Future enlargements of the system.....	11
Yellowstone extension wins local sentiment.....	11
Enlargement of Sequoia National Park.....	12
Diamond Lake region necessary for Crater Lake Park.....	12
Other desirable boundary changes.....	13
New park projects.....	13
National parks desirable in the East.....	14
Existing park standards must be maintained.....	14
State park creation.....	15
Save-the-redwoods movement.....	16
Conference of State park enthusiasts.....	17
A nation-wide superscenery survey.....	18
Seizing our educational opportunities.....	19
Park museums are needed.....	20
Nature guide service justifies its expansion.....	20
Part in national conservation.....	21
Wild life conservation an important phase.....	23
Protection of forest growth.....	25
Appropriations and revenues.....	26
The national park-to-park highway.....	28
The national park movement abroad.....	29
An American travel division.....	30
Publications.....	31
Visual educational work.....	33
Motion-picture film.....	34
Lantern slides.....	34
Photographs.....	34
Acknowledgement of gifts.....	35
The President's visit.....	37
Winter travel and sports.....	38
Field of archaeology.....	39
Sanitation in the parks.....	39
Marked advance in landscape improvements.....	40
Civil engineering division.....	40
High efficiency of field personnel.....	42
Washington office staff too small.....	43
Inspection of park operators' accounts.....	44
New national monuments established.....	44
Changes in boundary of existing national monuments.....	45
New monuments under other departments.....	45
The year in the parks.....	46

	Page.
Yellowstone National Park, Wyo.....	46
Distinguished visitors come from everywhere.....	46
Good service by public utilities.....	46
Courtesy and kindness greatest factors in successful season.....	47
Travel reaches unprecedented figures.....	47
Funds for upkeep very inadequate.....	47
Increase in appropriations small; in revenues large.....	48
Protection force too small.....	48
Yellowstone road construction requirements small.....	48
Vastly increased use of Yellowstone trails.....	49
Howard Eaton Trail dedicated.....	49
Wild life of Yellowstone have good year.....	49
Record breaking year in fish culture work.....	50
Educational work vastly expanded.....	50
Beautiful chapel in use.....	50
Teton Mountains still lack park status.....	51
Wide publicity through railroads and press.....	51
Yosemite National Park, Calif.....	52
Successful operating year.....	52
Improvements of the year.....	52
Hetch Hetchy Reservoir a fact.....	53
Final plan for new village or community unit.....	53
Hikers' camps an innovation.....	54
Hospital facilities inadequate.....	55
Roads—The great problem.....	55
Grand Canyon National Park, Ariz.....	56
Plans for functional development under way.....	56
Grazing and the rim flora.....	57
Daily lecture given.....	57
Administration satisfactory.....	57
Rocky Mountain National Park, Colo.....	58
Road and trail improvement greatest need.....	58
Employees' quarters should be provided.....	59
The snow removal problem.....	59
Nature guide service.....	59
A park museum needed.....	60
Public camp ground and utility site.....	60
Decision in suit regarding commercial transportation.....	60
Mount Rainier National Park, Wash.....	61
Inadequate camp grounds.....	61
Road improvements and needs.....	61
Permanent tourist facilities expanded.....	63
Glacier National Park, Mont.....	63
Accommodations must be expanded.....	63
Road and other improvements needed.....	63
Nature guide service.....	64
Notes on game and fish.....	64
Crater Lake National Park, Oreg.....	65
Lodge addition nearing completion.....	65
Approach road improvement.....	65
Roads within the park.....	66
Other public facilities.....	66
Wild animal life abundant.....	66
Improvements.....	67
No action taken on Diamond Lake extension.....	67
Changes in administration.....	67
Sequoia National Park, Calif.....	67
Travel and camp developments.....	67
The Generals' Highway.....	68
Educational and other services.....	68
Proposed park extension.....	69
Private holdings acquired.....	69
Larger appropriations needed.....	69

	Page.
Hawaii National Park, Territory of Hawaii.....	69
Increased attendance and publicity.....	70
Additional roads and trails needed.....	70
Park enlargement and private land acquisition.....	71
Mesa Verde National Park, Colo.....	71
Changes in utility and service areas great improvement.....	71
Museum a reality and gifts.....	71
Water supply serious problem.....	72
Archaeological and trail work.....	72
Roads must be surfaced.....	72
Approach road from Gallup, N. Mex., important.....	73
Lafayette National Park, Me.....	73
The mountain road.....	73
Federal obligations.....	74
Hot Springs National Park, Ark.....	74
Government free bathhouse and clinic.....	74
Pay bathhouses.....	75
Sanitation and public health measures.....	75
Mount McKinley National Park, Alaska.....	75
Dedication of the park.....	75
The game situation.....	76
Cooperation of Alaska Road Commission.....	76
General Grant National Park, Calif.....	76
Wind Cave National Park, S. Dak.....	77
Zion National Park, Utah.....	77
Platt National Park, Okla.....	78
Lassen Volcanic National Park, Calif.....	79
Sullys Hill National Park, N. Dak.....	79
Work in the national monuments.....	79
Legislation.....	83
Park bills enacted into law.....	83
New bills introduced but not enacted before the close of the last session.....	83
Presidential proclamations.....	84
Executive orders.....	84
In conclusion.....	85
Appendix A.—The national parks and monuments:	
The national parks administered by the National Park Service, Department of the Interior.....	90
The national military, and other parks administered by the War Department.....	93
The national monuments administered by the National Park Service, Department of the Interior.....	94
The national monuments administered by the Department of Agriculture.....	96
The national monuments administered by the War Department.....	97
Organization of the National Park Service.....	98
Appendix B.—Statistics:	
Visitors to the national parks 1908-1923.....	99
Visitors to some of the national monuments 1919-1923.....	100
Private automobiles entering the national parks during seasons 1916-1923.....	100
Automobile and motorcycle licenses issued during the seasons 1919-1923.....	100
Receipts collected from automobiles and motorcycles during seasons 1919-1923.....	101
Statement of appropriations made for and revenues received from the various national parks and monuments and expenditures made therefrom during the fiscal years 1917-1923, inclusive; also appropriations for the fiscal year 1924.....	101
Summary of appropriations for the administration, protection, and improvement of the national parks and national monuments, together with the revenues received for the fiscal years 1917-1924, inclusive.....	104

Appendix B.—Statistics—Continued.	Page.
National park and monument lands administered by the National Park Service in relation to the national forest lands, including national monument lands administered by the Forest Service.....	104
National park and monument lands administered by the National Park Service in relation to the States and Territories in which they are located.....	105
National park and monument lands administered by the National Park Service in relation to the public lands.....	106
Appendix C.—Reports of the officers in charge of the national parks and monuments:	
Index to individual reports.....	107
Hot Springs National Park.....	110
Yellowstone National Park.....	113
Yosemite National Park.....	123
Sequoia National Park.....	131
General Grant National Park.....	136
Mount Rainier National Park.....	137
Crater Lake National Park.....	142
Wind Cave National Park.....	145
Platt National Park.....	146
Sullys Hill National Park.....	147
Mesa Verde National Park.....	148
Glacier National Park.....	152
Rocky Mountain National Park.....	158
Hawaii National Park.....	165
Mount McKinley National Park.....	166
Grand Canyon National Park.....	167
Lafayette National Park.....	175
Zion National Park.....	176
Casa Grande National Monument.....	178
Montezuma Castle National Monument.....	179
El Morro National Monument.....	179
Muir Woods National Monument.....	180
Papago Saguaro National Monument.....	181
Petrified Forest National Monument.....	182
Tumacacori National Monument.....	182
Report of the civil engineering division.....	182
Report of the landscape engineering division.....	183
Appendix D.—Legislation:	
Legislation affecting the national parks enacted by Congress since date of the sixth annual report.....	184
Presidential proclamations relating to the national monuments issued since date of the sixth annual report.....	188
Executive orders relating to national parks and national monuments issued since date of the sixth annual report.....	194
Appendix E.—Miscellaneous:	
An act to establish a National Park Service and for other purposes..	196
An act for the preservation of American antiquities.....	197

ILLUSTRATIONS.

PLATES.

	Page
I. Mount Rainier National Park.....	24
A. An average midweek line up in Paradise Valley awaiting the opening of the Nisqually Road to down traffic.	
B. Part of the Paradise public camp grounds.	
II. Yellowstone National Park.....	24
A. The late President at Inspiration Point. President Harding, Secretary of the Interior Hubert Work, Director of the National Park Service Stephen T. Mather, Superintendent of Yellowstone Park Horace M. Albright.	
B. Dedication of the Howard Eaton Trail at Sheepeaters Cliff, July 19, 1923.	
III. Yellowstone National Park.....	24
A. Mammoth permanent camp from the Mammoth terraces.	
B. Camp-fire entertainment at Canyon permanent camp.	
IV. Hawaii National Park.....	25
A. Clouds of ashes and steam arising from Kilauea Volcano.	
B. Recent earthquake cracks in the Kau Desert.	
V. Sequoia National Park.....	40
Dedication of the Warren G. Harding Sequoia.	
Lafayette National Park.	
Where mountain and sea meet.	
VI. Yosemite National Park.....	40
A. Winter sports and scenes: The course is lighted for tobogganing at night; the majesty of El Capitan is heightened in its winter garb.	
B. The Minarets and Iceberg Lake in the High Sierra; proposed to be added to Yosemite.	
VII. Yosemite National Park.....	40
A. Bears are numerous and no longer timid since dogs have been prohibited.	
B. Leevining Canyon is naturally part of the park and should be added to it.	
VIII. Glacier National Park.....	41
The Many Glaciers region.	
Department of the Interior's official national park exhibit at the International Travel Exposition held in New York City, April, 1923.	
IX. Lassen Volcanic National Park.....	56
Butte Lake formed by the lava flows of Cinder Cone.	
Grand Canyon National Park.	
Observation point at the head of Bright Angel Trail.	
X. Natural Bridges National Monument.....	56
The Edwin Bridge, Utah. The Indian name is Owachomo, meaning "rock mound."	
Aztec Ruin National Monument.	
Remarkable prehistoric ruin in New Mexico.	
XI. Pipe Spring National Monument.....	56
A memorial to early western pioneer life in Arizona.	
Gran Quivira National Monument.	
Ruins of one of the earliest Spanish mission churches in New Mexico.	
XII. Casa Grande National Monument, Ariz.....	57
The monument museum promises to become renowned in the Southwest because of the relics and artifacts of a prehistoric people which it houses.	
Muir Wood National Monument, Calif.	
The recently built custodian's residence.	

FIGURE.

1. Map of the western portion of the United States, showing relation of the national park and monument lands, the vacant public lands, and the national forest lands to the several States.....

ANNUAL REPORT OF THE DIRECTOR OF THE NATIONAL PARK SERVICE.

DEPARTMENT OF THE INTERIOR,
NATIONAL PARK SERVICE,
Washington, D. C., October 5, 1923.

SIR: It gives me great pleasure to submit to you herewith the seventh annual report of the National Park Service covering its fiscal activities for the year ended June 30, 1923, and the official tourist season which closed September 30 last. The report, to comply with legislative directions for limitations in pages of all departmental and bureau reports, has been encompassed within the service's allotment of 198 pages.

STARTING THE SECOND HALF CENTURY.

This year marks the beginning of the second half century of the national park system of this country. It marks also the sixth in the active functioning of the National Park Service, as the ninth and youngest bureau of the Department of the Interior, in charge of the administration and development of that system. The travel figures for the year just closed again show a heavy increase over those of the preceding season and the largest visiting list the parks have experienced; in fact the volume of national park travel is unprecedented in history. This may well be considered indisputable evidence of the constantly increasing popularity of these great national scenic reservations as the recreation and pleasuring grounds of the American people, and, I am confident, is only the forerunner of what the coming years will prove, a consistent annual travel movement of tremendous proportions within this country's boundaries by our travel-loving people, with the national parks the chief objectives.

A GLANCE BACKWARDS.

Before proceeding with a discussion of this season's accomplishments and our plans and obligations for the future, I consider it timely in this report to review briefly the work of the past few years that have led to our present day responsibilities, for it is only by contrast and comparison that the full value of the work and the achievements of the National Park Service since its organization six years ago can be appreciated.

The year of 1872 saw the creation of the first national park of the system—the incomparable Yellowstone. This, at once, established the principle, voiced with unmistakable emphasis and clarity by its proponents among the public and in the Congress, that areas of

unusual scenic magnificence and splendor on the public domain should not be permitted by the Federal Government to fall into private hands and be exploited for private gain, but, instead, should be reserved for all time for the health, recreation and pleasure of the entire country. The words "national park," then used for the first time, forecast a national program that areas of exceptional scenic grandeur, on the public domain, should be designated as national parks, for the use and enjoyment of all the people. It was not, however, until 1890 that the second national park was created, namely, the Sequoia, in the High Sierra of middle eastern California, followed shortly thereafter, in the same year, by the Yosemite, not many miles farther to the north. Mount Rainier National Park came next in 1899. From then on the creation of other parks followed in swifter sequence.

Prior to 1916, the year of the establishment of the National Park Service as a separate bureau of the department, administration of then existing national parks, and national monuments under the jurisdiction of the department had been delegated to one of the divisions of the Secretary's office, in connection with other work falling under that bureau's miscellaneous activities. On June 30, of that year, 14 national parks and 18 national monuments were so administered. The close of that travel season had seen a total of 356,097 visitors in these parks. The Yellowstone alone had 35,849 visitors. Travel of such proportions was then considered large.

It was apparent, however, that the larger development of the national parks and the stimulation of interest of the American people in their own superb scenic possessions required the establishment of a separate organization that should devote its entire time and activities to those purposes. It was conceded wherever the subject was discussed that the potentialities of the national park system were practically unlimited, particularly in furthering national patriotism and pride of country, and in expanding the educational and recreational activities of our people. These had barely been touched. From an economic standpoint alone the development of tourist travel in our land instead of to foreign shores promised a splendid future.

NATIONAL PARK SERVICE CREATED.

August 25, 1916, saw the creation of the National Park Service of the Interior Department by special act of Congress. This was not accomplished without great effort and work on the part of the department, but, assisted by interested organizations and many friends of the measure in Congress, who agreed on the far-reaching importance of such a forward move, the law establishing the service was finally placed on the statute books. In the enabling act, Congress specified that the service was "to promote and regulate the use of the Federal areas known as national parks, monuments and reservations * * * by such means and measures as conform to the fundamental purpose of said parks, monuments, and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wild life therein, and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."

SERVICE NOT ORGANIZED UNTIL 1917.

Appropriations to establish the bureau on a proper basis and enable it to function to the fullest extent were suggested as high as \$75,000 a year by those in Congress who foresaw its possibilities, but it was felt that the bureau should first prove its worth to the country and start with a moderate personnel. The act as passed provided for the appointment by the Secretary of the Interior of a director with a salary of \$4,500 per annum, of an assistant director at \$2,500 per annum, a chief clerk, and various other employees totaling an annual salary list of \$19,500. Not until April, 1917, however, was the organization perfected so that the service could assume charge of its assigned duties. It was held by the committee reporting on the bill to establish the service that inasmuch as the office of the Secretary had been relieved of the burden of administering the parks, that office should detail such number of clerks as were considered necessary for the disposition of the work that the employees on the service rolls could not handle. Four clerks were so detailed, and remained with the service until the requirements of the Federal retirement act necessitated the withdrawal of three by the department in 1919. Since then Congress has from time to time increased the staff of the Washington office by transferring to our rolls the one remaining detail and allowing regular clerks for those withdrawn. The appropriation for this purpose now amounts to \$33,200. At that there is now on the headquarters pay roll in Washington but one more clerk than was allowed in 1916, including those detailed.

CREATING INTEREST IN THE PARKS.

At the start the service was confronted with a seeming apathy in Americans toward their own natural attractions. This was the more remarkable because as a Nation we are a travel-loving people. Europe and the other lands beyond the far seas yearly were receiving the bulk of Americal travel. They found this a decidedly profitable situation, for millions upon millions of American dollars were thus annually brought to enrich their coffers. This was directly traceable to the support these foreign countries gave their own attractions by the intensiveness of their advertising and even by subsidizing steamboat lines that themselves did everything within their power, by large-scale publicity, to keep the allurements beyond the seas before the world.

Our first step, therefore, was to bring the beauties of our own country's scenery directly to the minds of our people—into their very homes. Nature had been most lavish when our land was fashioned, only the great mass of Americans did not know of the wonders ready to be enjoyed by them with little effort and cost. We have areas of supremely distinctive character, of highly sensational scenic value, far surpassing what other countries have to offer, all of the highest national interest, as contradistinguished from merely local interest; scenery owned and controlled by the National Government and in which the country, as a whole, would be interested, instead of only neighboring communities; and yet only a handful of people annually visited them.

A PARK PUBLICITY CAMPAIGN.

The distribution of detailed information regarding these national parks was decided upon as our first program. Western railroads promptly cooperated by contributing a large fund from which the first edition of the National Parks Portfolio was published and placed ready for public distribution and use. The immediate popularity of this book, showing in superb reproduction scenes from each park carefully described by experts who had seen them and studied them, indicated the interest and ready response of the American people. This portfolio still forms the chief contribution of the National Park Service to the excellent collection of material now available regarding the parks and has been reissued in several editions. The portfolio was followed by the issuance in large editions of new and revised circulars of information giving in detail a description of the various points of interest and the natural wonders of each park, the flora and fauna, the best routes of travel and rates and regulations. Public interest at once quickened. The demands for these publications ran into the hundreds of thousands. The lack of detailed information regarding their national parks was indeed the reason for the seeming indifference of the general public. Publicity was all that had been necessary to arouse interest, and publicity immediately had its own reward.

TOURIST FACILITIES IN PARKS REORGANIZED.

Next to foster tourist travel, accommodations and facilities within the parks themselves had to be bettered. The finest scenery, without adequate accommodations, is never as popular or receives so large a travel as scenery of lesser quality with good accommodations. Many small licensees, operating under departmental permit in different parts of a park, often with considerable friction between themselves and offering no promise of efficient coordinated service for a larger number of visitors, had to be superseded, where practicable, by the installation of larger organizations, well financed and capable of expansion with larger equipment as the needs for such service should arise.

Roads and trails had to be developed and expanded. Cross-country motoring was then just developing and motorists were urging that the parks be opened to automobiles. The park roads had been built for only horse-drawn traffic, and the practicability and safety of permitting motor travel had to be given careful study. Only after considerable hesitancy were automobiles permitted to enter. The old-fashioned slow method of horse-drawn transportation was replaced by large well-financed transportation companies, who, at rates approved by the service, could operate from the first day of the park season to its conclusion on definite schedules, rain or shine, and whether there were a few passengers or many. In several parks, at first, visitors had to depend upon competitive jitney service, the operators of which, it soon was observed, were loath to serve when there was only a small amount of travel at the beginning and end of a park season, and whose efforts to take the cream of the business during the height of the tourist season caused constant strife among themselves and created conditions that were a detriment to the public interest. The depart-

ment's policy of giving only one transportation franchise in a park has its critics, but reviewing conditions as they were and as they are to-day, I sincerely believe this policy has justified itself as best for the public interest. As long as the present operating companies under their franchises give adequate service and meet all the requirements of the department, they must be protected in their operations.

Each park presented its own individual problem in these respects, and each park's problem had to be solved separately and independently of the others. Some of the parks were readily organized along new lines, but in others it has taken many years of effort to develop the transportation, hotel, and camp services to the degree that is successfully meeting the tremendous strain now placed upon them. This was oftentimes accomplished only through the public spiritedness of business men of neighboring communities, who, because of their pride in the park that was located in their State, were willing to venture their funds in this development work. Mount Rainier, Crater Lake, and Yosemite Parks were particularly in this category. It would have been practically impossible to develop these parks to their present-day service efficiency had it not been for the cooperation of these far-sighted men, who, laying aside for the moment all thought of personal gain and ignoring the probabilities of losses in operation for a number of years, nevertheless put their shoulders to the wheel. To these men I want at this time publicly to state my sincere appreciation of their patriotic work.

THE PARKS TO-DAY.

To-day the national parks under the control and management of the service number 19 and national monuments number 28.

To-day appropriations for these areas amount to \$1,823,330 compared with appropriations in 1916 of \$498,646.80, \$245,000 of which was then disbursed by the War Department having charge of the road and trail work in the Crater Lake and Yellowstone National Parks.

To-day the visiting list has grown from the 356,097 in 1916 to the tremendous total of 1,493,712 this past season. Of this the national parks received 1,280,886 visitors and the national monuments 212,826 visitors.

To-day the distribution of publications issued by the service amounts to about 500,000 copies annually, and still not meeting the demand, as compared with 306,866 publications distributed in 1916. The amount of correspondence regarding the parks with interested inquirers mounts by leaps and bounds. This year's incoming mail in the Washington office is 25 per cent greater than it was last year, and last year's was 9 per cent greater than the preceding year, while outgoing mail was 42 per cent greater than last, and it 8 per cent greater than in 1921.

To-day the national park system is serving the people in fuller measure than its most optimistic friends had dreamt. America now has a circle system of national parks reaching from the glacier-peaked Rockies near the Canadian border to the lofty volcanic single-peak exhibits of the Cascades, through the sparkling Sierra with its incomparable valleys, peaks, and forest growth, across the

painted desert to the titanic gash that constitutes the Grand Canyon, upward through the great mesas of Colorado or the flashing brilliancy of southern Utah to the exhibits of the Continental Divide of upper Colorado and the Yellowstone. There are also parks with natural springs of renowned curative properties and a cave park. A park to include the choicest bit of Maine scenery with monadnocks, outjutting into the encircling Atlantic, is developing on Mount Desert Island. Then there are the parks in Hawaii and Alaska. These are the people's own properties—the recreation grounds of the twentieth century citizens and of the millions of the future.

OUR PRICELESS POSSESSIONS.

Every man, woman, and child has a vested interest in these great playgrounds that have been turned over to them for use, and that must be passed on intact to their children and children's children. They are a great national heritage. Anyone who has been so fortunate as to witness their marvels and spend quiet hours in the inspiring contemplation of their beauties will surely return home with a burning determination to love and work for, and if necessary fight and die for, the glorious land which is his. To my mind we are letting down a bit on our practicalism and are conceiving that, as has been said by a former Secretary of the Interior, "there is more in life than three meals a day." As a Nation we have paused in our chase after the perhaps altogether too materialistic, and have become sensitive to the ideal and beautiful around us. Who has ever thrilled with pride of country and the desire to fight for it by the sight of factories and closely packed humanity in the towns and cities alone? Our most inspiring patriotic songs speak of the love of the land that is spread about us. We loudly acclaim the natural beauties of "our rocks and rills, our woods and templed hills." A shrewd observer has sententiously said that there is no record of a Nation taking up arms in defense of a boarding house. It is the home and the place which that home takes in a beautiful worthwhile land that we fight to protect.

On the physical side, the parks offer opportunity to build up the national physique under unchanged surroundings, but on the moral side the scenery, unchanged from generation to generation, exerts its influence on the continuation of American ideals, as representing what is best in our American way of living. We now have the crowded population which is driving the people into the great open breathing places for rest and recreation. The love of the open, which is inherent in all of us, is coming to the fore more than ever since the pioneer days. This is an encouraging sign of these times when the relentless pressure of economic exertion threatens to burn up our energies with excitement and heedless overwork. The parks will have a constantly enlarging, revivifying influence on our national life, for which there is no other public agency. They are giving a new impetus to sane living in this country. They are national character and health builders.

AN ANTIDOTE FOR NATIONAL RESTLESSNESS.

I have repeatedly observed the fact that these great parks, bringing together such throngs of visitors hailing from every State and Territory, within such inspiring surroundings maintained by

the National Government, also do more toward stimulation of national pride and contentment than any other agency under the control of the Government. Thrown into intimate contact with each other, they leave the parks with the indelible impression that the fellow from the other end of the country is a pretty good citizen and neighbor after all. Their love of country embraces the whole United States, and illustrates the solidarity of the Nation. In this manner these reservations have no small economic value by eliminating provincialism and stimulating love of country and of its citizens, one for the other, on which the security of our institutions must after all rest. They are our antidote for national restlessness. They emphasize, in a practical substantial manner, that there is within our mode of Government something that looks beyond the merely materialistic and political and endeavors to furnish a means of rational national recreation to its people, through which they may be more firmly bound to one another and to our system of government.

INTEREST SHOWN BY PUBLIC OFFICIALS.

In connection with this general interest in our own national parks. I am moved to emphasize the great interest that national legislators have taken in them. At no time as in this past summer have they received such an amount of personal attention from Senators and Congressmen. Mount McKinley Park in Alaska, the Hawaii National Park, Grand Canyon, Sequoia, General Grant, Crater Lake, Mount Rainier, Glacier, Rocky Mountain, Mesa Verde, Hot Springs, Zion, Yellowstone, and Lafayette have been visited by congressional representatives, either individually or as members of inspecting bodies, and the general congratulatory remarks on their efficient administration and plans for general development were universal. I have been gratified as well by the constructive criticism and helpful suggestions I have received from them, directed for the most part toward important future developments which will require, however, additional funds from the Congress. Many of these developments have been held in abeyance only by the general state of the Federal Treasury due to the inhibitive exactions of the late World War. The national parks have no firmer friends or enthusiastic patrons than the representatives of the people in Congress.

You, yourself, Mr. Secretary, accompanied President Harding into the Yellowstone and Zion National Parks and were able to judge with the Chief Executive of the efficiency and smoothness with which we conduct our operations there. It was one of the sad disappointments that the death of our Chief toward the end of his journey prevented the proposed visit to the Yosemite, which had been held as a fitting climax to his and your own visit to our park system, and where arrangements equaling those of the Yellowstone had been made for a careful and comfortable inspection.

MUCH STILL TO BE ACCOMPLISHED.

Despite the high plane on which the national park system is operating, and the splendid manner in which it is measuring up to and making good with the heavy demands made upon it by the inflowing

enthusiastic masses of visitors there is, of course, a great deal still to be accomplished. We are fully aware of the great needs of the parks, and the further work to be done in order to make them measure up to the highest standard of operation. We are at present merely marking time with many much needed improvements. The standard set will not be reached for a number of years. Only enlarged annual appropriations will achieve this. Refinements in administration and operation are constantly effected from year to year as their necessity becomes apparent. Efficient inspection gradually reduces to the minimum some of the causes for complaint for which we are constantly on the alert. The most important of the problems before us for attention are primarily three—

The construction of a few important new roads and reconstruction of most of the existing roads in the parks for modern motor travel.

Enlargement of several of the existing national parks to round out their natural exhibits, chiefly the Yellowstone and Sequoia Parks, and possible additions to the system.

The expansion of the educational work in the parks, for the benefit of the traveling public, in order that the parks may in fullest degree measure up to their opportunities of service.

The national parks will not be operating on a proper standard until these three things have been accomplished. Let us therefore consider each one individually in some detail.

GREAT NEED FOR GOOD ROADS.

The tremendous strain on the country's finances, due to its participation in the most stupendous war in history, has made itself seriously felt in our administration of the parks. Funds for the national park system for several years now have been limited to meet only the most pressing needs though, at all times, the Director of the Budget and the committees of Congress handling the appropriations have had full understanding of their needs and a fuller appreciation of what should, in time, be done to make them function to the highest standard. Under these extreme financial conditions and the necessity for rigid Federal economy in all branches of national endeavor, the parks must be kept primarily on a maintenance basis. The permanent park improvements will have to mark time as well as developments in other branches of Federal activity. But this year our national legislators know better than ever before of the actual conditions encountered in the parks and what must be done in order to make them function to the highest standard. Personal inspections of roads and trails, and transportation and accommodation facilities have resulted in an appreciation of the fact that additional funds are urgently needed and must be supplied at as early a date as is possible to meet the Federal responsibilities involved in their operation. Existing trails must not only be repaired but, to a large extent, reconstructed as a result of their extensive use. Additional quarters are needed for our employees, particularly in those parks where assumption of administration and development has been comparatively recent. Buildings in the older parks utilized for years have become insufficient in size or depreciated to an extent that renders them unfit for further use. Hospital and sanitation facilities must be provided or enlarged. More money is required in practically every park to place our housing and operat-

ing facilities in better condition. The beginning of larger development in Lassen Volcanic, California, Mount McKinley in Alaska, and Hawaii National Parks has had to be altogether deferred until a more propitious time.

But the most urgent demand of the national parks at this time is for a few new roads and reconstruction of most of the existing roads within their borders to measure up to the high standard of the roads constructed or being constructed to their boundaries by the various States, either with or without Federal aid. In recent years the Congress has given special attention to the construction of a network of roads throughout the entire country, in cooperation with the various States, the United States matching the dollars put up by the States for essential highways and roads. Under this policy, some \$540,000,000 have been authorized for the Bureau of Public Roads' program and \$52,000,000 for road work within national forests, a considerable part of which has been appropriated. This has resulted in a system of well-studied, well-constructed highways, and of well-built feeders to a few of the entrances of the various national parks and monuments, which has provided comfortable travel to them. This Federal-aid policy presents a strong argument why the Federal Government should have a strong voice in the final say in every case where important trunk lines, passing close to national parks, should be located in order to facilitate travel to these parks to the greatest possible extent.

This year 271,482 automobiles registered in our parks. They came from every State in the Union, Canada, and Mexico. The parks are the headliners in transcontinental travel, in all recreational travel in this country. They are the lodestones of travel to the West. It is conceded they draw travel as nothing else does. The slogan "See America first" has become a household expression, and this means that the parks and monuments are becoming more and more the vacation grounds of the American traveler. More than 60 per cent of the park visitors come in their own private automobiles. They are the potential settlers, the potential investors. Instances are brought to my attention too numerous to mention of cases where park visitors have invested in farms and ranches, orchards, and mines, in their vicinities, or have altogether cut the ties that bound them to the old homes and reestablished themselves as citizens of a new community. This is worth a lot locally, but is also worth a great deal nationally, for it relieves the overpopulated areas of the East and distributes their overplus where it is needed and can do the most good.

EXISTING ROADS NOT BUILT FOR MOTOR TRAFFIC.

Since 1872 when the first national park, the Yellowstone, was created, a total of only \$3,042,300 has been appropriated for the roads in the national parks, of which sum \$1,482,000, or about one-half, was expended during the Army régime in the road development of the Yellowstone Park. This explains why the road system in the Yellowstone is superior to that in any other park. The Yellowstone roads are deteriorating under the heavy travel and will require

greatly increased maintenance funds, and yet they now are in far more suitable condition for the use of the public than those in the other parks. With the exception of 8 miles in the Grand Canyon, for the hard surfacing of which Congress recently gave us \$40,000, and which at this writing is being done under the supervision of the superintendent, and 4 miles of road in the Yellowstone, there are no hard-surfaced roads in any of the parks. Annual appropriations for new road work in the parks now are slightly more than \$200,000. It must be remembered that all the roads in the parks constructed prior to 1915, which constitute practically all, were built for horse-drawn vehicular traffic. With the advent of the automobile these roads are in many instances too narrow for safe driving, contain too much adverse grade, and have not the base to withstand the continuous severe pounding placed on them by modern high-powered motor-vehicle travel. In trying to maintain such roads in at least traversable condition, unusually heavy maintenance charges inevitably have resulted. In several of the parks reconstruction of existing roads would be cheaper in the long run than to continue the annual maintenance and repair charges.

In some of the great public-land States which have not the wealth to obtain the fullest benefit from the Federal aid road acts the approach roads are no better than the park roads. In the majority of the popular parks, however, there are excellent roads to their entrances and then inadequate roadways within their boundaries. We invite the traveler to the parks, and are confronted by merited criticism and complaints from them that, after they have reached there, they find the roads in indifferent condition. The most of our important roads across the mountain passes are one-way roads so that at certain hours travel can be permitted to go only in one direction. In several parks long detours are required to reach one side of the park from the other because no through roads are provided. While several new road projects are being taken care of by annual appropriations, the work will stretch over a long period of years before it is completed, as, for instance, in the case of the transmountain road across Glacier Park, now in its third year of building. There are a great many other projects that must be recognized as urgent for initiation and completion before our park road system may be considered complete, and particularly should a number of the most important existing roads be paved. Mount McKinley and Lassen Volcanic Parks can never be developed until initial road appropriations have been secured.

I have estimated that it will take not less than seven and one-half million dollars to put the park roads in satisfactory and safe condition, a figure indeed small when compared with the tremendous amounts authorized and spent on road development by the Federal Government throughout the country. I do not feel that all our roads should be constructed on the most up-to-date road construction standards, but rather that each park road should be studied carefully with a view to its construction on grades and of material that will best suffice for its particular need; but all park roads should be full double width where possible to accommodate conveniently two-way travel. Furthermore, I am firmly against overdevelopment of the parks by too many roads. Proposed roads must be carefully studied as to location, and then only those most important to facil-

itate easy access to the most scenic sections permitted. We must guard against the intrusion of roads into sections that should forever be kept for quiet contemplation and accessible only by horseback or hiking. Particularly should, in my opinion, the park-to-park highway receive such attention from State and Federal authorities that the great circle tour from one park to the other and through them may be the most convenient, spectacularly beautiful, and famous of all great long-distance motor trips in the world.

I feel that in our large national road development plans the national parks have been entirely ignored and that it is high time, in conjunction with the pushing of work under Federal control, to include provision for starting on a program of construction within the national parks to bring their roads up to the standards of those without. The desirability of this has been recognized by the Bureau of the Budget, whose director, on the presentation by the department two years ago, gave his approval to such a general road development project within the parks, but this has since been held in abeyance by the heavy annual drain on the Federal Treasury. I think, however, that the great importance of the national parks in our national economic development, the part they play in the up-building of the health and welfare of our people, and the use they are seeing by our people makes this national park road program a truly national necessity.

FUTURE ENLARGEMENTS OF THE SYSTEM.

In looking forward to the future the vital importance of enlarging the boundaries of some of the national parks must be considered, particularly those of the Yellowstone southward to include the uplift of glaciated peaks of the Teton Range as a fit complement to the volcanic phenomena in the area to the north, and of the extension of the boundaries of the present Sequoia National Park to take in other spectacular scenic portions of the High Sierra. Both of these projects have been studied and discussed for years. Bills to accomplish these enlargements have been introduced in Congress, but have not passed.

YELLOWSTONE EXTENSION WINS LOCAL SENTIMENT.

In the case of the Yellowstone adverse local sentiment largely has been responsible for the delay in achieving the success of the extension program, stockmen and ranchers fearing the loss of privileges in areas to be taken in. Such adverse sentiment has, however, largely disappeared during the past two years, primarily due to a realization of the benefits to be achieved from such an enlargement plan, and due to outside interests seeking special privileges in the extension area. A large number of former bitter opponents of the scheme are now its firm friends and are working hard to have the extension program put through. President Harding, during his visit to the Yellowstone this past summer, expressed himself unequivocally in favor of the plan. A new bill containing an extension of the metes and bounds following a carefully studied alignment of the extension boundary will doubtless be introduced in Congress this year, and I hope will be passed.

ENLARGEMENT OF SEQUOIA NATIONAL PARK.

The desirability of the extension of the Sequoia National Park is agreed to by all familiar with this magnificent area, but each bill for the purpose has met opposition on the question of the exact lines of the enlargement. Congress has been insistent that an agreement on definite boundaries be reached between the Park Service on the one hand and the Forest Service on the other, since the park is to be enlarged from forest reserve land. Lack of such agreement was the cause for the failure of the bill in the Congress preceding the last one. Thereupon, after careful investigation and weighing of all questions involved and with the counsel of the Sierra Club, of California, a mountaineer organization friendly to both Federal bureaus, a new bill was drafted with revised boundaries, agreed to by both bureaus. These revised boundaries were not the ultimate in what was to be hoped for from a national park standpoint, since they contained, as a measure of compensation for the large areas to be surrendered from the forest reserve, the elimination of the southern part of the present park. In conceding this elimination it was fully understood that under the the long-established policy of the Forest Service existing stands of Sequoia trees in the section to be eliminated would be completely conserved, and that steps could and would be taken for the continued protection of the park game which ranged in this southern section in the winter. Plans contemplated for game protection can not be easily effected, and it is a serious question now involved in the complete restudy of the proposed boundary lines which may force insistence on the retention of the three townships in the enlargement area. I visited this section during the latter part of August in order to obtain a personal knowledge of the conditions that have formed the subject of expressed doubt and controversy on the part of some of the interested public. By the time Congress convenes I expect to have a definite recommendation to lay before you as to new boundaries to which, I hope, the Forest Service officials will have agreed.

Another obstacle to the creation of the proposed park has been removed as result of the action of the Federal Power Commission in rejecting the filings of the Los Angeles Bureau of Power and Light in the Kings River Canyon. The text of the ruling reads:

In view of the improbability of any development of the projects proposed for many years to come, of the lack of any necessity of the city (Los Angeles) of going to the Kings River as a source of energy supply, and of the embarrassment of the National Park Service arising from the existence of claims within an area which it is desired to dedicate to national park purposes, it was recommended that the application be rejected.

DIAMOND LAKE REGION NECESSARY FOR CRATER LAKE PARK.

The enlargement of Crater Lake National Park northward to include Diamond Lake and Mount Thielsen is also one of the important projects necessary to round out the scenic attractions of an existing park to permit it to give the fullest measure of service to the public. By such enlargement a splendid camping region will be added which, on account of its lower altitude, will be available in the early part of the season when snow still remains on the rim of Crater Lake. A greater measure of protection also would be afforded the game.

OTHER DESIRABLE BOUNDARY CHANGES.

While the above are the three park enlargement projects of the most pressing immediate importance, the suggestion has recently come from the local residents of northern Arizona that the Grand Canyon National Park should be extended to the north in order to include a considerable area of scenic country and at the same time create a permanent sanctuary which will protect the mule deer of the Kaibab Forest which are conceded to be the finest example of their species in the United States.

Rectification of boundaries on the west of Yosemite Park to eliminate sections containing private holdings, which obstruct satisfactory and proper administration of the park and eastward to take in an adjoining section of the High Sierra, physically a complement to Yosemite, have been thoroughly studied this summer.

NEW PARK PROJECTS.

Appropriate for consideration at this time in connection with the individual park enlargements are the various problems constantly encountered in studying the question of the enlargement of the existing park system by the admission of new members. The tremendous popularity of the national parks has impelled progressive people of other States not fortunate in having a National Park within their boundaries to look for scenic areas within their own boundaries that might measure up to national park standards. Each year numerous bills are introduced in Congress to create new parks, some of which have possible merit, but others showing at once the impracticability of favorable consideration. This desire for new parks is not limited alone to States having no national parks, for oftentimes bills are introduced to create parks in the States wherein one or more national parks have already been established. The history of the national park system shows that with the exception of Lafayette Park, Me., our only park east of the Mississippi, all parks have been reserved from the public domain. Lafayette Park has been built up, by donation of land and by donation of funds for the acquisition of lands, from a few thousand acres to nearly 30,000 acres through the inspiring work of its present superintendent, Mr. George B. Dorr, of Bar Harbor.

One can readily understand how it has been possible to retain from the public domain the existing national parks, when we remember the growth of our country, from the first settlement on the Atlantic seaboard and gradual expansion westward. From the days of earliest colonization the lands east of the Alleghenies and later farther west but still east of the Mississippi, were taken up by grants and then by individual settlements under those grants or by right of discovery. The great empire west of the Mississippi, containing most of the spectacular scenery, was still to be acquired by the Nation. By the time the idea of conservation of such areas for national parks came into the popular mind, there was no unowned land left in the East. Niagara Falls and the Mammoth Cave in Kentucky should both have been claimed by the Nation as too important, scenically, to have passed into private hands. In the case of Niagara it has been only by the closest cooperation between

the American and Canadian Governments that so much of the present falls as are now the scenic marvel of the East has been saved.

The Mammoth Cave area in Kentucky is a remote probability as a national park. It is owned privately, administered under a will the terms of which provide that upon the death of the last-named legatee it is to be sold at public auction to the highest bidder. There are only two surviving legatees, both over 90 years of age, so it may be expected that this area known the world over will be disposed of before many more years pass by. Only a purchase, either by appropriation of Congress for the specific purpose or privately, for donation to the United States, will enable the creation of this area as a national park. It is estimated that about \$1,000,000 would be necessary for its acquisition. Bills have been introduced in Congress proposing its purchase at this figure, but as Congress apparently hesitates to establish a precedent by the appropriation of Federal funds for the purchase of lands for national park purposes, it is doubtful whether it can be persuaded favorably to consider the acquisition of even the Mammoth Cave by this means. In my opinion the only prospect is that when this estate is offered for sale at public auction some public-spirited organization or citizen may acquire it and donate it to the United States.

In the cases that have come to my attention where areas are suggested for national park establishment some have and some have not been on public domain. If on public domain and expert investigation establishes its suitability for national park purposes, it can be reserved and set aside as such without other expense or formality than an act of Congress. If not; the plans have necessarily had to contemplate either the purchase of the area from national funds or its acquisition by purchase from private funds; or by actual donation of the lands involved to the Government for national park purposes.

NATIONAL PARKS DESIRABLE IN THE EAST.

I should like to see additional national parks established east of the Mississippi, but just how this can be accomplished is not clear. There should be a typical section of the Appalachian Range established as a national park with its native flora and fauna conserved and made accessible for public use and its development undertaken by Federal funds. As areas in public ownership in the East are at present limited to a number of forest reserves acquired under the provisions of the Weeks Act authorizing the purchase of lands for the protection of forests and the headwaters of streams, it appears that the only practicable way national park areas can be acquired would be by donation of lands or acquisition of such lands from funds privately donated, as in the case of the Lafayette National Park.

EXISTING PARK STANDARDS MUST BE MAINTAINED.

National parks, however, must continue to constitute areas containing scenery of supreme and distinctive quality or some natural feature so extraordinary or unique as to be of national interest and importance as distinguished from merely local interest. The national park system as now constituted must not be lowered in standard, dignity, and prestige by the inclusion of areas which

express in less than the highest terms the particular class or kind of exhibit which they represent—distinguished examples of particular forms of world architecture—such, for instance, as the Grand Canyon of the Colorado as exemplifying the highest accomplishment of stream erosion, or the Sequoia as presenting the highest form of accomplishment in natural tree growth, the wonderful Sequoia gigantea, or the Yellowstone as containing the greatest geyser basins of the world, or the rugged portions of the Lafayette National Park as exhibiting the oldest rock formations in America and the luxuriance of its deciduous forests.

Mount Rainier National Park in the State of Washington contains as its chief scenic accent the largest single-peak glacial system in the world, spreading down the flanks of the enormous extinct volcano. Due to the extreme popularity of this park, the creation as national parks of other areas in the State containing mountains of less impressiveness have been proposed, such as Mount Baker, Mount Adams, and Mount Olympus, but these have all had to be denied, since their establishment as national parks would at once lower the inspiring dignity of position and prestige of Mount Rainier as the noblest glacier-bearing peak of the Americas.

STATE PARK CREATION.

The demand for park reservations is growing extraordinarily from year to year. The popularity of the existing national parks has given the country the realization that the conservation of its most important beauty spots is of immediate importance. To meet this demand, various States have already taken up actively the establishment of State parks by purchase or donation of such tracts of land as are typical of the best scenery within their boundaries. Such scenery is not necessarily of national importance but, from a State standpoint, typical of the finest within the State. One of the very best examples is the Palisades Interstate Park, developed jointly by the States of New Jersey and New York, and lying on the banks of the Hudson, with its beginning immediately opposite New York City on the New Jersey shore, and extending to a short distance below West Point in the State of New York.

It has been thus far seemingly only the most prosperous and most populous of the States that can embark on such a State park development, but all the States should recognize and will come to realize the importance of such a movement, not only for the sake of providing breathing spaces for the people of the entire State, as distinguished from municipal parks within the cities and towns, but to entertain and hold the transient motorist passing through the State. Pressure on the Federal Government to take over for national park purposes areas lacking national park caliber of scenery arises mainly from States that have not ventured the establishment of State parks. These States will eventually recognize that they themselves, for the benefit of their people, should bear the burden of upkeep, maintenance, and improvement of these areas, instead of trying to have the Federal Government undertake this obligation for them.

Interesting precedents involving the aid of the Federal Government in State park creation are presented in the creation of the

Heyburn State Park in Idaho, the Custer State Park in South Dakota, and the Pennsylvania State Park in Pennsylvania. By act of Congress, approved April 30, 1908 (35 Stat. 78), the Secretary of the Interior was authorized to convey so much of the then existing Coeur d'Alene Indian Reservation as is now contained in the Heyburn State Park to the State of Idaho "to be maintained by said State as a public park, said conveyance to be made for such consideration and upon such terms and conditions as the Secretary of the Interior shall prescribe. The proceeds of such sale shall be deposited in the Treasury of the United States for the use and benefit of the Coeur d'Alene Indians in such manner that Congress shall hereafter prescribe." Federal records show that on June 21, 1911, the sum of \$11,379.17 was paid into the Treasury for the lands involved.

The larger part of the land within the Custer State Park was donated by the Federal Government to the State of South Dakota in 1911, being accepted as "lieu" lands instead of those known as "school sections," which for various reasons could not be transferred to the State in accordance with the usual procedure. By thus consolidating their State lands in Custer County, the area was available for park creation by the State. By act of Congress approved June 5, 1920, 30,000 acres, together with the Custer State Park, was designated by the President as the Custer State Park Game Sanctuary and turned over to the custody of the Custer State Park Board.

By act approved November 28, 1922, Congress conveyed to the State of Pennsylvania the land located on the peninsula of Presque Isle, Pa., for public-park purposes, subject to a few reservations of Federal occupancy for military, naval, lighthouse, and other purposes, which area is now designated the "Pennsylvania State Park."

It is possible that another class of Federal recreational reservations entirely separate and distinct from the national park system should be established, taking in scenic areas that do not measure fully up to national park standards, but it is for the Congress to say whether this should be done. I have grave doubts, however, whether the Congress would agree to the assumption of administration over such additional reservations with the appropriations it would involve. Above all, however, the enlargement of the present national park system by the addition of areas that do not meet its present high standard must not be permitted. Should it be deemed wise for the Federal Government to expand its present recreational activities by accepting areas of less importance scenically for public administration and control these should be frankly and openly accepted, not as members of the national park system but under a separate recreational designation.

SAVE-THE-REDWOODS MOVEMENT.

Through legislation enacted by the California Legislature in May, 1923, added impetus was given the movement to save for posterity some of the finest stands of *Sequoia sempervirens*, one of the two species of California redwood. Under the provisions of the new law, introduced into the legislature by Mr. Rosenshine, a survey of all timberlands available for park purposes will be made by the State forestry board. This survey is to be made in sections and re-

ports are to be filed in Sacramento. After the completion of a section of the survey it will be possible for an individual to give to the State money to be used for acquiring the park lands, the tract of redwoods or other timberlands to be designated by the donor. The State forestry board will then endeavor to purchase the tract and if unable to come to an agreement with the owner may invoke the right of eminent domain to secure the State's title to the property. Any tract thus acquired by gift may be known by any name designated by the donor and approved by the board. Proceedings initiated by an individual to acquire tracts for park purposes not within the surveyed areas would require the State forestry board to take all necessary steps for their acquisition under the act. This law received the support not only of the Save-the-Redwoods League and other conservation societies but also of representatives of lumbering interests of the State. It may be expected that other States will place on their statute books similar laws.

CONFERENCE OF STATE PARK ENTHUSIASTS.

It is pertinent at this time to dwell briefly on the State park movement started two years ago at the First National Conference on State Parks in Des Moines, Iowa, and this year given added impetus by the Third Conference in the Turkey Run State Park, Indiana, from May 7 to 9. President Harding in endorsing the movement stated in a letter to the chairman—"I wish it were possible to accept your invitation to attend the conference and speak, for I feel a genuine concern for the furtherance of this movement. As communities grow older, population more dense, and property values greater, we are constantly being reminded of how easily important public works could have been achieved if they had been undertaken in the time of simpler and less expensive beginnings. This is particularly true of State parks. I have been glad to note the continuous extension of interest among so many States in this campaign."

This conference was attended by high Federal officials and representatives of State governments, park and forest associations, and public-service organizations of all kinds. The outstanding accomplishment of the meeting was the perfection of a permanent organization in order to develop and expand the State park movement still further. The objects of the conference are very ambitious and indicate a widespread, serious, active interest in State park creation and development. The conference itself stated them to be as follows:

To urge upon our governments, local, county, State and national, the acquisition of land and water areas suitable for recreation and preservation of wild life, as a form of conservation of our natural resources, until eventually there shall be public parks, forests, and preserves within easy access of all the people of our Nation, and also to encourage the interest of nongovernmental agencies, and individuals in acquiring, maintaining, and dedicating for public use similar areas; and as a means of cementing all park interests into a harmonious whole, to provide for a conference and exchange of ideas by an annual meeting of such interests, and the formation of facilities for the exchange of information and ideas between conferences.

Many topics of general interest in State park work were discussed, such as the removal of advertisements from the public highways and the methods by which different branches of the Federal Government can cooperate with State park authorities, while the State park

projects established or being promoted in States from New York to California were detailed. Resolutions were passed during the conference indorsing the idea of a survey of available and suitable State park sites, so that legislatures and other ruling bodies may have information at hand that may serve to prevent an inequitable distribution of State parks; urging upon local, county, State, and national public officials, as the highest type of a true and essential conservation of a natural resource of ever-increasing public value; the taking over and preservation in sufficient size and number of the natural beauty spots as public parks, that each State establish a commission for the purpose of conserving the natural resources of the State; recommending that joint action be taken by the State of Maryland and the Federal Government in regard to the establishment of parks and parkways between the city of Washington and Baltimore, Md.; that all States in which primeval forests or areas rich in geological form and historic interests occur are encouraged to acquire all or part of such areas for park recreational or educational purposes; and that legislation be encouraged by all the prairie States to preserve areas which contain the natural flora and fauna of such regions.

All this public interest in expansion of national recreation facilities by the creation of additional parks, State or Federal, emphasizes a healthy state of the national mind. As the country becomes more closely settled, the net value of recreation becomes more apparent. Nowadays it is futile to argue that in a settled community the establishment of parks and playgrounds is a frill or useless expense instead of a necessity, parallel to the provision of pure water, paved streets, and other adjuncts of successful living. That day has long since passed, and we now know that recreation, accessible to all the people, is a necessity of successful commercial production and national prosperity. It is well that this feeling prevails while scenic areas of some importance are still available for acquisition by the public. The time will come, not so many years off, when such opportunities will be few and far between.

A NATION-WIDE SUPERSCENERY SURVEY.

This emphasizes to me the importance of what I consider as an appropriate time to consider seriously a superscenery survey of the entire country. This survey should be made, it occurs to me, by a commission of nationally known men, prominent in their respective professions, and under the direction of the Secretary of the Interior in cooperation with the various States. Such a commission should consider the established principles of national park creation, principles which have been so right and vital that they have forced their own acceptance; study the aims and accomplishments of various States in State park development and the possibility of expansion of the State park movement; and report on the availability of areas that are still of such supreme and distinctive character scenically as to measure up to national park standards and those that could be placed in lower categories for State park development, or possibly for assumption by the Federal Government for recreational development under another designation.

I have at this time in mind as of possible national park caliber particularly the Mammoth Cave area in Kentucky, the area in New Mexico included in the so-called Bandelier National Monument, the Bryce Canyon area in Utah already proposed as the Utah National Park, and areas along the Great Lakes showing typical sections of inland lake and dunes, of the redwood section of upper and central California for the preservation of a redwood forest of the *Sequoia sempervirens*, of a typical section of the Appalachian Mountains in the East, of an example of the Everglades of Florida, or of the forested lands and hills of the South; doubtless there are other areas which meet this high standard. It is not necessary that a national park should have a large area. The element of size is of no importance as long as the park possesses lofty scenic quality and is susceptible of effective administration and control.

SEIZING OUR EDUCATIONAL OPPORTUNITIES.

Inseparably connected with the development of the national parks to reach the acme of service to the American people is, I am confident, the necessity of expanding methods for distribution of knowledge concerning their great natural offerings to those that are anxious to be served. The parks are repeatedly called the great outdoor museums. Their possibilities are far beyond that. Museums are passive exhibits. The parks themselves are nature, vibrant with vital, virile action. They offer the greatest fields for nature study in the whole Americas by the very nature of their creation, their physical attributes, and the policy of conservation governing them. Here nature is an open book for those who come and can read. It presents an outdoor play in a foreign tongue to those who come and can not read, a play in which the appeal of form and color are unmistakable, but the words themselves conveying the reasons and meaning unintelligible. Here are the forests of magnificent trees and tree growth, from the sprouting seed through the entire cycle of tree life covering centuries, yes, thousands of years, completed in the fallen decaying giant returning his dust to the mother earth, all undisturbed from century to century except for such vicissitudes as the immutable laws of nature themselves prescribe. The far-flung flower fields, delighting the eye by charm of form and color, run in riotous profusion even to the park boundaries, and in some cases stop there; eloquent evidences of the difference between conservation and nonconservation. Here alone the land is teeming with its native game and other wild life, indigenous to its habitat, so tamed by its safe proximity to and contact with park visitors as to be comparatively easy of approach for intimate field study. Already the parks are the gathering places for scientists—the biologists, geologists, and others interested professionally in such research work. This year the visiting list has included more teachers from all over the Union than ever before. Surely these, even after casual contact and superficial examination and inspection of only a few days, will be inspired to a better and deeper understanding of the value of these wonderlands in a larger educational program in the country. But I want to see the parks used by the young men and women, the boys, and girls, who, in seizing the splendid opportunities for recreation and health, will eventually

spend weeks and months there in the study of the great natural compositions evidencing details of world making, or of nature in all its phases of creation and living and dying. Already many classes annually seek the parks for such study, under special teachers. Boy Scout and Camp Fire Girls' organizations are encountered daily, moving onward from place to place after spending the nights in the open. What wonderful possibilities for our young Americans!

PARK MUSEUMS ARE NEEDED.

As yet no definite program for this educational development has been evolved. A start has been made toward establishment of museums in some of the most important parks, primarily to test out the popularity of such exhibitions. The results with the temporary measures we had to employ have at that exceeded our most sanguine expectations. In the Yosemite, for instance, a small building was turned over to the park naturalist, who at once set about collecting what material he could secure by donation or loan. No money was available for purchasing. At the end of the first season he had collected exhibits that were estimated to value approximately \$30,000. The graphic manner in which these exhibits were arranged stimulated in itself far greater attendance than was thought possible. This past season 55,811 visitors inspected the exhibits. The Yellowstone and Mesa Verde National Parks and the Casa Grande National Monument have made beginnings toward museum exhibits that have unusual promise and will be valuable and popular exhibits for the National Government when completed. Proper museum buildings, adequately equipped, are indispensable adjuncts to developing the educational advantages of the parks, and as soon as the country is on a firmer financial footing this is one of the important details of development on our future construction program. I might add that my opinion is that in so far as collection of sufficient museum material is concerned very little, if any, will have to be purchased by the National Government, since experience has shown that public-spirited owners of important and valuable material will gladly donate or lend it to the Government for such exposition.

NATURE GUIDE SERVICE JUSTIFIES ITS EXPANSION.

Of equal importance, if not greater, to the establishment of suitable park museums is the expansion of the nature guide service, and it is gratifying to note the increasing number of visitors who seek to learn more of the mighty past of the earth's making and of the operations of the titanic forces which shaped and are still shaping this land as exemplified in the national parks and of the native wild life to which the parks offer sanctuary. It is to this class that our nature guide service has its greatest appeal and wherein it finds full justification for its existence.

Beginning in 1920 in Yosemite Park the educational service has there reached its largest development, and during the past season, under the direction of Chief Park Naturalist Ansel F. Hall and five assistants, has surpassed the achievements of any previous year. Walks afield, arranged to suit the age and strength of the participants, offered the nearest to the ideal means of studying the living

and growing things in the park. These were varied by nightly lectures and camp-fire talks at the hotels and lodges. In Yellowstone a series of popular lectures on its biological and geological phenomena, with which it is so richly supplied, served to provide entertainment and instruction to large and appreciative audiences, and at the formations during the day guides were in attendance to assist in interpreting these curious manifestations of nature. To a somewhat more limited degree similar service was also available in Mount Rainier, Glacier, Rocky Mountain, Grand Canyon, Sequoia, and several of the other parks, and was so favorably received as to generally warrant a bigger program for 1924.

At present the most we can do is to test out these activities in a small way with our limited appropriations, primarily to furnish authentic data for the larger expansion that is inevitable due to the known demand. I have elaborated on the importance of this movement at such length because I firmly believe that of the many opportunities for service ahead of us, to supplement existing service, this is the most promising and popular field.

PART IN NATIONAL CONSERVATION.

The part the national parks play in general national conservation policies is one of acknowledged leadership. The policy of complete conservation as applied to them has had the undivided support of Congress, most recently emphasized by the amendment to the Federal water power act, approved March 3, 1921, which excepted the park system from the application of the Federal power law passed June 10, 1920. Particularly has the Yellowstone National Park been the point of attack by various bills in Congress planning to utilize the southwestern part of the park and the beautiful Yellowstone Lake as irrigation reservoirs. In fact, since its creation in 1872 the Yellowstone has borne the brunt of attacks of those who desired to commercialize some attractive natural resource of the park, or particular area. Every attack to which a national park could be subjected seems to have been centered on the Yellowstone, so a brief epitome of its history in this regard would be interesting.

It was reserved in 1872 "dedicated forever as a pleasuring ground for the benefit and enjoyment of the people." The avowed purpose of Congress by setting aside this area as a preserve was that it never be touched by the hand of commercialism. However, in the eighties effort after effort was made to obtain franchises for the operation of railroads within the park lines. When these efforts were unsuccessful a fight was made to get the boundary lines changed in such a way as to throw out lands over which rights of way for railroads were desired.

From time to time efforts were made to secure mining privileges, and beginning in 1919 several projects have been developed which, if permitted by Congress, would destroy all of the beautiful lakes of the park and some of the best forest areas. For instance, it was and still is proposed to place a dam at the outlet of beautiful Lake Yellowstone, which if built would result with certainty in the gradual destruction of the natural shore lines of the lake, and in

times of subnormal snowfall it would be necessary practically to dry up the Yellowstone River in order to fill the reservoir, thus largely destroying the grandeur of the Great Falls and the beauty of the Yellowstone Canyon. This project, and all these projects, have been fought vigorously and we believe successfully, but one never can tell when it will be brought up again.

Down in the southwest corner of the park it was proposed to erect some reservoirs that would destroy access to some of the most beautiful sections of the park as well as inundate hundreds of acres of wonderful camping grounds and some of the best forest lands of the park. Legislation in Congress providing for this project has also been defeated. Idaho promoters also have had a plan for tunnelling the Continental Divide and taking water from Lake Yellowstone on the Atlantic watershed into the Snake River on the Pacific watershed. The least precedent for the utilization of even one small lake in this area would inevitably result in the breaking down of the entire system. This is loudly and openly protested, but there is evidence in the files of the department which shows that the bill for the utilization of the southwestern part of the park for reservoir purposes was to serve eventually as a precedent for the utilization of the Yellowstone Lake. There can be no doubt whatever that where the recreational use of a park is merged with the economic it inevitably leads to the eventual disaster of the former.

While all these projects have been fought with facts and figures, aiming to show the impracticability and lack of feasibility of them, it does not seem necessary here to discuss the projects from this standpoint. We ought rather to look at the underlying principle of park protection—the principle of complete conservation. We must look at the parks as national assets ever to be enjoyed by the people of the Nation as a whole and never to be used for the commercial upbuilding of adjacent territory or private selfish gain at the expense of the rest of the country. If we ask people to see America first, we must consistently preserve something of that America for them to see.

President Harding, as he stood at Artist Point in July, viewing the wonderful display of falls and water in the Grand Canyon of the Yellowstone, said: "There must be no interference with the flow of water through this canyon; such interference would destroy much of its beauty and majesty." Later, as he left Yellowstone for his fateful journey, he said: "Commercialism will never be tolerated here so long as I have the power to prevent it." On numerous occasions he made reference to the fact that we had only a few parks and could afford to maintain them intact for the benefit of posterity.

Congressman Winter, of Wyoming, in an address at the formal dedication of the new Howard Eaton Trail, 157 miles in length, connecting principal scenic points in the Yellowstone National Park, also made a stirring appeal to national park idealism. "Here let me say," he declared during his address, "that great as their utilitarian purposes might be, the lakes and waters of this and other national parks must not be touched or violated for business or profit. The American people are practically of one mind on that question. There must be no commercialism of the park waters."

The value and need of complete conservation of our national parks, as well as those of Canada to our north, for the benefit of

science and popular education during future generations, was clearly emphasized in resolution recently adopted by the American Association for the Advancement of Science, the largest scientific body in the world, with nearly 1,000 members, representing both Canada and the United States. The resolution reads:

Whereas by repeated action of Congress for more than half a century, widely approved by scientific and other societies and by the public generally, the national parks of the United States have been completely conserved from industrial uses so as to constitute a system of national museums of native America; and

Whereas one of the national parks of Canada is similarly completely conserved; and

Whereas the combined national parks systems of both countries, covering geological, biological, and geographical examples from the Alaskan range through the Canadian Rockies to the Grand Canyon of Arizona, if preserved untouched, will constitute a unique continental exposition of inestimable value to science and to the popular education of future generations; Therefore be it

Resolved, That the American Association for the Advancement of Science earnestly requests the people and the Congress of the United States and the people and the parliament of the Dominion of Canada to secure such amendments of existing law and the enactment of such new laws as will give to all units in the international parks system complete conservation alike and will safeguard them against every industrial use either under private or public control at least until careful study shall justify the elimination of any part from park classification.

WILD LIFE CONSERVATION AN IMPORTANT PHASE.

There is another phase of conservation in which the parks play a most gratifying rôle; namely, in the complete sanctuary they offer all the wild life, except predatory animals, indigenous to the territory they occupy. The parks to-day constitute the greatest sanctuaries in the world, and, in that direction, important as they now are, will become more and more valuable to the country as times goes on.

It appears to be a human frailty that man lives only in the present. Certainly our history for the past century in the heedless expenditure of our natural resources emphasizes this. It was a great country the early pioneers traversed. The primeval forest stretching as far as the eye could see in undisturbed majesty and serenity was prolific with game. The deer was present in every piece of woodland; the beaver had his dam in every stream; the plains and meadows carried the bison even to the eastern seaboard; and the elk, bear, and pigeon furnished meat for the white man and the red man. The supply seemed illimitable. They now belong to the historic yesterdays. The magnificent forests passed the heyday of their glory under the wastefulness that accompanied lumbering operations of the past. Game became scarcer and scarcer. The fur trade early killed its own business by overtrapping and the hide hunters theirs by overshooting. The western prairies and ranges soon saw only the bleached bones of elk and buffalo. Overgrazing and overstocking in too many instances drew the penalties of barren eroded wastes where at one time the grass-covered reaches had flung their green blankets far beyond the horizon.

It was not so long ago that the awakening interest of the American public in the more complete protection of our native animals and birds drew attention to the fact that actual conservation in this direction had to take the place of academic discussion and theory.

Serious efforts were made to restock areas with some of the original game animals. The States extended their bird and game reservations, following the way pointed out by the blazed trail of national park conservation policies. Acts passed by the legislatures of the various States and the National Congress cooperated in reducing the time for open seasons and otherwise imposed restrictions on hunting.

The success which attends game propagation in the national parks is to a large extent dependent on the cooperation of adjoining States in providing refuges in which the animals may remain unmolested for well defined periods when they drift outside the park boundaries. Much in this direction still remains to be done, for some of the States have been slow to appreciate the wisdom of this course. For the past few years, however, progress in this direction has been gratifying, particularly in connection with the Yellowstone National Park. This past season, through the cooperation of the Lewis County Game Commission, and the supervisor of the Rainier National Forest, two and one-half townships along the south boundary of Mount Rainier National Park were set aside as a game preserve, which will materially assist in increasing the number of deer in that park.

The Yellowstone affords a good example of how national parks, with their increase of wild life stimulated by adequate protection, may become sources of supply for the game needs of the various parts of the country. From this one park alone numerous sections have been supplied with elk as well as many zoological parks of municipalities. In nearly all cases the transplanting has proved entirely successful. Congress gave its official sanction to this policy in legislation which it passed last winter by authorizing the disposition of surplus buffaloes in the Yellowstone herd which will enable the service to deal more effectively with the surplus bulls. Here is found the largest herd of buffalo in the United States, as well as the greatest number of elk. In passing I should also observe that our policy of complete sanctuary for the wild life is responsible for saving the remnant of what is perhaps our most noble animal, the grizzly bear. It seems to be making its last stand in the Yellowstone Park.

The prime reason for the creation of Mount McKinley National Park in Alaska was the protection of its wild life, particularly the caribou and mountain sheep. This park is still a wilderness, without roads and with practically no trails, its area comprising 2,645 square miles, next to the Yellowstone the largest park in the system. Patrolling this area and protecting the wild life, therefore, presents greater problems in the suppression of unlawful game killing than perhaps any other park. The small appropriation of \$8,000 annually only permits of the employment of a superintendent and one ranger, whose accomplishments in the line of protection are necessarily small in comparison with the duties that the administration of that area throws upon us. Here especially are large appropriations needed for proper patrolling forces. The law creating the Mount McKinley National Park is peculiar in that it provides certain exceptions to the policy of absolute conservation followed in other parks, section 6 of that act reading as follows:

SEC. 6. That the said park shall be and is hereby established as a game refuge, and no person shall kill any game in said park except under an order from the Secretary of the Interior for the protection of persons or to protect or prevent the extermination of other animals or birds: *Provided*, That pro-



A. AN AVERAGE MIDWEEK LINE-UP IN PARADISE VALLEY AWAITING THE
OPENING OF THE NISQUALLY ROAD TO DOWN TRAFFIC.



B. PART OF THE PARADISE PUBLIC CAMP GROUNDS. TATOOSH RANGE
IN THE DISTANCE.

MOUNT RAINIER NATIONAL PARK.



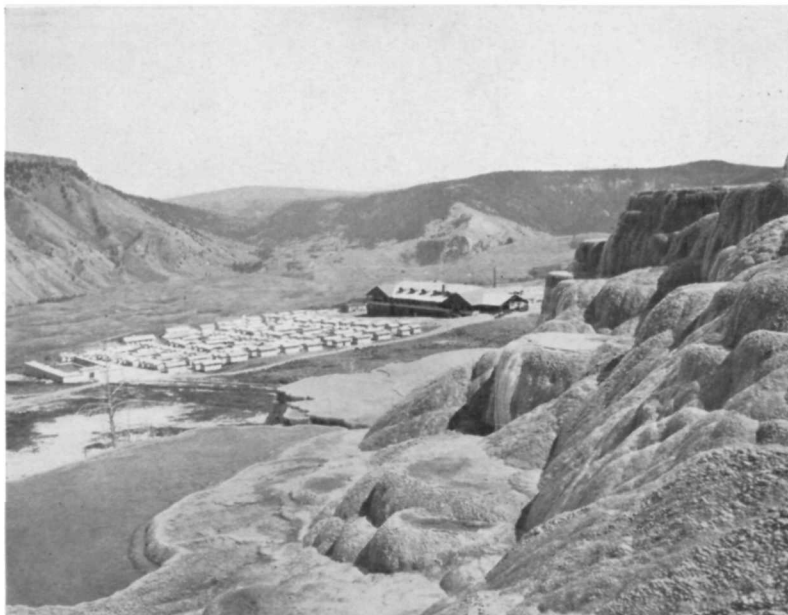
A THE LATE PRESIDENT AT INSPIRATION POINT. PRESIDENT HARDING; SECRETARY OF THE INTERIOR, HUBERT WORK; DIRECTOR OF THE NATIONAL PARK SERVICE, STEPHEN T. MATHER; SUPERINTENDENT OF YELLOWSTONE PARK, HORACE M. ALBRIGHT.



B. DEDICATION OF THE HOWARD EATON TRAIL AT SHEEPEATERS CLIFF, JULY 19, 1923.

YELLOWSTONE NATIONAL PARK.

Photographs by J. E. Haynes.



A. MAMMOTH PERMANENT CAMP FROM THE MAMMOTH TERRACES, SHOWING NEW \$100,000 CENTRAL BUILDING.



B. CAMP-FIRE ENTERTAINMENT AT CANYON PERMANENT CAMP. 1,000 PERSONS PRESENT.
YELLOWSTONE NATIONAL PARK.

Photographs by J. E. Haynes.



A. CLOUDS OF ASHES AND STEAM ARISING FROM KILAUEA VOLCANO.



B. RECENT EARTHQUAKE CRACKS IN THE KAU DESERT
HAWAII NATIONAL PARK.

Photographs by Thomas Boles.

spectors and miners engaged in prospecting or mining in said park may take and kill therein so much game or birds as may be needed for their actual necessities when short of food; but in no case shall animals or birds be killed in said park for sale or removal therefrom, or wantonly.

In view of the great mineral wealth of the Territory and the possibility of discovery of large mineral bodies within the park boundaries, which in the Copper Mountain district have already been made, Congress permitted the killing of game within that park by prospectors and miners when actually short of food. I anticipate perplexing difficulties in the enforcement of our conservation policies in the Mount McKinley National Park, particularly if large mining camps are established within the park. In fact in August alleged placer gold discoveries northeast of the park in the Toklat River region saw a gold rush, fortunately not over the trails of the park, paralleling in some ways the early Klondike days, but it is such prospecting that will make terrific inroads into the game supply. Amendatory legislation will doubtless have to be enacted if the service is to be enabled to control the game situation and give such protection to the wild life as will preserve it from what may otherwise prove to be eventual extinction.

Unusual success has attended our efforts during the past year to reduce the number of predatory animals. In several of the larger parks such numbers of these animals have been trapped and killed that there has been a noticeable decrease in the loss of deer and other species that are usually their victims.

PROTECTION OF FOREST GROWTH.

Every year numbers of forest fires occur in the national parks, and it is only by constant vigilance and exacting work on the part of our ranger forces that the damage by such conflagrations is kept to its present low average. Several years ago Congress, realizing that it was inevitable that, in such densely forested areas as the Yellowstone, Glacier, Mount Rainier, Yosemite, and Sequoia Parks, there would be periodically, during the dry months of the summer season, numerous fires whose control would ordinarily have to be paid for out of that particular park's funds for maintenance and operation, granted a contingent appropriation of \$25,000 from which the expenses of fighting fires could be defrayed. This fund has been of inestimable service, since it safeguards our park appropriation from a drain for which they were not primarily intended. It had happened in recent years in one of the parks that fighting fires had required such expenditures that it nearly took the entire park appropriation before they could be extinguished. Fires during the past two years have been comparatively few in number and small in extent, but, as nearly all of them happened through lightning, a carelessly thrown cigarette or sparks from an unextinguished camp fire, causes primarily beyond our control, it is only constant vigilance in detecting and utmost speed in reaching them while they are yet small that will protect our forests from this danger.

Aside from the fire menace there is, however, another serious danger to the forest growth that appears to be on the increase; namely, the destruction of timber resulting from depredations of

certain insects. In Yosemite, Glacier, Yellowstone and on the North Rim of Grand Canyon these infestations have, perhaps, appeared in more serious form than in other Parks, and while some control measures have been undertaken in Yosemite and the Grand Canyon at present, experts of the Bureau of Entomology are still studying conditions in Glacier and Yellowstone with a view to making recommendations for effective control measures. Generally speaking, however, the danger from insect infestations in the national parks is a serious one, and it is my plan this next year after these various reports are in to ask a fund from Congress from which effective annual control can be undertaken where insect damage is liable to be the greatest. The outbreaks should, of course, be met at the start in order that they may be most successfully combated. Once the infestation becomes epidemic, not only will the cost of control far exceed what it would have cost originally, but, what is more to be deplored, tree growth that has taken decades, yes centuries, to produce will die away to the injury of the scenic beauty of the parks.

This summer, the Senate Committee on Reforestation, headed by Senator McNary as chairman, on its inspection trip through the West visited a number of the national parks looking into possible reforestation requirements of the system and, at our request, particularly the detail of insect infestation control. I trust that in any plans that that committee will make for the general protection of the forests of the country and the public domain adequate provision will also be made for guarding those in the national parks from attacks of insects and diseases to which such tree growth may be peculiarly susceptible.

APPROPRIATIONS AND REVENUES.

In any consideration of appropriations by Congress for the national park system it should be kept clearly in mind that the national parks are direct-revenue producers; all revenues accruing from their operations are deposited in the Treasury of the United States and are not available for park work in any way. Revenues are increasing in proportion to the increase in travel, and I am confident that if Congress will grant sufficient money to make important road improvements and road extensions, the lack of which now retards a greater use of the parks by motorists, we could without difficulty increase our revenues very materially and probably within a few years almost double them. In a few national parks where considerable road improvement has been accomplished, as in the Yellowstone, the revenues from the park have reached a large figure. It is estimated that the Yellowstone revenues for the current fiscal year will reach \$290,000, only \$30,000 less than the current appropriation of \$320,000 for administration, protection, and maintenance, exclusive of \$48,000 which was appropriated for permanent construction. From this it may be seen that the thought is justified that within a year or two the Yellowstone will be self-sustaining so far as administration, protection, and maintenance are concerned, and as soon as the road systems in the older parks are brought to a same standard it may be expected that these parks will be self-sustaining in like manner. In some of the newer parks

in which practically no development work has been initiated it must be expected that development will have to be gradually undertaken and carried over a considerable period of years, but the ultimate aim will be to place them on a self-sustaining basis.

The parks' need for good roads has elsewhere been commented on at some length, but it is pertinent to say here in this discussion of appropriations and revenues that unless the poor road conditions in a number of the parks are corrected within a reasonable time a serious falling off in revenues may result by reason of motorists refusing to subject their cars to the severe punishment of driving them over the poor park roads. In fact, unless reconstruction of existing roads is undertaken soon, I do not see how a reduction in the present license fees can be avoided in some of the parks. Much of the park system revenues are derived from automobile license fees, as the bulk of the travel to the parks is by private automobile. The public utilities in the various parks are required to pay to the Government taxes on their franchises, these taxes being based on the volume of business transacted by these enterprises. The automobile entrance fees are based on the mileage of automobile roads in the various parks and vary from 50 cents in some of the smaller parks to \$7.50 in the Yellowstone, where over 300 miles of road are available for the use of the motorist. In several of the parks where practically no road development has been undertaken by the Federal Government no license fee is charged for driving over the existing roads, such as they are, and it will be, in my opinion, impracticable to charge a license fee in those parks where none is now charged until the Federal Government has put the roads in good condition for travel.

The following table gives an illuminating idea of the increase in the number of visitors and in revenues, and of the proportionately smaller increase in the annual appropriations granted by Congress since the creation of the National Park Service:

Year.	Visitors, parks, and monu- ments.	Auto- mobiles.	Revenues. ¹	Appro- priations.	Estimates.
1917.	488,268	54,692	\$180,652.30	\$537,366.67	\$1,105,083.01
1918.	451,661	53,966	217,330.55*	530,680.00	1,008,318.20
1919.	811,516	97,721	196,678.03	963,105.00	1,058,619.00
1920.	1,058,455	128,074	316,877.96	907,070.76	789,380.00
1921.	1,171,797	175,825	396,928.27	1,058,969.16	2,345,867.50
1922.	1,216,490	197,105	432,964.89	1,433,220.00	2,488,004.50
1923.	1,493,712	271,482	513,706.36	1,446,520.00	1,566,080.00
1924.				1,822,730.00	1,777,950.00

¹ After July 1, 1918, all revenues except those of Hot Springs were covered into the miscellaneous receipts of the Treasury. Before that time they were available for park development. After July 1, 1922, revenues from Hot Springs are covered into the Treasury and are no longer available for development of the park.

It is interesting to note from the above that the increase in visitors this year over 1917 is 200 per cent, while the increase in revenues this year is 184 per cent over revenues accruing in 1917. It should also be noted that appropriations during the same period increased 169 per cent. This year, as will be noted from the above table, the revenues accruing to the United States amounted to \$513,706.36. Deducting this revenue from the amount of appropriations granted leaves a net cost of \$932,813.64, and further deducting about \$300,000

expended in permanent improvements the operating cost during the 1923 fiscal year amounts to a little more than \$600,000, which is the cost to the people of maintaining their national parks. This is an infinitesimal amount when the economic value of the parks is considered by having retained within and placed in widespread circulation throughout the land millions of dollars of travel money that would have gone out of the country had not the manifest attractions and benefits of the national parks been available to the American people and kept them within our borders.

THE NATIONAL PARK-TO-PARK HIGHWAY.

Great credit for the large amount of interpark motor travel is due to various chambers of commerce, boards of trade and other local civic organizations in the various States within which national parks lie and particularly to a number of road and highway organizations which have carried on extensive campaigns to stimulate this sort of travel. Among these organizations is the National Park-to-Park Highway Association, which has not only continued to promote travel over the National Park-to-Park Highway, but has increased its efforts for the improvement of this master scenic highway which links in a great circle tour 12 of the national parks and gives access to many of the national monuments.

The fourth annual convention of the National Park-to-Park Highway Association was held in Portland, Oreg., June 15 and 16, and its delegates from the 11 interested Western States, for the most part, were able to report substantial progress in the improvement of the highway as a result of the action by several States in making their section of the National Park-to-Park Highway part of their State highway system, in order that Federal aid funds might be available for its improvement. The objective of the association is a hard-surface highway over the entire distance of the circle route of approximately 6,000 miles, a little over one-fourth of which is already permanently improved.

The association plans to conduct a very vigorous campaign this coming winter and spring to attract motor travel westward from the Eastern and Southern States. It is also preparing to sign the highway throughout its entire length. In connection with its publicity work the association has had the very active support of the National Highways Association of Washington, D. C., which has prepared a splendid map of the National Park-to-Park Highway in cooperation with the National Park-to-Park Highway Association. The National Highways Association has also generously contributed to this service the sum of \$1,100 for the printing of a special edition of this map for free distribution by this service. An edition of 20,000 maps will be printed and copies may be obtained by interested motorists on application to the National Park Service.

Hon. Scott Leavitt, president of the National Park-to-Park Highway Association, was elected to represent the second district of the State of Montana in the Sixty-eighth Congress.

In connection with the National Park-to-Park Highway, attention should be called to the completion of the Banff-Windermere Highway across the Canadian Rockies by the Canadian National Parks Branch of the Department of the Interior of Canada. This

highway, dedicated and officially opened on June 30, 1923, permits a circle tour of the Canadian Rockies in Canada, touching several of the Canadian national parks and makes direct connection with the National Park-to-Park Highway at Spokane, Wash., west of the Continental Divide and at Glacier National Park east of the Continental Divide. With the early improvement of the Babb-International Boundary Road through the Blackfeet Indian Reservation, adjoining Glacier National Park, motor travel to both the Canadian and our national park system will be greatly stimulated.

THE NATIONAL-PARK MOVEMENT ABROAD.

The national park movement in foreign countries has received added impetus since the war. Through investigations made several years ago I ascertained that Sweden had 10 national parks and Switzerland 1. France has several excellent parks, including those of Esterel, of Peguere, Oisans, and the Forest of Fontainebleau. The Argentine has its marvelous L'Iguazu National Park, already the focal point of organized travel from the United States and which should indicate to our Latin brothers the great importance of establishing other national parks from their tremendous public holdings, much of which are still unexplored and therefore easily reserved when new discoveries of unusual scenic merit are made. Canada's national park system is one of the best and most popular in the world, annually drawing thousands of visitors from all parts of the globe. Banff and Lake Louise are especially well known. Their system constitutes one of the greatest assets of the Canadian people to-day. Australia's national parks long ago placed her in the forefront of the movement overseas, particularly through the creation of the Australian National Park in the district of Illiwarea in New South Wales. Italy has recently established one national park, and Prof. Mario Bezzi, of Turin, Italy, has been lecturing throughout Italy urging the establishment of others. Belgium, shortly after the visit of the King of the Belgians to the Yosemite and Grand Canyon in 1919, saw its first national park established by special orders of His Majesty.

That the influence of our national parks has extended even into the Far East is evidenced by a recent letter received from the Governor of the Federated Malay States, Sunlaw, Bukit, Kota, Kuala, Lipis, Pahang. The Governor writes:

We are very anxious to try and do something for the permanent preservation of our native fauna, and although we can not hope to create national parks on the lines adopted in the United States—we have no tourist traffic and no population large enough to create such traffic—we can hope to create nature reserves which will be a legacy to future generations.

I have the very greatest admiration for the great work that has been done in the United States in the creation of so many national parks, and although we can not hope to emulate even one of your efforts we intend to try and do something.

Plans of the home department of Japan to create eight national parks, the places suggested for reservation being the area surrounding Mount Fujiyama, the outstanding mountain of the Japanese Empire and famous the world over; two projects in the Japanese Alps; the O-Daigahara Terrace in Yamato Province; Mount Aso;

the Unzen Spa in Kyushu; Nikko and Mount Bandai have been brought to our attention by Dr. Tsuyoshi Tamura, having charge of park business, Department of Interior and recreation business, Department of Agriculture and Commerce. Doctor Tamura visited the larger parks of the United States during the past season to study their operation and called at Washington to acquaint himself with the history, organization, and activities of the National Park Service.

Lieut. Commander Hugo Koehler, United States Navy, formerly naval attaché of the American Legation at Warsaw and now attached to the staff of the admiral commanding the Pacific Fleet, in proceeding to his new assignment, called by the Washington office and advised us that two days before the assassination of M. Gabriel Harutowicz, the first President of Poland, the latter had expressed his tremendous interest in the work done in the United States in developing its national parks, and asked for information regarding methods, policies, etc., with a view of incorporating some of the ideas thus obtained in the preservation of parts of the great Polish forests, which the Poles claim are the greatest virgin forests on the European continent. Commander Koehler had been requested to prepare some articles for publication in Poland on the various parks of the United States, and on his way West made it a point to stop off at several of the national parks to gather information from personal knowledge.

Later a direct request was made on this service by the consulate general of the Republic of Poland in Chicago for information about the establishment, principles of maintenance and technical management of the Yellowstone National Park, to be used by the Government of the Republic of Poland as a model for a national park to be established in the Carpathian Mountains.

There is such interest in the national park movement abroad that several countries have suggested the great desirability of an International National Park Conference, in which they hoped the United States would take the leading part.

AN AMERICAN TRAVEL DIVISION.

Tourist travel has long been recognized by foreign countries as an important revenue producer, and such as had exceptionally fine scenery or historic attractions have vigorously advertised these attractions, supporting national travel bureaus with branches in other countries and particularly in the United States which is recognized as the great potential field for travel stimulation. It is important that the Federal Government recognize and meet this competition for travel by entering into the field, not only to retain at home a larger part of the millions of dollars still spent abroad annually in travel by our own citizens, but also to attract citizens from other countries to our shores. Our neighboring South American republics have shown the greatest interest in the national parks of the United States even to the extent of beginning the establishment of a national park system of their own, and now that quick and dependable transportation has been established by United States Shipping Board lines between North and South America, the southern field offers a wonderful opportunity to develop a lucrative tourist travel to the United States. A serious bid for travel from

Europe to the Orient via the United States, with inducements of side trips to the national parks at small cost, could be made by the Shipping Board lines with the cooperation of the railroads of the United States.

While both the United States Shipping Board and the railroads could materially assist in the development of this travel, a central direction is necessary to take full advantage of the opportunities that await us. It is my opinion that this direction can be best exerted through the establishment of an American travel division in the National Park Service. In developing foreign travel, the service would also be assured of the cooperation abroad of our Consular Service and of our foreign commercial attachés.

Whether or not such a division is established in name as well as in fact, this service is now confronted with the serious problem of meeting adequately the demand of the public for information concerning not alone the national parks and monuments but other recreational areas, particularly of those in the East, for the number of inquiries received during the year is increasing by leaps and bounds. It has been considered good policy to answer all inquiries as fully as possible, and often it takes several hours of research work to obtain the desired information. In some instances, it has been possible to refer inquiries to other bureaus of the Government and organizations interested in travel for answer, but the point to be recognized is that the general public is now looking to the National Park Service to answer general inquiries regarding travel.

As the result of so many inquiries, which at many times during the tourist season number as many as two or three hundred letters per day, the burden placed on the small personnel of the service is so great that the work can not now be handled as expeditiously as it should be. A national travel division is, therefore, obviously an essential and integral part of the service and should be equipped with a sufficient number of clerks to enable it to meet all requirements efficiently and satisfactorily. Travel data for the whole United States should be compiled and kept up to date for ready reference. The division would serve as a clearing house of information, not only to individuals but to travel bureaus, railroads, steamship lines, highway associations, and like organizations. Without question such a division would receive the closest cooperation from such organizations, and it would not be too much to expect that it would also have substantial financial support outside of the Government funds made available for its use. Authority to promote the interest of the national parks and monuments and other national recreational resources through printing such essential pamphlets and publications as bear directly on the attractions and use of national areas should be given by the Joint Committee on Printing of Congress, and necessary funds should be made available for this purpose as well as for the purpose of distributing visual educational material that also would be an essential part of the work of the travel division.

PUBLICATIONS.

Each year brings increasing demand for our pamphlets describing the national parks, which unfortunately we are unable to supply because of our small printing fund. This fund, instead of growing

with the demand, will be less for the coming year. This season's travel to the parks has broken all records, and as a result it is anticipated the demand next year for our Rules and Regulations will again be far more than we can print. These booklets are the only way we can give detailed information regarding the parks to a majority of prospective visitors.

In addition to a larger supply of rules and regulations pamphlets, we need funds to print a circular of general information on the national monuments—at present we have no literature available on these interesting and valuable reservations, and to reprint a large edition of "Glimpses of our National Parks," which Congress authorized on its own volition and for which there is a big call from schools and school children. We have no printed information on Zion, Platt, Lassen Volcanic or Mount McKinley National Parks, and each day we receive numerous requests for literature concerning these parks. For several years we have been holding the manuscripts of Flora of Glacier National Park and Birds and Mammals of Mount Rainier National Park, each an important contribution to the literature on the parks, and again their publication will have to be deferred.

Our special mailing list, consisting of automobile clubs, highway associations, chambers of commerce, travel bureaus, etc., continues to grow and the assistance of these organizations in distributing information on the national parks is very valuable to the service, but we are unable to meet fully their requests for supplies of park pamphlets and park auto maps. In one instance this past season a large organization requested within 5,000 copies of our entire supply of the booklets on a national park for the use of its main and branch offices. We could place in the hands of prospective park visitors easily double the pamphlets we now print, and, as this is our only means of advertising it is urgent that more funds be made available for printing.

This year we printed the following editions of the Rules and Regulations: Crater Lake National Park, 20,000; Glacier National Park, 30,000; Grand Canyon National Park, 35,000; Sequoia and General Grant National Parks, 25,000; Rocky Mountain National Park, 25,000; Mt. Rainier National Park, 25,000; Mesa Verde National Park, 20,000; Wind Cave National Park, 15,000; Yellowstone National Park, 50,000; and Yosemite National Park, 50,000. The booklets on Sequoia and General Grant, Wind Cave and Crater Lake National Parks have been exhausted for a month and a half, while we have only a few hundred copies of several of the others. The Rules and Regulations pamphlet for Lafayette National Park has not been reprinted since 1919.

The Manual for Motorists, Yellowstone National Park, was reissued and an edition of 19,000 printed; while 36,000 copies of the Manual for Railroad Visitors, Yellowstone National Park, were issued. These manuals are designed solely for visitors to the Yellowstone, and the number printed fell far short of the number of persons entering the park.

We have been particularly fortunate in the donations we have received this year, as 30,000 copies of the Hot Springs Rules and Regulations; 100,000 copies of the Hawaii National Park Rules and

Regulations; and 21,100 copies of the supplement to the Grand Canyon Rules and Regulations—"Summer Trips, Grand Canyon National Park"—were given by people interested in these parks.

Great interest has been taken in the special sale pamphlets on the national parks, and our superintendents report constantly growing sales of the booklets sent to them by the Superintendent of Documents. Topographic maps are also sent to the superintendents by the Geological Survey, to be sold during the summer season. Receipts from these sales are made direct to the Superintendent of Documents and the Geological Survey.

Press releases, to the number of 38, were prepared and issued to newspapers, magazines, organizations, and persons specially interested in the national parks, and the publicity resulting has been very generous and helpful in sustaining continued interest in the national parks. A number of magazine articles were also prepared at the request of editors and printed during the year.

VISUAL EDUCATIONAL WORK.

Through a cooperative arrangement with the service, Dr. C. D. Williamson, of Claremont, Calif., presented on a number of occasions his beautifully illustrated lecture "Impressions of some of our national parks" to interested clubs, churches, and other organizations without cost to them or to the service. This arrangement, made late in the winter, resulted in the receipt of many requests for his lecture that could not be filled before his season ended. A similar arrangement has just been concluded with Doctor Williamson for the present winter season and the service is again enabled to offer this lecture under its auspices.

Doctor Williamson's 18 years of acquaintance with western America, and particularly the national parks which he describes, makes his lectures of special interest, as he brings out the serious or educational aspects of the national parks rather than the recreational ones. It covers Yellowstone, Glacier, Mount Rainer, Yosemite, Rocky Mountain, Mesa Verde, and Grand Canyon National Parks and the Petrified Forest National Monument.

It has been interesting to observe the increased use of national parks as subjects by professional lecturers. Mr. Branson DeCou, of East Orange, N. J., prepared an especially interesting and popular lecture after personal visits to a number of the parks which he calls "Dream pictures of the national parks." Mr. Herbert W. Gleason, a professional lecturer of Boston, uses a series of interesting and informative national park lectures well illustrated by colored lantern slides, made from his own photographs taken during his many travels through the national parks.

The Bureau of Service National Parks and Resorts, maintained by the Chicago & North Western Railways and Union Pacific System, Chicago, Ill., has established a lecture department in connection with the bureau and is prepared to furnish a lecturer who is well informed and well equipped with good views of Yellowstone and Rocky Mountain National Parks and with a small projector when needed. This service is without cost to anyone and may be had at any time providing the date requested has not already been assigned.

MOTION-PICTURE FILM.

There were not as many requests for the loan of motion-picture film and lantern slides as there were the previous year, since it has become generally known that our distribution service has been discontinued due to the available material becoming worn out or in need of repair and lack of funds for repair work and for the purchase of new material. There is an ever-increasing demand from colleges, schools, and lecturers for national park subjects for visual educational work, and all those to whom we had been sending film and slides expressed keen regret when our distribution service was discontinued.

I earnestly look forward to the time when this service will be granted an appropriation to conduct a visual educational distribution service—the one means of bringing the beauties of our national parks to hundreds of thousands of people who may never actually see them.

One hundred and five requests for the loan of film were received during the year, only 14 of which could be filled. The requests filled were special, and several reels reserved for official lectures by the officials of the service were used in filling them.

Thirty-four permits for the taking of motion pictures in the parks were issued during the year.

LANTERN SLIDES.

Sixty requests for the loan of slides were received during the year, but only 16 of them could be filled, and these, as in the case of the film, were important requests that the service made a special effort to fill; at times, loaning even my personal slides. The total number of slides loaned was 848. One of the requests we could not fill was from Lincoln, England. Another was from Bryn Mawr College. A set of 53 slides was loaned to the Russian Agricultural Bureau, for use at the Moscow Agricultural Exposition, to be held in Moscow, Russia. Another set of 50 slides was loaned to Cornell University. During the year a number of important lectures were given by officials of the service in their own time, although many requests for such lectures were necessarily refused.

PHOTOGRAPHS.

One hundred and forty-four requests for the loan of photographs were received and over 1,000 photographs were used in filling these requests. We were able to fill practically all of the requests, as we have a collection of over 3,500 photographs which have been donated to the service by park friends. We have acquired also an extensive collection of excellent negatives, from which prints may be obtained at the cost of making. Not all the parks, however, are represented in this negative collection nor are funds available to have prints made for loaning.

A set of 64 large pictures was secured by donation from various sources, mounted and tilted, and exhibited at the Second International Travel Exposition of the Travel Club of America held in New York City last April. The first exposition had been held the previous year. American exhibitors, in general, made a much better showing

this year than last and in some respects even surpassed the rival European exhibits. The National Park Service exhibit was comprised of the 64 large pictures, a complete set of mounted park maps, and an automatic lantern slide projector showing 72 colored lantern slides of scenes in the parks and attracted unusual attention from the thousands of daily visitors during the week. These pictures were later displayed in the main corridor of the Interior Department Building in Washington, during the Shrine convention week in June, and attracted much attention from the many visitors to the city, a number of whom declared it to be their purpose to visit several of the parks on their way home.

Thirty-five of these pictures were used as part of the Interior Department exhibit, at the convention of the Photographers Association of America which was held in Washington last July, and several others were loaned to the "Ask Mr. Foster Travel Bureau" for window display in Atlantic City.

The service succeeded in its efforts to have the Consular Bureau of the State Department purchase and use national park pictures for wall decoration of the foreign consulates, the Consular Bureau purchasing 100—18 by 24 inch enlargements each of six park pictures for this use.

We also obtained the donation of several framed park pictures from park friends for office decoration of the American consulate at Hamburg, Germany, and these have been forwarded through the State Department.

The Bureau of Foreign and Domestic Commerce, Department of Commerce, is interested in having enlargements prepared similar to the ones made for the State Department for use in their foreign offices, but at the present time they are hampered by lack of funds for this purpose.

Our only traveling exhibit of 25 framed pictures was returned by the University of Indiana and was loaned to the Mississippi Agricultural and Mechanical College, which is now circulating it in the State of Mississippi. We could use three dozen of these traveling exhibits to good advantage.

Forty-two electrotypes were made from plates used in Park Service official publications, at the expense of individuals, for reproduction in magazines and educational books. Many prints and enlargements were made from Park Service negatives for individuals who gladly paid the photographers' charges. One print each from 227 negatives of national park scenes were made by the photographic laboratory of the Bureau of Reclamation for the Society for Visual Education (Inc.), of Chicago. The society sent a personal representative to Washington to select the photographs, which are to be used as originals for making lantern slides. The society is preparing sets of slides for each of the national parks for visual-educational purposes.

ACKNOWLEDGMENT OF GIFTS.

Under the act of June 5, 1920, the Secretary of the Interior is authorized in his administration of the National Park Service "to accept patented lands, rights of way over patented lands or other lands, buildings, or other property within the various national parks

and monuments, and moneys which may be donated for the purposes of the national park and monument system," and it is one of the most encouraging features of our national park work that in appreciation of our efforts donations of land and money are received annually from park friends. Some of the gifts of land have been invaluable since the Government became the possessor of privately owned tracts in the parks needed for their most efficient administration which it could not otherwise acquire.

Lafayette National Park, Me., our only national park east of the Mississippi River, is a glowing example of what can be accomplished by the cooperation of public-spirited, generous friends, for this park is made up in its entirety of lands donated to the Government largely through indefatigable efforts of Supt. George B. Dorr. Coming into existence first as the Sieur de Monts National Monument, Congress subsequently recognized its importance by elevating it to the status of a national park. Mr. Dorr has recently acquired by donations additional lands which will later be added to the park.

Several years ago Tulare County, Calif., contributed the sum of \$10,000 and joined a number of individuals in securing a valuable tract of land in Sequoia National Park to be deeded to the United States. We now have instances of direct assistance in our park work by States themselves. At its last session the California Legislature, at the urgent request of the Lassen Volcanic National Park Association, appropriated \$8,000 from State funds for a survey of the Lassen Volcanic National Park to provide a comprehensive program for its future development. To date no development work has been undertaken by the Government in this park, but it is hoped that an early start in this direction can be made.

The State of Arizona similarly has taken an interest in the Tumacacori National Monument by appropriating \$1,000 for its care and preservation, which fund will enable Custodian Pinkley to institute some important restoration and repair work on the old mission building which is the monument's chief exhibit.

Through the generosity of Mr. Archer M. Huntington, one of the trustees of the American Museum of Natural History, 4.6 acres containing the Aztec Ruin, New Mexico, was presented to the Government and established as the Aztec Ruin National Monument, January 24, 1923. This gift was accepted, however, under the provisions of the American antiquities act.

The National Highways Association of Washington, D. C., through its president, Mr. Charles Davis, donated to the service \$1,100 to cover the cost of printing a special Government edition of 20,000 copies of a National Park-to-Park Highway map prepared by them in cooperation with the National Park-to-Park Highway Association. In addition to showing the highway and the national parks and monuments, administered by this service, it shows the national monuments administered by the Agriculture and War Departments, the National Forests, United States Reclamation projects, Indian reservations, every city and town on the entire route of the highway and all the principal connecting highways and roads in the Western States which it covers. In size 22 by 26 inches, it is printed in five different colors by the Geological Survey and is the finest map thus far issued by this service. The map is issued free of charge to motorists on application to this service.

Mr. D. F. Gaines, president of the Arlington Hotel Co., again gave evidence of his generosity and interest in Hot Springs National Park by contributing \$490 for the printing of an edition of 30,000 circulars descriptive of the park, a large number of which were mailed to physicians throughout the country, the balance being turned over to the service for distribution.

We are indebted to the Hawaii Tourist Bureau for the printing of an edition of 100,000 rules and regulations pamphlets on the Hawaii National Park, the distribution of which accomplished much in acquainting the traveling public with the interesting and spectacular features of the park.

We also feel grateful to the Santa Fe Railroad for its contribution of 21,100 pamphlets descriptive of camping trips in the Grand Canyon National Park. Visitors to the canyon are not generally familiar with the fascinating saddle-horse trips that this park affords, and these circulars have proved of much service in acquainting them with these trips.

Grand Canyon Park was presented with two bronze scenic finders by Mr. G. S. Crosby, of Maplewood, N. J., designed by his daughter, Miss H. Crosby. One has been installed on a suitable rubble foundation in front of the El Tovar and is constantly used by visitors in locating the various points of interest in the canyon and is greatly appreciated.

If it were not for the whole-hearted cooperation of our park photographers and other public operators in supplying the service with photographs and occasional lantern slides it would be extremely difficult to overcome the handicap under which we are constantly laboring, due to the absence of an appropriation with which to purchase such necessary material. In this connection I also want to express here the thanks of the service for the generous aid that the western railroads and the Denver Tourist Bureau have always been so ready to give.

It was my own privilege during the past year personally to acquire a tract of 400 acres of land in the Kern Canyon, known as Funston Meadows, which will be deeded to the Government upon the creation of the proposed Roosevelt-Sequoia National Park, within which area it lies. Realizing the importance of having this land in public ownership, should the existing park be enlarged, I sought the opportunity to purchase it, and the property is now held in trust pending favorable action on the park bill by Congress.

THE PRESIDENT'S VISIT.

The itinerary of President Harding's trip through the West and to Alaska, which ended so tragically with his death in San Francisco, included visits to Zion, Yellowstone, and Yosemite National Parks. One day was devoted to seeing Zion Park, in southwest Utah, and two days were spent in Yellowstone Park. Two days had been allotted to seeing Yosemite Park.

The President was accompanied on his park visits by Mrs. Harding; the Secretary of the Interior, Hon. Hubert Work and Mrs. Work; the Secretary of Agriculture, Hon. Henry C. Wallace and Mrs. Wallace; the Secretary of Commerce, Hon. Herbert Hoover and Mrs. Hoover; the Speaker of the House of Representatives,

Hon. Frederick H. Gillett; Admiral Hugh Rodman, United States Navy; and about 70 other public officials and newspaper correspondents.

President Harding was the third President of the United States to visit Yellowstone Park. President Arthur, accompanied by the Secretary of War and the Lieutenant General of the Army, the Chief Justice, several foreign diplomats, and a party of distinguished civilians, visited Yellowstone in 1883, all traveling by horseback,* followed by a great pack train. This party traveled nearly 400 miles. President Roosevelt came to Yellowstone in April, 1903, accompanied by the great naturalist, John Burroughs. Roosevelt entered on horseback and traveled by sleigh to the geyser basins and the Grand Canyon, remaining in the park nine days. On leaving, he dedicated the north gateway arch through which President Harding entered the park.

While the phenomena and wild life of the park were especially interesting to President Harding, the thing that seemed to impress him most was the manner in which the park was being used by the people from all parts of the United States, expressing to the superintendent, on a number of occasions, that Yellowstone revealed a cross section of the people of America.

The news of his death was received with profound sorrow, particularly by the forces in the parks which he had visited and to whom he had endeared himself by his kindness and consideration and his evident delight in all that had been planned for him.

WINTER TRAVEL AND SPORTS.

Many persons regard the national parks only as places in which to enjoy a summer vacation and comparatively few realize that these playgrounds offer unusual opportunities for popular winter sports. Out-of-season attendance, if we may term it such, is increasing year by year, and winter recreation promises eventually to play a very important part in park uses.

The Grand Canyon, Hawaii, and Hot Springs National Parks have long enjoyed a liberal winter patronage, induced by a mild climate and easily accessible locations, but thus far travel to the others, with the possible exception of Yosemite which offers no inconveniences whatever to reach, has been limited.

Yosemite Valley during the past winter, and in the holiday season particularly, was the rendezvous for a larger number of people who enjoyed the tobogganing, snowshoeing, skating, and sleighing. In Rocky Mountain Park winter sports continued to grow in popularity, the Colorado Mountain Club and the Olinger Highlanders, the latter organization composed of boys from 9 to 12 years of age, leading the way. Plans are being considered to extend this interest by constructing ski courses and tobaggan slides close to Estes Park village which would be accessible by automobile and would permit a larger attendance.

The Mountaineers, of Seattle, Wash., have the credit for bringing in the largest party for winter sports in any of the parks. One hundred and sixty members of the club attended its tenth annual winter outing, the largest on record, in Mount Rainier Park over last New Year. A majority of them hiked all the way from Ashford

to Paradise Inn, in Paradise Valley, a distance of 20 miles, and most of this distance had to be negotiated on snowshoes. The party remained in the park four days. The majestic beauty of Giant Forest in Sequoia Park is enhanced in winter when the white-mantled ground adds to the incomparable charm of this spot. The superintendent has during the past two winters arranged for one of the rangers to accommodate visitors who snowshoe up from Hospital Rock, which can be accomplished without hardship. This service has been greatly appreciated, and the number of prospective visitors bids fair to tax to the limit existing facilities in Giant Forest during the coming winter. Each year sees ski running and tobogganing by enthusiastic devotees in the Lafayette National Park.

FIELD OF ARCHÆOLOGY.

In Mesa Verde Park, where probably are to be found the finest exhibits of a prehistoric people who once inhabited sections of our western country, no new excavation work was undertaken during the past year. While this park offers a particularly fertile field for exploration for years to come, it was considered advisable to postpone new undertakings during the season and confine our efforts and small funds to repair and protection of those ruins which had been previously uncovered, that were to some extent suffering from the ravages of the elements. This work was performed under the supervision of Superintendent Nusbaum, a trained archaeologist.

With Dr. Neil M. Judd in charge, the National Geographic Society made fine progress in its third year of exploration of the Pueblo Bonito and Pueblo del Arroyo Ruins in the Chaco Canyon National Monument, an undertaking of considerable magnitude and importance.

The School of American Research of Santa Fe, N. Mex., under the leadership of Dr. Edgar L. Hewett, which also began excavation work in this monument several years ago, did not continue there this year, but gave considerable attention to excavation work at the Gran Quivira National Monument.

Although practically all of his time is taken up in looking after some half dozen monuments in the southwest, Custodian Pinkley finds an occasional opportunity to make examinations of the various mounds at Casa Grande Ruin, his home station, and as a result has been able to add numerous artifacts of an extinct people to an interesting and growing museum which he has established.

SANITATION IN THE PARKS.

The United States Public Health Service continued its cooperative work during the year in maintaining satisfactory sanitary conditions in the national parks. The work, under the general supervision of Sanitary Engineer H. B. Hommon, assisted by Assistant Sanitary Engineers L. D. Mars and A. P. Miller and Sanitary Inspector Carl Benson, covered problems of sanitation in Yellowstone, Yosemite, Sequoia and General Grant, Rocky Mountain, Crater Lake and Mount Rainier National Parks. Accomplishments in the various parks are given in the individual superintendent's reports, printed in Appendix C.

The superintendents are enforcing the recommendations of the Public Health Service engineers, and reports submitted for the various parks show that sanitary conditions in them are being maintained at a standard equal to that of modern cities. As stated last year, this work by the Public Health Service is one of the outstanding examples of effective cooperative work on the part of one bureau of the Government with another.

MARKED ADVANCE IN LANDSCAPE IMPROVEMENTS.

One need spend very little time in the national parks to discover and realize the value of proper landscape supervision. The ever-increasing popularity of our parks brings with it the necessity of providing added facilities for the accommodation of visitors, these varying from space provided for the auto camper to the tent cabin and central service buildings of the permanent camp and the more pretentious hotel. The harmonizing of design and location of buildings into relation with the surroundings requires the most careful study in order that these needs may be met in a manner that will not disturb or conflict with the native landscapes.

The past year has seen a marked advance in landscape improvements in our national parks, and it has been gratifying to note the increasing interest of the park forces as well as that of the park operators in the careful conservation of the park landscapes. The landscape engineering division, under the direction of Daniel R. Hull, landscape engineer, has covered problems in many of the parks either actually on the ground or through correspondence, and the results accomplished have more than justified the existence of this division as a separate branch of our field forces.

Having been limited in appropriations for some of our construction projects, it has often been difficult in the past to secure the desired effects, and a solution not always ideal has been the result. It is hoped that in the future the service may be able to secure adequate funds for our various necessary construction projects to make possible not only a functional development but one which will be a credit to the landscape as well.

Because of the short travel season in a majority of the parks, which is also the building season, there is always a rush for construction during that period, and often the service has been called upon to approve proposed structures without time to properly study the landscape problem involved. It will be expected of the various superintendents that they foresee in so far as possible their construction needs reasonably in advance and also that they advise the various park operators of this necessity. The excellent work the landscape division is accomplishing can be further facilitated by such cooperation. The report of the landscape engineer is printed in Appendix C.

CIVIL ENGINEERING DIVISION.

The varied activities of the civil engineering division have been carried on throughout the year under Chief Civil Engineer George E. Goodwin, with headquarters at Portland, Oreg. As our permanent engineering staff is small, it is necessary each year in the spring



Photograph by Lindley Eddy.

DEDICATION OF THE WARREN G. HARDING SEQUOIA.
SEQUOIA NATIONAL PARK.



Photograph by H. W. Gleason.

WHERE MOUNTAIN AND SEA MEET.
LAFAYETTE NATIONAL PARK.



Photographs by Pillsbury.

- A. WINTER SPORTS AND SCENES: THE COURSE IS LIGHTED FOR TOBOGGGANING AT NIGHT; THE MAJESTY OF EL CAPITAN IS HEIGHTENED IN ITS WINTER GARB.

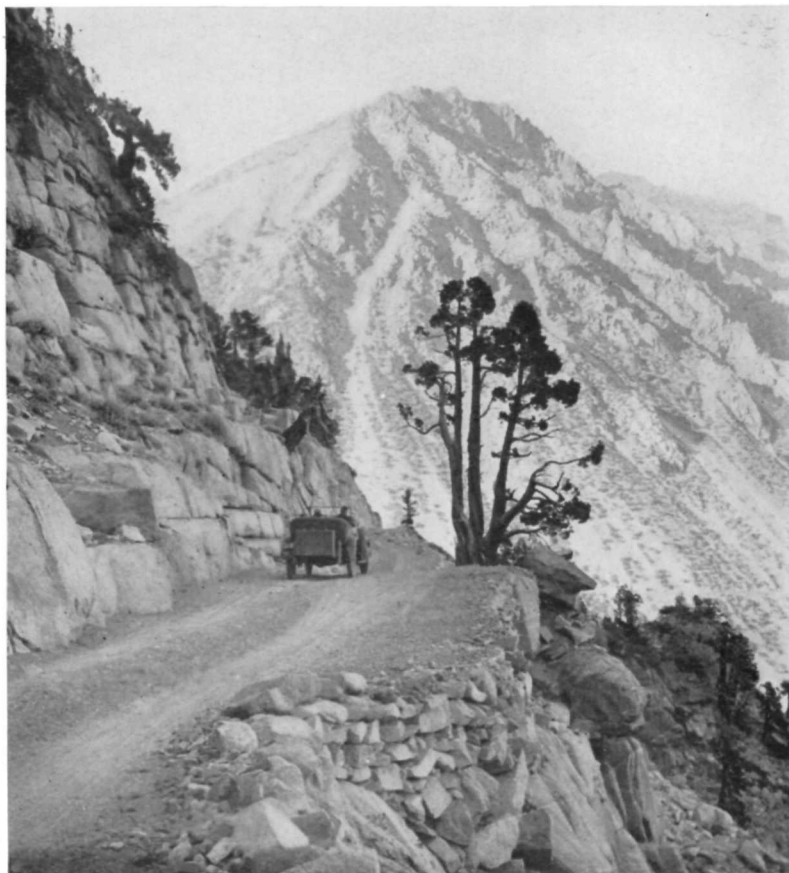


Photograph by Ansel E. Adams.

- B. THE MINARETS AND ICEBERG LAKE IN THE HIGH SIERRA EAST OF THE PARK PROPOSED TO BE ADDED TO YOSEMITE.
YOSEMITE NATIONAL PARK.



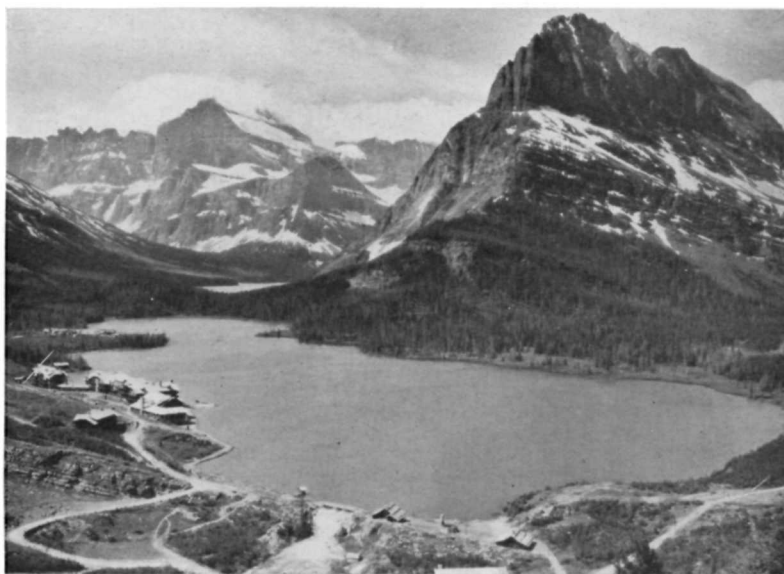
A. BEARS ARE NUMEROUS AND NO LONGER TIMID SINCE DOGS HAVE BEEN PROHIBITED.



B. LEEVINING CANYON IS NATURALLY PART OF THE PARK AND SHOULD BE ADDED TO IT.

YOSEMITE NATIONAL PARK.

Photographs by Pillsbury.



Photograph by Hileman.

THE MANY GLACIERS REGION IS THE BIG TOURIST CENTER OF THE
PARK.

GLACIER NATIONAL PARK.



DEPARTMENT OF THE INTERIOR'S OFFICIAL NATIONAL PARK EXHIBIT
AT THE INTERNATIONAL TRAVEL EXPOSITION HELD IN NEW YORK
CITY, APRIL, 1923.

and summer to secure temporary engineers to take charge of different road projects and surveys, and difficulty has been encountered in securing the properly qualified personnel to carry out this important work. This emphasizes the necessity of eventually increasing our permanent engineering force and paying salaries commensurate with the qualifications required and the responsibility imposed. During the past year two of three permanent engineers resigned as a result of not receiving merited promotion. We are looking forward to pending reclassification to make these essential increases in pay.

Work on the second section of the Transmountain Road on the west side in Glacier National Park was begun, and about 6 miles, extending from the end of the first section at the head of Lake McDonald, up McDonald Creek to above Avalanche Creek, will be finished this fall. Also, a contract has been let for the construction of 8 or 9 miles of the Transmountain Road, including construction of a bridge across the St. Mary River, extending from St. Mary Chalet along the north shore of St. Mary Lake toward Going to the Sun Chalet. With construction under way on both sides of the Continental Divide, the Transmountain Road can be pushed with more speed toward completion.

Extension of the Carbon River Road in Mount Rainier National Park, involving the construction of about 2.5 miles of road from Ipsut Creek to Cataract Creek, has been carried on by a small road crew. The Carbon River Road extends into one of the most rugged and beautiful sections of Rainier Park and practically reaches the snout of the Carbon Glacier which terminates at a lower elevation than any other living glacier in continental United States. Plans and specifications were also prepared and contract entered into for the erection of a highway suspension bridge across Nisqually River at Longmire, which will give access to the new public camp ground being developed on the south side of the river at this point.

In Mesa Verde Park, the Morefield-Prater Canyon section of the Knife Edge Road, the construction of which was held up during the winter, was completed.

Under the deficiency appropriation of \$133,000 for Zion Park, survey and specifications for the reconstruction and construction of the park road to terminate below the Narrows were prepared and construction work has been commenced.

Beside the above road construction carried on by contract, hired labor forces have worked during the year on the widening of the Nisqually Road and the construction of the Narada cut-off on the Nisqually Road in Mount Rainier National Park, on the continued construction of The Generals' Highway in Sequoia National Park, and on other road improvement work of lesser importance.

Preliminary location surveys and estimates for the proposed West Side Highway in Mount Rainier Park; preliminary surveys and plans for the construction of a 200-foot bridge across the Virgin River outside of Zion Park; reconnaissance and report, and surveys now under way, for a general road system in Lassen Volcanic Park, are other accomplishments of the engineering division. Standard and special designs, worked out for different physical improvements,

also have been prepared, and in this connection, it will be expected of the various superintendents that they foresee, in so far as possible, their engineering needs in order that the engineering division may have more time in which to work out necessary plans and specifications in advance of actual construction. The report of the engineering division is printed in Appendix C.

HIGH EFFICIENCY OF FIELD PERSONNEL.

Particular effort has been made during the past few years to develop our field personnel to the highest possible standard of efficiency, by the appointment of specially selected persons for the work to be done. Since the duties of our rangers bring them in constant daily contact with visitors, it is natural that, by the deportment of these men to the visiting public, our entire field service is judged. In the establishment of the present forces, great care has been exercised in the attempt to secure only such men as promised to measure up to our high standard in personality, character, training and experience, and from the many complimentary remarks heard and unsolicited letters of commendation received from visitors, including Members of Congress and other officials, I feel a great pride in the present organization.

Of no less importance, however, from an administrative standpoint, has been the gradual development of the clerical forces in the parks to a present high state of efficiency. This has been the result of long, careful study of the requirements of each individual position and the selection of an incumbent specially qualified to perform that individual line of work. This has not been accomplished without some occasional discouragements, caused by a few of the selections not measuring up to requirements, and resulting in their ultimate severance from the service. The varied routine of Government fiscal and accounting requirements, in particular, is rigid and strict. Experience in such lines is acquired only after Federal service of several years. It was evident, several years ago, that newly appointed clerks, from available civil service registers, although qualified in book-keeping and stenography, had not that prior experience that was necessary to put out the office work on established lines of routine and regulation. Naturally, in some of the parks, complications resulted. This was particularly true during the war period and shortly thereafter, when the best material was not available. Many of the clerks stayed only a few months or weeks, without having done more than add confusion to vexing conditions. Many a superintendent, in effect, had to work without proper tools, which resulted not only in lessening his own efficiency, but that of his entire office. It became necessary in several instances to rush a clerk from the Washington office, when he could not well be spared, to establish an orderly routine.

Through an arrangement with the United States Civil Service Commission, who cooperated by placing advertisements in Washington papers, the attention of the Federal employees was called to these openings. It developed there were many competent, experienced employees, who were anxious to make a change by either necessity of reduction of personnel in various offices, or on account of ill health, caused primarily by the Washington climate and requiring a change

of location. From the applicants, a register of between three and four hundred names was established. From this list, the best were recruited, after personal examination. With few exceptions, these have made good, and those exceptions have been replaced by others, who are now making good.

While there are still some desirable changes to be made, these will be gradually effected, and I am confident that I can, at this time, say to you, with gratification and pleasure, that at no time since the the field forces been functioning with as high a degree of efficiency operation of the service as a separate bureau of the department have as during the past season.

WASHINGTON OFFICE STAFF TOO SMALL.

The greatly increased work in the Washington office during the past two years has been kept current without increase in personnel, with the exception of occasional temporary loan of stenographic help from the department. This splendid achievement has been accomplished by the intense interest individually manifested by the highly qualified personnel engaged. Our entire system of bookkeeping has been revamped to save time and labor. On many occasions, when our small stenographic staff has been loaded with work, the law clerk, the clerks in the accounting section handling correspondence with the field, the various clerks engaged in correspondence, and even the assistant director, who, in addition to their other qualifications, are expert typewriters, have prepared their own letters. There is an understudy for every position. This is efficiency carried to its highest point, but there is a physical limit to what even the most highly trained personnel can accomplish.

The demands on our organization are now such that only routine work can be handled, and the time to consider methods of betterment and lines of important development and the personnel to place these into effect are, consequently withheld to the detriment of the public interest. The service's functions cover the entire field activities and field inspections by officials of the service, now impossible to make, are essential to smoothly running administration. Another assistant in Washington is urgently needed to relieve the assistant director of part of the work placed upon him to enable him to make necessary contacts with park officers, during the height of the parks' seasons, for such personal conferences are imperative to efficient administration. Instances are constantly arising where a visit to a park office would solve a perplexing problem of administration that can not be handled by correspondence and must be let drag along until wintertime. Also, a new superintendent, coming in daily contact with thousands of visitors, should be visited by a representative of the director, who could post him on matters of policy and problems individual to his own park and general service routine, so that he could fulfill his new duties without confusion and trouble. Field conferences are essential to every well-regulated organization whose activities require a permanent office in the Capital City, but whose principal activities lie in the field, and every park officer is entitled to personal conferences with officers of the service during the height of the touring season. This is, unfortunately, too often not the case. It will only be when the personnel in the Washington office has been

enlarged to meet the constantly increasing work coming in that the service, as a whole, will be equipped to give the fullest service to the public in its administration of the parks.

INSPECTION OF PARK OPERATORS' ACCOUNTS.

In this connection, I want to refer to the excellent results achieved from the small fund of \$6,000, granted by Congress for accounting services for the National Park Service, specifically to study, verify, and check the accounts of the various park operators. While the present accountant, Mr. Francis P. Farquhar, C. P. A., of San Francisco, has been able to devote only about seven months to the study of these problems, he has thoroughly reviewed the chief operations, transportation, hotels, and camps in the Yellowstone and Yosemite National Parks. He was also able to make important investigations at Hot Springs, Ark., into the earnings of the various park bathhouses, assisting the service materially in conclusions affecting the approval of bathhouse rates for the general public.

It is obvious that such accounting supervision and investigation is essential from year to year, although not an entire year's work, seems necessary or desirable. It is important, however, that the books and operations of the various park utilities be carefully studied in order that, at each season's close, a definite knowledge of their operating costs and net and gross profits are available. This is not so much a question involving reasonable returns to the operators, or franchise or license fees to the United States, as it is one affecting the rates charged to the general public. In fact, the rates charged the general public under approval of the department and the returns on their operations to the utilities are inseparably interrelated. This annual scrutiny of their financial operations will enable the service to function intelligently and decide upon questions of rates, returns to the United States, earnings and the like in complete justice and fairness to the operators, the public, and the Department of the Interior.

NEW NATIONAL MONUMENTS ESTABLISHED.

No new national parks were added to the system during the past year, but four new national monuments were established by presidential proclamation and placed under the administration of the Department of the Interior, making 28 monuments so administered. The first of these, the Fossil Cycad National Monument in South Dakota, was established by proclamation of October 21, 1922. The area covered by this monument contains large deposits of the fossil remains of fern-like plants of the Mesozoic period and other characteristic examples of paleobotany, which are of great scientific interest and value.

The Aztec Ruin National Monument, N. Mex., was established January 24, 1923, and contains the Aztec Ruin, the best preserved and most striking of a group of pueblo ruins, situated near the town of that name. This prehistoric dwelling is a large E-shaped structure of approximately 500 rooms. The first story of this building still stands, and some portions of the second and third, while in 24 of the rooms the original ceilings are intact. Through the gen-

erosity of Mr. Archer M. Huntington, one of the trustees of the American Museum of Natural History, the land containing the ruin was purchased and donated to the United States. For several years the museum has been systematically studying the ruin in an endeavor to throw some light upon its antiquity. Mr. Earl Morris, of the American Museum of Natural History, the representative on the ground, was appointed custodian of the monument shortly after its creation.

The Hovenweep National Monument, Utah-Colorado, established March 2, 1923, also contains ruins of various types. There are four separate groups of remarkable prehistoric towers, pueblos, and cliff dwellings. The majority of these structures belong to unique types, not found in other monuments, and according to Dr. J. Walter Fewkes, Chief of the Bureau of American Ethnology, are some of the finest examples of prehistoric masonry to be found in the United States.

The newest monument is the Pipe Spring in Arizona, established by proclamation of May 31, 1923. This not only serves as a memorial to western pioneer life, but is of service to motorists, containing, as it does, the only pure water to be found along the road between Hurricane, Utah, and Fredonia, Ariz. This area is famous in Utah and Arizona history, having been first settled in 1863. In 1870 it was purchased by President Brigham Young of the Mormon Church, and during that year, a stone building with portholes, known as "Windsor Castle," was erected to serve as a refuge against the Indians. This building still stands. The relinquishment of certain adverse claims to the lands contained in the monument was secured by the donation of \$5,000 for this purpose by a few public-spirited people.

CHANGES IN BOUNDARY OF EXISTING NATIONAL MONUMENTS.

The area of the Pinnacles National Monument, in California, was increased by presidential proclamation of May 7, 1923, from 2,080 acres to 2,642.26 acres, while that of the Papago Saguaro National Monument, in Arizona, was reduced by Executive order of December 28, 1922, by the elimination of 110 acres in the extreme southwest corner of the monument, as this small section, which had no particular scenic value, contained a body of shale suitable for use in the manufacture of cement. The area of the Papago Saguaro is now 1,940.43 acres.

NEW MONUMENTS UNDER OTHER DEPARTMENTS.

Two new monuments were also added to those under the control of the Department of Agriculture, these being the Bryce Canyon National Monument, an area of unusual scenic beauty and scientific interest, established June 8, 1923, and the Timpanogos Cave, Utah, containing an interesting limestone cavern, established October 14, 1922. By proclamation of March 2, 1923, the Mound City Group National Monument, Ohio, was established and placed under the administration of the War Department. As its name indicates, this monument contains prehistoric mounds.

THE YEAR IN THE PARKS.

The following is a summary of work accomplished in the parks and monuments during the past year. The summary is purposely made brief, as very comprehensive reports, of the superintendents and custodians, have been printed in full in Appendix C.

YELLOWSTONE NATIONAL PARK, WYO.

The greatest event of the year in this park of course was the visit of the late President, Warren G. Harding, and his distinguished official party, of which you were a member. The party was en route to Alaska and spent two days, June 30 and July 1, motoring over the principal roads connecting the main centers of interest. The afternoon and evening of June 30 were spent in Upper Geyser Basin, while on July 1 Lake Yellowstone, the Grand Canyon, and the Tower Falls district were visited. The President and his party saw many species of wild life, including elk, buffalo, deer, bear, and antelope. The weather was perfect, and the organization of the park for the President's tour was so complete and functioned so smoothly and splendidly that not even the puncture of a tire occurred to delay or inconvenience any member of the party. The park officers and employees, and those in charge of the public utilities cooperating in entertaining this distinguished group of visitors, are deserving of great credit for the comprehensive planning and efficient execution of the program for the President's tour.

DISTINGUISHED VISITORS COME FROM EVERYWHERE.

Probably never before have so many men and women distinguished in official, professional, and business life toured a national park during a single season as were numbered this year among Yellowstone's visitors, including the President's party. Seven United States Senators, 25 Congressmen, and 2 governors were among the official visitors, in addition to many ex-Members of Congress and former governors. During my official visit to the Yellowstone, which covered a period of three weeks, I had numerous opportunities to talk with guests of the park coming from all walks of life and from all sections of the United States. Many were poor, others rich, some traveled to the park by train, others in their own cars; a few walked. However, rarely did I find any individual who was not enjoying himself or herself in the utmost degree.

GOOD SERVICE BY PUBLIC UTILITIES.

With the exception of the transportation line, the public utilities rendered excellent service, considerably better than ever before. The new Lake Hotel annex was completed and put in commission during the season. At Mammoth Hot Springs the Yellowstone Park Camps Co. erected a huge central camp structure, which is one of the most interesting buildings of the park, and this company also greatly increased its capacity to accommodate visitors at all points in the park. The stores and picture shops were expanded somewhat

and excellent service was rendered in these enterprises. The delicatessens established in several automobile camp grounds were very popular and greatly appreciated.

As to the transportation line, its own cars as operated under its highly efficient organization pleased the visiting public, but there were insufficient cars to meet the demand and nearly one hundred cars had to be hired outside the park. Service by these outside hired cars was bad at times and always unsatisfactory. The company will be required to buy a large number of new 10-passenger cars before the season of 1924. It must also revise its system of handling baggage in order to more expeditiously direct and effect the transfer of passengers from one station to the other without injury to or loss of baggage.

COURTESY AND KINDNESS GREATEST FACTORS IN SUCCESSFUL SEASON.

I was particularly pleased with the success attained this year by the superintendent of Yellowstone Park and his force of rangers and other employees in operating the park upon a basis of courtesy, kindness, and good will toward all who came to enjoy themselves amid the beauties and wonders of this great playground. The uniformly hospitable and kindly treatment accorded all who came in contact with the Government officers and employees in the park was widely commented upon by visitors. Some parks having comparatively small travel have also attained an enviable reputation for cordial and helpful treatment of their guests, but Yellowstone was the first large park to practice such a policy on a grand scale, reaching more than 100,000 people and causing them to feel that we were glad they came to the park, and that we wanted them to enjoy themselves while there to the fullest extent possible within the limits of their stay.

TRAVEL REACHES UNPRECEDENTED FIGURES.

Travel to Yellowstone Park reached a grand total of 138,352, an increase of practically 40,129 over last year. The percentage of increase was 41. By rail 44,806 of these visitors reached the park as compared with 33,358 in 1922, or an increase of 11,448. By automobile or other means of conveyance the records show that 93,546 visitors entered the park gates as against 64,865 last year, an increase of 28,681. Of the motorists arriving in their own cars, it is estimated that fully 75,000 camped out in the public camp grounds, using their own equipment. About August 1 a rough census of people in the park showed that approximately 14,000 people were there at one time.

FUNDS FOR UPKEEP VERY INADEQUATE.

While it is pleasant to contemplate this tremendous use and enjoyment of the park by our people, there is another side to consider that arouses dire misgivings. Funds with which to maintain Yellowstone and other parks are insufficient to keep the improvements from rapidly deteriorating or breaking down under enormous use. In Yellowstone Park this year under the tremendous pounding of heavy traffic the roads were severely damaged, particularly the graveled

surface of the highways, and this was done in spite of the efficient work of the engineering department of the park, which maintained 25 maintenance crews covering every mile of the road system. There are not enough funds available to repair this damage before next season, and unless increased appropriations for the park are made available permanent injury to this highway system will result and its destruction will be in full swing.

Likewise the telephone system through lack of adequate upkeep funds proved incapable of handling the business of the unprecedented season, and the same can be said of other Government improvements and facilities. Auto camp grounds were filled to capacity for many weeks and before next year must be greatly improved and extended.

INCREASE IN APPROPRIATIONS SMALL; IN REVENUES LARGE.

Appropriations for the 1924 fiscal year for this park were only \$6,200 in excess of those for 1923, while revenues for the current year will exceed those for the last fiscal year by more than \$80,000. The revenues for the 1923 fiscal year will nearly equal appropriations for that year unless the Yellowstone estimates for 1925 are increased as they should be. As this report is written an increase of \$20,000 has been authorized in the estimates, but this is likely to be the maximum increase that will be considered. It will not be sufficient to prevent deterioration of improvements and impairment of service.

PROTECTION FORCE TOO SMALL.

The protection force—that is, the ranger service—should be increased by at least 30 rangers; only 12 have been allowed in the new estimates. By my own observations, based on careful study of traffic conditions, care of camp grounds, fire patrols, etc., I know that next year's force augmented by the 12 additional rangers, if they are finally authorized in the next appropriation act, will be woefully insufficient to transact business within the scope of the duties of the protection department. We must never lose sight of the fact that Yellowstone is our largest park, that it is twice as large as any except Mount McKinley, that it has over 350 miles of roads, over 800 miles of trails, nearly 300 miles of telephone lines, 21 ranger stations, an extremely valuable headquarters plant, and buffalo and other ranches to maintain and develop to meet ever-increasing demands for public service. It is our most important game preserve, yet in proportion to its great size, its varied activities, its enormous patronage, and its rapidly mounting revenues, its appropriations are far too low and in fact lower in proportion than many other parks.

YELLOWSTONE ROAD CONSTRUCTION REQUIREMENTS SMALL.

While most of the other parks require extension of their highway systems on a considerable scale, Yellowstone needs comparatively little new road building to complete her system. Revision of some small parts of the main loop system, touching important points of interest to make them safer and easier to negotiate, completion of the road up the Firehole River from Madison Junction which was begun before the war, and rebuilding of the north approach road through

Yankee Jim Canyon are the most urgent road construction projects of this park. Its need for greatly increased funds for gravel surfacing, improvement of drainage, protection by parapets, etc., is most urgent, and will require considerable money.

I am opposed to new roads in the areas proposed to be added to the park, such as the upper Yellowstone country and the Teton region, and I am likewise opposed to building new roads through a virgin wild-life section like the Gallatin Mountain region, where it has been proposed to construct a new highway in order to give patrons of a certain railroad system quick access to the main loop highway of the park. You already have officially gone on record as opposed to the building of this proposed road across Bighorn Pass, going up the Gallatin River through the pass, thence down Panther Creek to the road leading from Mammoth Hot Springs to Norris Geyser Basin. We must keep a large area of the Yellowstone in a state of untouched wildness if we are to be faithful to our trust as protectors of the wild life with which the park abounds.

VASTLY INCREASED USE OF YELLOWSTONE TRAILS.

I am delighted with the great increase shown this year in the use of Yellowstone's trails. There were many saddle-horse parties on the trails, and several hundred visitors enjoyed the wilderness charm of the distant sections of the park where the wild life is so abundant and so easy to approach and photograph. The most picturesque trail parties were the boys' and girls' parties from the Valley Ranch, which is located on the south fork of the Shoshone, and C. C. Moore's party of boys. Each of these parties spent more than a month on the park trails. A group of members of the Prairie Club, of Chicago, spent several weeks in the Yellowstone hiking over all the trails radiating from each permanent camp, and parties of college students of botany and geology used the trails for trips afield in connection with their research work.

HOWARD EATON TRAIL DEDICATED.

The trails were all kept in good condition and some new trails were built, among the latter being a particularly fine trail from Mammoth Hot Springs to the summit of Sepulchre Mountain. The Howard Eaton Trail was finished and dedicated on July 19, 1923, to that famous old guide and game conservationist, the late Howard Eaton. Members of the Eaton family were present at the dedication, which was held at Sheepeaters Cliff, where Howard Eaton made his first camp in the park each year. The principal addresses were made by Congressman Charles E. Winter, of Wyoming, and Col. Henry Hall, of Pittsburgh, intimate friend of Howard Eaton for many years.

WILD LIFE OF YELLOWSTONE HAVE GOOD YEAR.

The animals of the park are in exceptionally fine condition. Last winter was favorable to the game and all species came through with few losses. Such of these as did occur were natural deaths due to old age or attack by predatory animals. There was a very gratifying increase in all species, especially elk, antelope, and deer. The moose have not shown proportionate increase because of the

killing of too many bull moose outside the south boundary of the park in the upper Yellowstone region. In two years 100 bulls were shot in this section under authority of the State of Wyoming. I am sorry to record that more moose will be killed this year in Wyoming, and this means in the area just south of the park in the watershed of the Yellowstone.

The buffalo herd continues to increase rapidly, but it is hoped that under authority granted by Congress last winter the surplus males can be disposed of in a satisfactory manner. Predatory animals, particularly coyotes and wolves, were greatly reduced, nearly 300 being killed during the past year.

RECORD BREAKING YEAR IN FISH CULTURE WORK.

Fishing was excellent in the park all season and should improve rapidly from year to year as a result of fish-culture work now being conducted on a big scale. All park records for this work were broken this year when 31,570,000 eyed eggs and 6,247,000 fry were planted in streams of the Yellowstone region. Also 100,000 brook and 50,000 rainbow trout fingerlings were secured from the Montana Fish and Game Commission. The park also supplied 10,305,000 eggs to Glacier and the Western States through the United States Bureau of Fisheries and the various State game commissions. Commissioner Henry O'Malley, head of the Bureau of Fisheries, directed this record breaking fish culture work through his western supervisor, Mr. C. F. Culler.

EDUCATIONAL WORK VASTLY EXTENDED.

The educational and information work in Yellowstone Park showed a satisfactory advance over previous seasons. Thirty-three thousand eight hundred and twenty-two persons visited the museum and information office, 110,000 free pamphlets were distributed, and 6,792 pieces of park literature were sold. The lectures at Mammoth were delivered by a park ranger before audiences totaling approximately 75,000. During the season a lecture series on the history of the park was initiated at Old Faithful; about 40,000 persons attended these lectures. A useful addition to the literature of the park was made this year in the book "Trees and Flowers of Yellowstone National Park," written by Dr. Frank E. A. Thone, the park naturalist, and published by J. E. Haynes, official photographer. Several pieces of scientific work of major importance are projected for the park next season. Two classes of students, one in botany from the University of Chicago, and one in geology and botany from Earlham College, Indiana, spent several weeks in the park during August. A promising project, which may materialize as early as the season of 1924, is for a summer school in science, to be supported by various universities and by private donations. It is hoped that the old barracks may be used for this school, and also to house the museum, which is outgrowing its present quarters.

BEAUTIFUL CHAPEL IN USE.

Yellowstone is most fortunate in being the owner of a beautiful little chapel built of native stone, and attractively located under the sheltering pines at headquarters. During the past season the

chapel was used each Sunday and occasionally on week days; often it was filled to capacity. Effective advertising of services throughout the park brought these gratifying results. All religious denominations had equal opportunity to worship in the chapel, thus harmonizing its use with all other park features which are perpetually reserved "for the benefit and enjoyment of the people."

TETON MOUNTAINS STILL LACK PARK STATUS.

No action was taken this year on the proposal to extend the park lines to include the Teton Mountains, the headwaters of the Yellowstone and other areas, but sentiment is becoming more and more favorable to the plan and it will be carried out in a very few years. President Harding after leaving the Yellowstone announced through the press that he favored the proposed extension very strongly, and felt that it should be made soon. I feel that this proposal is of the utmost importance and should be consummated this next year if possible, as several beautiful lakes are in danger of desecration by being used as reservoirs after damming them, and the moose are still being slaughtered in the Upper Yellowstone.

WIDE PUBLICITY THROUGH RAILROADS AND PRESS.

Yellowstone National Park received a greater volume of publicity this year than in any previous year in its history. Several great railway systems distributed a large volume of high-class publicity material before the season opened.

The visit of the President to the park early in the season attracted national attention, and the 30 correspondents and photographers who accompanied the official party released a veritable flood of park material, all of which was of a favorable character.

Throughout the season news and feature stories and news photographs were circulated from park headquarters. Statements of direct news interest and informational value were broadcasted regularly to mailing lists of hundreds of newspapers and were widely used. Special feature articles, dealing chiefly with human and historical aspects of the park, received national circulation through the news association bureaus in New York, as did also news photographs. A story describing the buffalo herders of the park was used by over four hundred newspapers.

Clippings from every section of the country revealed national pride in the Yellowstone Park and a genuine interest in its affairs. Popular interest was greatest in the animal life of the park. Pictures of changes in natural phenomena were widely used. The tremendous development of independent automobile travel gave particular value to articles containing travel statistics and general information about roads and camps.

Editorial articles from every section of the country reflected a general determination that the Yellowstone Park should be preserved against any commercial encroachment. There was wide solicitude for the welfare of park animals, particularly the antelope. The editorial attitude toward the park was in every case friendly.

The Livingston Enterprise, a well-edited daily published at the north gateway city, Livingston, Mont., issued a Yellowstone Daily

Tourist edition which carried the park news, as well as full Associated Press dispatches. This paper performed a real public service and was much appreciated.

YOSEMITE NATIONAL PARK, CALIF.

The outstanding feature in Yosemite has been the unexpected heavy increase in travel. It was prophesied at the beginning of the year that this would increase about 15 per cent, but that it would amount to 30 per cent was entirely unlooked for and proves that with the growing popularity of Yosemite it is going to be increasingly difficult to gauge the probable travel and to provide for it accordingly. This accentuates the necessity of a more liberal policy of appropriations in order that the necessary activities of protecting the park, as well as the improvement and extension of its facilities, may keep pace with the demand.

That the motoring public is taking greater interest in the high mountain country of the park as distinguished from Yosemite Valley itself is shown by the increased use of the Tioga Road which traverses the very heart of the park, touching granite-girt Tenaya Lake, Tuolumne Meadows, and Tioga Pass, the latter on the summit of the Sierra at an elevation of slightly under 10,000 feet. While motor travel to the park increased approximately 35 per cent over that recorded for the previous year, the increase in the use of the Tioga Road was nearly 50 per cent. Not only are people motoring through the high country but they are taking advantage of the natural camping sites for a few days' stay and exploration by foot or horseback of the adjacent areas. Thus there is gradually coming about a fuller and broader use of the entire park instead of just its roads and trunk-line trails as has been the case since the admission of the automobile to the park, which is to be desired.

SUCCESSFUL OPERATING YEAR.

Not only has the year been a successful one from the standpoint of increased use of the park, but it has been a successful one for the park operators and permittees without exception. There has been no disturbing industrial situation during the year to either retard travel or to unduly restrict individual expenditures. The result has been a tendency on the part of visitors to spend more freely than in some former years, which has aided the financial success of the park operators. As additional and approved facilities of service to the public are needed in Yosemite, the success of the year's operations should be an incentive to furnish these services and will undoubtedly give considerable impetus to further investment in permanent building units and increased service to the public.

IMPROVEMENTS OF THE YEAR.

The bulk of the \$55,000 appropriated by Congress for improvements to be made by the Government during the fiscal year 1923 was devoted to the continued improvement of the sanitary situation and water supply. Twenty-five thousand dollars was expended on extensions to the sewer system, including the building of 10

comfort stations in the public camp grounds and the necessary connecting lines to connect them with the main sewer system. Under a similar appropriation for the fiscal year 1924 this work is being continued and by the opening of the 1925 season two-thirds of the public camp grounds will have been equipped in this respect. With the contemplated expenditure of a similar amount for 1925 the entire system as originally planned will have been completed and a serious sanitary situation which has prevailed in the public camp grounds for many years will have been eliminated.

Of the 1923 construction appropriations, \$15,000 was expended on the extension of the existing water supply system, so that now all operating units, both of the Government and of the operators and permittees, are supplied with adequate water facilities under sufficient pressure for fire protection. In order to entirely complete the necessary improvements to the water system there yet remains to be developed an entirely new source of water supply to replace the insufficient supply of the present springs and the unsatisfactory river source. It is proposed to develop this new source in Illilouette Creek which drains a watershed little used by the public and easy to protect, thereby insuring a supply of absolute purity.

The remainder of the funds appropriated for improvement work in the park were expended on the improvement of the electric and telephone systems and the construction of quarters for permanent park employees.

Permanent improvements made by park operators consisted of the erection of a new store building by the Curry Camping Co. and the erection of two large storage buildings as additions to their garage unit by the Yosemite National Park Co.

HETCH HETCHY RESERVOIR A FACT.

With the completion of the Hetch Hetchy Dam in June, 1923, and the impounding of the waters of the Tuolumne River thereby, the Hetch Hetchy Reservoir became a fact. This project was initiated and completed by the city and county of San Francisco under a congressional grant of December 13, 1913. This grant provides, among other things, that upon the completion of the project certain trails and roads shall be built in the area of the park adjacent to the reservoir and that the rails from Mather Station to Hetch Hetchy shall be removed, thereby converting the railroad grade into a highway for the use of the public. The opening of this road to motor travel will undoubtedly bring thousands of people to Hetch Hetchy and the surrounding country, and the completion of other roads and trails enumerated in the grant will make more easily accessible and open for the use of the public large areas in the northern part of the park which heretofore have been little visited because of their relative inaccessibility. The opening up of this additional area will necessitate development of camps and lodges, locations for which are being given consideration by the service.

FINAL PLAN FOR NEW VILLAGE OR COMMUNITY UNIT.

With the appropriation of \$35,000 for the construction of a new administration building and the approval by the Post Office Department of plans for building under a lease arrangement of a new post office building in Yosemite Valley, a careful study was given to the

matter of securing a suitable plan for a new village unit in Yosemite Valley, the building of which and the elimination of the present dilapidated shacks has been for years considered essential both from the standpoint of practical operation and landscape effect.

Supplementing the work of our landscape division we were fortunate in securing consideration of various plans by the Fine Arts Commission with the result that a plan prepared by Mr. Myron Hunt of Los Angeles was agreed upon. This plan places the unit on the opposite side of the valley from the present village and offers every advantage to the establishment of the various general stores, studios, and shops in satisfactory relation to the administration building and the post office. All buildings to be erected will, of course, be built in accordance with plans approved by the service and no opportunity will be lost to have the structures harmonize with their natural surroundings.

HIKERS' CAMPS AN INNOVATION.

Yosemite has a wonderful back country of rough, rugged mountains and deep canyons, considerable of which has heretofore been little seen because of lack of proper facilities. It is an ideal country for the hiker or foot traveler but the necessity of having in the past to pack all food supplies, bedding, etc., in order to penetrate it has been a deterrent factor and the establishment of extensive camping accommodations in these isolated sections has been an undertaking too expensive and uncertain for the operators to undertake up to the present. This year, however, a scheme was evolved for the establishment of camps at Merced Lake, Tuolumne Meadows and Tenaya Lake offering the very simplest and cheapest accommodations which could be operated at a minimum of expense. Each camp consists of three large tents, capable of accommodating sixteen or eighteen people. One was used for sleeping quarters for women, one for sleeping accommodations for men, and the third as a cooking and dining tent. The sleeping accommodations consist only of folding cots and blankets, and the meals of the simplest cooked foods, principally canned stuff, but all wholesome. Through the cooperation of the nature guide service, parties were formed to make the high country trips on foot and the scheme met with considerable response and exceptional enthusiasm on the part of those making the trips. The scheme eliminates the expense of transportation, although transportation can be secured if desired, and obviates the necessity of burdening one's self with supplies and bedding; yet at the same time supplies reasonably comfortable accommodations and wholesome meals and offers the real lover of the mountains an opportunity to see the back country at a minimum of expense. More of these camps will be installed next year by the Yosemite National Park Co. and a real effort will be made to sell the idea. If successful it appears to be the solution of a fuller and greater use of the wilder, and in some ways, more spectacular scenic areas of the high country of the park, in accordance with the policy of the Department and the Service of making accessible and available to the park visitor even the remotest areas of the reservation.

HOSPITAL FACILITIES INADEQUATE.

Among the many responsibilities of the Government in the administration of Yosemite, as in other national parks, is that of providing the public and the local population, consisting of employees of the Government and the park operators and permittees, with adequate medical and hospital facilities. During the summer months the population of Yosemite Valley varies between 3,000 and 11,000 people concentrated in an area of approximately 1 square mile. To a large extent the population is a transient one and exceedingly cosmopolitan, bringing together people from all parts of the country. The opportunity for the spreading of contagious diseases is marked. Furthermore, of these thousands of people a larger percentage are unaccustomed to traveling the trails and taking care of themselves in a country of extraordinary ruggedness as is that surrounding Yosemite Valley. The result is that accidents are numerous. For the most part it is true by far the greatest number of accidents are minor ones, but occasionally there is a serious one, and those involving broken bones are not at all uncommon. As a result, demands of every kind are placed upon the medical and hospital service, and as the nearest service of this kind available is approximately 100 miles away it is quite essential that the park be prepared to reasonably meet these demands.

This we are not able to do at present, and throughout the summer months, even after utilizing tents for patients and placing them on the present hospital porch under conditions wholly unsatisfactory, the turning away of applicants in need of hospital attention because of lack of space is an ordinary event. A new hospital building is absolutely essential and an item has been included in the Budget for 1925 for that purpose. Furthermore, I believe the park hospital should be conducted by the United States Public Health Service, and at our suggestion this is being given consideration by the officials of that service. We were fortunate in having had the situation examined by the Assistant Surgeon General of the United States Public Health Service during the past summer, and it is believed that his report on the situation will be of real aid in convincing the Bureau of the Budget and Congress of the need for better facilities.

ROADS—THE GREAT PROBLEM.

Every year's increase in travel only emphasizes further the desirability for better roads in Yosemite. Year after year, for many years past, estimates have been submitted for this purpose, but appropriations have not been granted. In the meantime conditions become more and more aggravating and the administration of the park more and more difficult by the continual complaints from visitors against the poor road conditions. Of 138 miles of Government-owned roads in the park, only 8 miles have been constructed under congressional appropriations, the remainder having been built from 30 to 50 years ago by private concerns as toll roads for horse-drawn traffic. Of course, no consideration was given to their adaptability to motor travel, and as practically nothing has been done upon them in the way of improvement since they were built, they are essentially in the same condition as when built. Narrow, abounding in sharp curves and exceedingly steep grades, and without surfacing

of any kind, accidents are frequent. That there have been no mortalities since the opening of the park to automobile travel is truly remarkable considering the great number of accidents that happen as a result of cars leaving the grades and frequently turning over two or three times before coming to a halt against a tree or rock. The Wawona Road, the heaviest traveled of any of the mountain roads, is for the most part wide enough to pass only at an occasional built turn-out, and yet over that road during the months from May to October between 30,000 and 40,000 automobiles pass. There are probably few roads on which Federal money has been expended that are as heavily traveled as this road. Considering usage as the best argument for expenditure of money on improvement, this road as well as other roads in the park is entitled to consideration, and it is to be hoped that early approval can be given to the general park road improvement budget.

GRAND CANYON NATIONAL PARK, ARIZ.

In the four years of its existence the Grand Canyon National Park has more than justified the action of Congress in setting it aside as a national park, not only because it exemplifies one of the Creator's masterpieces in world architecture but because its ready accessibility to the public by train and motor has been proven. Visitors are resorting to it in greater numbers and are using it more wisely and intelligently than at any time before. Probably the outstanding feature of the year is the fact that 102,166 persons visited the park last year, which is an increase of 170 per cent over the number of persons visiting it in 1919, the year of its establishment as a national park. Automobile travel to it has increased 300 per cent during the corresponding period.

PLANS FOR FUNCTIONAL DEVELOPMENT UNDER WAY.

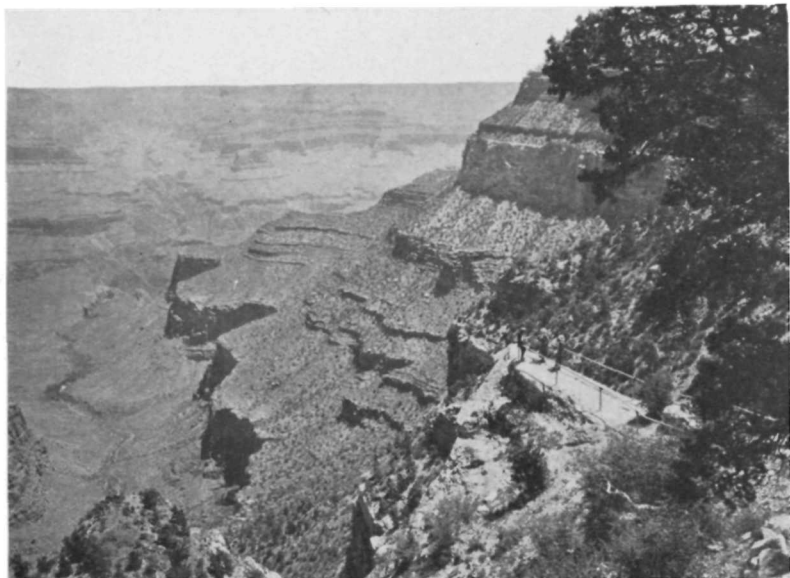
The heavy increase in travel has brought with it problems of administration and development which require early solution. The present excellent facilities provided by the Santa Fe Railroad and Fred Harvey for accommodation of the visitors are, nevertheless, going to be insufficient and will have to be expanded in the near future. The larger use of the park by motorists has brought prominently into view not only the need of increased camp grounds but also the necessity for more and better methods of sanitation, for better protection and care of visitors and property, and better arrangements for all service operations with the least possible friction between the various functions which exist in an all-year-round park, where, in addition to the large number of visitors monthly, there also of necessity exists a considerable community of essential employees and others who are entitled to live and work under modern conditions.

An idea of the problems connected with the proper development of the park may be gained when it is realized that there are four distinct functions or activities that must be provided for. These are grouped under public and community areas, park operators' areas, railroad areas, and park service areas.



Photograph by F. B. Loomis.

BUTTE LAKE, FORMED BY LAVA FLOWS OF CINDER CONE.
LASSEN VOLCANIC NATIONAL PARK.



Photograph by Santa Fe.

RECENTLY OPENED OBSERVATION POINT AT THE HEAD OF BRIGHT
ANGEL TRAIL.
GRAND CANYON NATIONAL PARK.



Photograph by A. E. Demaray.

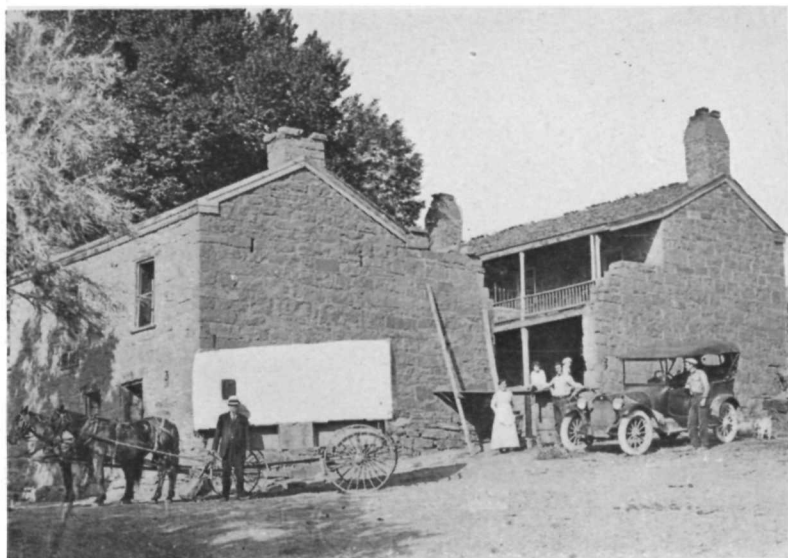
THE EDWIN BRIDGE, UTAH. THE INDIAN NAME IS OWACHOMO,
MEANING "ROCK MOUND."

NATURAL BRIDGES NATIONAL MONUMENT.



Photograph by A. B. Cammerer.

REMARKABLE PREHISTORIC RUIN IN NEW MEXICO
AZTEC RUIN NATIONAL MONUMENT.



A MEMORIAL TO EARLY WESTERN PIONEER LIFE IN ARIZONA.
PIPE SPRING NATIONAL MONUMENT.



Photograph by Pinkley.

RUINS OF ONE OF THE EARLIEST SPANISH MISSION CHURCHES IN
NEW MEXICO.

GRAN QUIVIRA NATIONAL MONUMENT.



Photograph by Pinkley.

THE MONUMENT MUSEUM, WHICH PROMISES TO BECOME RENOWNED
IN THE SOUTHWEST BECAUSE OF RELICS AND ARTIFACTS OF PRE-
HISTORIC PEOPLE IT HOUSES.

CASA GRANDE NATIONAL MONUMENT, ARIZ.



Photograph by F. Ransome.

THE RECENTLY BUILT CUSTODIAN'S RESIDENCE.
MUIR WOODS NATIONAL MONUMENT, CALIF.

These areas must be fixed with consideration to their functional relations to one another, of their physical characteristics and the topography of the areas available, of their administration as a whole, and of their unavoidable physical intrusion into an area set aside for the preservation of its natural features.

A step of inestimable importance in the proper solution of these problems has been taken during the past year by the employment of a noted firm of architects to make studies and plan for the future development of both the railroad and the Fred Harvey operations. This firm, in cooperation with the landscape engineer of the Park Service and the superintendent, has made the necessary studies, and with consideration for the probable reasonable demands for a considerable period in the future, has evolved a tentative plan for further discussion and study. Whether this suggested plan can be adopted and carried out in all its details without some modifications and changes it is yet too soon to state, but nevertheless a stride forward of enormous importance has been made through the broadmindedness and vision of these interested public operators. The benefits from such action are already shown to some extent, and the service is now enabled to plan for certain necessary improvements for the accommodation of the public and for housing the permanent park forces.

GRAZING AND THE RIM FLORA.

The park floral display below the rims of the canyon is extremely varied and beautiful in successive seasons, but the lack of such display on the rims is largely due to cattle grazing. Permits for grazing stock on park lands have been materially decreased, but to refuse to grant any permits for grazing on park lands while permits for stock grazing on the adjacent national forest lands are being issued would simply result in a certain amount of trespassing by stock in certain seasons of the year. Financial adjustment of this trespassing does not compensate for the damage done and to prevent trespassing by legal means has proved ineffective. A stock-proof fence to separate the park lands from adjacent grazing areas may be necessary. If grazing could be altogether abolished, the floral display on the rims of the Grand Canyon would add immeasurably to the beauty of the park.

DAILY LECTURE GIVEN.

An accomplishment of inestimable value to both the park and the visitors has been the installation of daily lectures on the attractions of the Grand Canyon. The space and facilities for these lectures were provided by Fred Harvey in the music room of the El Tovar Hotel, and all visitors, whether guests of the hotel or not, were welcomed. The keen interest that has been taken in these lectures may be judged by the fact that the total attendance during the past year was 17,276 persons.

ADMINISTRATION SATISFACTORY.

The general administration of the park has been very satisfactory and the helpful spirit of cooperation between the park forces and the local and near-by authorities has been very gratifying.

ROCKY MOUNTAIN NATIONAL PARK, COLO.

An important event of the year in Rocky Mountain National Park and a substantial evidence of the cooperation of the community with the National Park Service, is the construction of an administration building on the lot donated to the United States for this purpose by the Woman's Club of Estes Park village. This building will be completed during the present year, and will provide the park with permanent headquarters, in place of the rented quarters that have heretofore been utilized. The building is attractive in design and will be a credit to the park and to the community. It is located in the village of Estes Park, a quarter of a mile south of the main street, and on the road to Moraine Park and Glacier Basin.

ROAD AND TRAIL IMPROVEMENT GREATEST NEED.

A considerable proportion of the visitors seem to be interested primarily in the opportunities for automobiling in Rocky Mountain Park. The total length of roads in the park is 68 miles, and consequently, their stay in the park is usually brief. Aside from the Fall River Road, there are less than 30 miles of road within the national park and all of these are within 10 or 12 miles of Estes Park. Several of these roads are not such as to tempt a motorist who is not trying to reach a definite point but is out for a pleasure ride. In less than a day an automobile party can cover all of the roads on the eastern side of the park, and on the following day they are apt to depart, feeling that they have seen everything that is accessible to them. For this large class of visitors it is important to put the present roads in a safe and satisfactory condition. A few new roads or extensions of present roads should be built in the future, but the most urgent need at present is for the improvement of existing roads.

Another class of visitors come for a longer stay of perhaps several weeks, expecting to spend their vacation taking trips on foot or with saddle horses. These have opportunity to see much more of the park, and to see it in a more leisurely manner that brings a higher degree of enjoyment and appreciation. For this class of visitors the trails should be improved. Nearly all of the trails in the park were built before the area had been set aside as a national park. Many of them are steep and rough and often unsuited for use by saddle horses. Limited funds have been provided for maintenance, but it has not been possible to do much toward the improvement of present trails or the construction of new trails. Rocky Mountain Park will never be fully opened up by automobile roads, but it has great possibilities as a delightful trail park. There is little question but that if the trails were improved more visitors would extend the time of their stay in order to take the trips that were offered. There are about a hundred miles of trails in the park, but only a very few miles have been built by the National Park Service, and most of the trails are not in satisfactory condition. The construction of trails is much less expensive than the construction of roads, and more funds should be provided every year for trail betterment.

The greatest need, therefore, of Rocky Mountain Park, is improvement of its roads and trails. The unprecedented rains of the

summer caused much damage to the park roads and point out the need for additional culverts and adequate bridges of permanent construction. With the large number of visitors coming to the park and the heavy travel on the roads, it is becoming more and more imperative that considerable improvement in roads be made every year until they are up to the standard of national highways. This will require adequate appropriations. Road surveys have been made this year, as a preliminary step toward the betterment of the roads, since they make available exact information regarding grades and other physical conditions. The improvement of the trails should be carried on at the same time. The present roads and trails are outgrown, and if the number of visitors are to hold to the present figures, which are lower than in previous years, or show future increases, some decided improvements must be made in the facilities offered.

EMPLOYEES' QUARTERS SHOULD BE PROVIDED.

The housing of the park employees is a problem that should be met in the near future. No quarters are available for the clerical employees, and the salaries paid do not take into account the cost of the quarters they provide for themselves.

The road crews also should have quarters provided, so that it would not be necessary to pitch tent camps on snow-covered ground at high altitudes early in the season. The park can secure a better grade of men if reasonable living conditions are offered.

THE SNOW-REMOVAL PROBLEM.

The problem of snow removal from the Fall River Road is one that recurs each spring. The snow work extends for 5 miles on each side of Fall River Pass (altitude 11,797 feet), the maximum depth of from 15 to 20 feet being reached just east of the pass. Many thousands of cubic yards of snow have to be removed each year. The most economical and quickest method of doing this work would be to use a steam shovel, but in the absence of this equipment the work is done by hand shoveling, using teams and explosives when they can be employed to advantage. The railroads, the transportation company, and the private autoists are anxious to have the road opened on the earliest possible date, but the date set, June 15, has been met in only one year out of three, and that year (1922) was one of unusually light snowfall. While the service desires to set the earliest opening date for the road that can faithfully be lived up to, it is necessary to keep the expense of snow removal to a minimum.

NATURE-GUIDE SERVICE.

During the past year Rocky Mountain National Park for the first time has offered opportunities to visitors in the way of nature study. Mr. J. M. Johnson was engaged as park naturalist to conduct our nature-guide service. The park has no hall or auditorium where evening lectures can be given, so talks were given at the larger hotels. Each talk was followed by a field trip the following morning, for the identification of flowers, birds, and trees. This service met with much favorable comment and requests that it be continued.

A PARK MUSEUM NEEDED.

The educational work of the park would be made much more effective by a building to be used as a museum and information office. A location for this building is now available, and if a building for this purpose can be constructed, most of the exhibits can be obtained by donation. The animals, birds, trees, and flowers, as well as the glacial history of the region, can be illustrated by photographs and specimens. Such a museum would attract a very large part of the visitors to the park and would give them a truer appreciation and keener interest in the park. Information regarding roads, trails, what to see and how to see it would be available in the same building. Conservation and protection work can be made more effective if the interested attention of a large part of the visitors can be secured.

PUBLIC CAMP GROUND AND UTILITY SITE.

Funds were provided this year for the purchase of land to be used for a public camp ground and for a utility site. Proposals have been sent to many property owners whose land would be suitable for camp sites, but in most cases they are either unwilling to sell at all or else they are unwilling to sell a small piece without selling their entire tract, which is usually 80 acres or more. In the latter case the price is not within our reach. It is hoped that some solution of this problem can be worked out this year, as the need for a public camp ground is becoming more and more acute.

A utility site has been selected and negotiations for its purchase are in progress, but the tract is not yet available for park use.

DECISION IN SUIT REGARDING COMMERCIAL TRANSPORTATION.

The decision of the Federal circuit court, handed down October 2 last, upholding the right of the Secretary of the Interior to make and carry out reasonable regulations governing traffic and commercial enterprises within the national parks, is one of great importance, as it confirms and upholds the policy of the Department of the Interior to exclude from the national parks all commercial enterprises except those necessary for adequate service to the public and operated under Government franchise. The decision, while applying to the Rocky Mountain National Park, is applicable to all the parks.

The Rocky Mountain National Park is open to motorists, campers, and, in fact, all visitors, without entrance fee. On the other hand no one can engage in business in the park without written permission from the Director of the National Park Service. In order to provide adequate transportation service in the park, the Government granted the Rocky Mountain Parks Transportation Co. a franchise to carry passengers in the park for hire. It operates as a public utility and may be compared to a street-car system in a city. The company is required to operate scheduled service every day throughout the park season and to pay to the Government a tax on its franchise, this tax being based on the volume of business transacted by the company. The Government supervises the rates and other matters of operation. To fulfill the conditions of its franchise the company was compelled to make a large capital expenditure, and in

order to permit the company to make a reasonable profit on its investment other operators of for-hire cars were excluded from doing business within the park.

In July, 1920, Charles Robbins attempted to carry passengers for hire in the park in violation of the regulations, and the Federal district court granted an injunction against his operation within the park. The case was appealed to the Federal circuit court, the hearing being held in January, 1921. The decision of the court is a decree in favor of the Government.

MOUNT RAINIER NATIONAL PARK, WASH.

The popularity of Mount Rainier National Park as a tourist resort is attested to by this year's travel figures of 123,708 visitors, and firmly establishes the place the great playground of the Northwest occupies in the national park system.

Magnificent highways leading to three entrances to the park and hotel and camp accommodations equal to the best found in the national parks prove the faith of the people and business men of the State of Washington in the future of this recreation center. Plans for further hotel and camp developments already made await only the action of the Federal Government in making other districts of the park accessible to visitors. Only one small section of the park is reasonably accessible, and the congestion there is such that existing facilities can not accommodate the visitors as they have a right to expect. Should two or three million dollars be granted for road, trail, and camp ground development, during the next three years, the Federal Government will be doing far less than has already been done by the State and adjacent counties in making the park accessible.

INADEQUATE CAMP GROUNDS.

Far more people availed themselves of the use of the free public camp grounds this year than ever before. A few seasons ago, when the camp grounds were laid out in this park, they were considered spacious enough to accommodate all the campers that might care to use them for many years to come. Travel has grown to such an extent that the comparatively small midweek crowds desiring camping space could not be comfortably accommodated this year. On week ends the inadequacy of all facilities was forcibly demonstrated.

ROAD IMPROVEMENTS AND NEEDS.

The new Carbon River Road opens a section of the park to autoists heretofore inaccessible except by foot and horse travel. Ending, as it does, near the great Carbon Glacier, this road, when completed, will afford modern comfortable automobile trips to the snout of one of the world's great ice rivers. Many interesting and beautiful places, such as Spray Park, Mystic Lake, Cataract Falls, Moraine Park, and numerous other scenic points are easily reached by walking or riding horseback from this road. As this part of the park is nearer Tacoma and Seattle than any other entrance, by 14 miles and 20 miles, respectively, there is every reason to believe that it will be the most popular part of the park when accommo-

dations are provided. The 2 miles of uncompleted approach highway will be finished early next spring. Unless the new road in the park is surfaced with gravel or crushed rock before midseason, it will be worn to mere ruts and chuck holes that will be expensive to repair.

A wide, surfaced road into the White River district is one of the most urgent needs of the park. The completion of the Naches Pass Highway to the White River entrance has brought visitors to this side of the park in numbers we are unable to handle. Over 25,000 people came into the park at this entrance this season. These people came into the park over 4 miles of extremely poor wagon road, with no other provisions made for their comfort. A surfaced road into the park, parking space, and a few simple comforts for camping should be provided next season.

Satisfactory progress was made on widening for two-way traffic the Nisqually Paradise Road, notwithstanding that improvement operations were carried on at night in order not to interfere with travel. Three miles from Paradise down to the new road above Narada Falls were widened and the new road surfaced with crushed rock for one-way travel. By using the old road or switchbacks for uptraffic and the new road for down travel, free movement will be permitted next season.

If funds are available, the remaining narrow part of about 1,500 feet of rock cliff, near the Nisqually River above the Nisqually Glacier station, will be widened and the entire road opened for two-way travel by next July. The road should then be surfaced with crushed rock from Longmire to Paradise Valley. There is an insistent demand for a hard surfaced road from Nisqually entrance to Longmire that can be kept open for winter travel. The possibilities for the development of winter sports at Longmire are almost unlimited, and the operating company is ready to maintain adequate winter hotel service if assured of means for visitors reaching there. By providing a concrete paved road for the $6\frac{1}{2}$ miles from the entrance to Longmire, the difficulties of removing snow for automobile travel can be easily overcome. It is believed the additional revenues that will accrue in keeping the park open for the enjoyment of the people for 12 months instead of 3 or 4 would more than repay the cost of the paving.

The proposed new west side road to connect the north and south sides of the Park should be constructed as early as possible. In addition, there is a strong demand for a north side road to connect the White and Carbon River Roads. The completion next summer of the Naches Pass Highway, connecting the Puget Sound with the Yakima and southeastern Washington country, will open direct communication between two great sections of the State. Passing the corner of the park, a great part of the travel will want to pass through the park, visiting and enjoying the many scenic points that can be made accessible. Many people who would not otherwise have the time to visit the park can spend a few hours or a day in enjoying its beauties, with little or no delay in their affairs.

PERMANENT TOURIST FACILITIES EXPANDED.

The public service corporation, the Rainier National Park Co., organized by public-spirited business men of the Northwest, who are interested in the park wholly aside from the prospect of financial return, to develop hotel, transportation, and other facilities, has continued to add to its equipment, keeping pace with the increased demand.

Plans have already been made for extensive developments at Paradise, Carbon River and White River and will be executed as soon as practicable. In this connection, it should be noted that the company has actually expended more in development during the last 6 years than the Government has during the 24 years that have elapsed since the park was created.

GLACIER NATIONAL PARK, MONT.

In common with the majority of the other national parks, Glacier experienced her most successful season, enjoying more patronage than in any previous year, 33,988 visitors having registered in the park as compared with 23,935 visitors in 1922. This is only a forerunner of a tremendous increase in travel that is certain to take place on the completion of the Transmountain Road, now in its third year of construction. Motorists traveling the northern highways to Glacier have never had a direct route across the Continental Divide, this barrier requiring a detour of several hundred miles to the south. The Transmountain Road, crossing the Divide through Logan Pass, will, aside from furnishing a direct means of traversing the mountains, attract thousands of motorists by its unsurpassed scenic qualities.

ACCOMMODATIONS MUST BE EXPANDED.

The existing hotel and chalet facilities were overtaxed during the peak of the season, and with the nearing completion of the Transmountain Road a serious problem is presented in the matter of furnishing to the visiting public adequate accommodations. These must be anticipated and provided before the park is overwhelmed. The Glacier Park Hotel Co., with its heavy investment in the present hotels and chalets, is reluctant to enter upon a program of extension involving heavy capital expenditures, and it may be necessary to secure new capital to undertake the further extension of facilities in Glacier Park. It is believed the aim of such extension should be to take care of inthronging motorists and should be modeled along the lines of the existing permanent camps in Yellowstone National Park, to provide comfortable tent accommodations and plain wholesome meals at a low and reasonable cost.

ROAD AND OTHER IMPROVEMENTS NEEDED.

Coincident with this year's increase in travel, there was an unusually wet spring, which demonstrated that both the present east side and west side road systems must be materially improved by graveling all ungraveled portions and widening for two-way traffic throughout. Great improvement of the east side road system will

be accomplished if the Montana State Highway Commission's Federal aid projects for the relocation and reconstruction of the Divide Creek Hill section of the Blackfeet Highway and the Babb-International Boundary section, both through the Blackfeet Indian Reservation, are approved and constructed. Recommendations have been made to the Bureau of Public Roads that both of these projects be approved, and assurances have been given of approval by that bureau. It is hoped that both sections will be constructed at an early date.

Trail maintenance funds proved wholly inadequate to keep the trail system of the park in good condition. The most traveled trails were kept in fairly good shape, but hundreds of miles of trails in the remoter sections of the park had to be neglected. Glacier is primarily a trail park, and it is most essential that sufficient funds be appropriated annually by Congress to keep all the trails maintained in good condition.

Camp grounds should be enlarged and provided with proper sanitary facilities and pure water supply. The telephone system, at present very inadequate, should be brought up to standard, not only for the protection of visitors, but for the purpose of providing an adequate means of fire patrol and communication service. Additional trails should be constructed, particularly in the northern part of the park, so that it might be possible to travel from east to west, or vice versa, without making long detours into Canada. Adequate provision for housing park rangers, both on summer fire patrol and permanent winter stations, should be made, and a sanitary sewage system should be installed at park headquarters at Belton.

NATURE GUIDE SERVICE.

The nature guide service, inaugurated in Glacier Park last summer in cooperation with the University of Montana, was continued this year by Doctor Elrod. A nature guide information desk was maintained at Many Glaciers Hotel and proved very popular with visitors. A park museum, where evening talks on the flora and fauna of the park can be given and for the display of floral and faunal specimens, is needed, as it has been found that the lobbies of the hotels are not suitable for these purposes.

NOTES ON GAME AND FISH.

Fishing in the park was unusually good the past season, as a result of the extensive stocking of park waters during the past several years, undertaken with the cooperation of the United States Bureau of Fisheries, which operates a fish hatchery at Glacier Park station. In order to operate this hatchery to capacity, spawn should be collected in the park to supply our own needs as well as to furnish fry for other sections of the country.

The park game came through the winter of 1922-23 in good condition, and a campaign of extermination waged against mountain lions and coyotes has shown beneficial results. Nine mountain lions and five coyotes were killed. The continued slaughter of game on the Blackfeet Indian Reservation, which adjoins the park on the east, was again in evidence. As most of the Indians have received patents to their allotments, an effort is being made to determine whether

these Indians are subject to the same game laws as the whites, the State game warden of Montana having a case now pending in the State courts which should decide this matter.

CRATER LAKE NATIONAL PARK, OREG.

This year Crater Lake came into its own, taking its merited place as one of the most popular parks. Approximately 57 per cent more visitors registered during the season than during the preceding year, 1922's total attendance being surpassed two days after midseason. Every State but two was represented, visitors coming from as far as Hawaii, Switzerland, and Holland. A notable feature of this record attendance was the great influx of Californians, the number of first entry cars from that State during July equaling first entries from Oregon itself.

Park facilities in every way equaled the unprecedented demands upon them. The tourist camps were enlarged early in the season, ample sanitary facilities installed, and additional water supply provided. The operators kept apace similarly, so that at no time were the hotel, transportation, or launch facilities jammed. Early in the season, as it became apparent that visitors preferred accommodations in view of the lake, the lodge management removed the tent houses from Anna Spring to the Rim and were thus able to take care of all demands for lodging. The only difficulty encountered in handling the greatly increased travel was a temporary shortage of water at the Rim, a crisis being avoided by installation of two additional 20,000-gallon storage tanks.

Administration was hindered by the location of the park office and employees' residence at Anna Spring, $3\frac{1}{2}$ miles from the industrial units at Government camp and 5 miles from the lake. A few alterations and minor additions to the layout at Government Camp will correct this condition next year.

LODGE ADDITION NEARING COMPLETION.

The new addition to the lodge is fast nearing completion and will be furnished and ready for use next season, making a total of 147 well-furnished rooms, a large number equipped with bath and all with running water. This large building, together with the comfortable tent houses, should suffice for some time to come. This new structure, with its furnishings, additional water supply, sewage disposal system, etc., represents a large investment made by the new operators headed by Mr. Eric V. Hauser and Mr. R. W. Price, of Portland, with no assurance of immediate returns, and is a visible evidence of their fine public spirit and their faith in Oregon's greatest playground.

APPROACH ROAD IMPROVEMENT.

A most gratifying development has been the notable improvement of approach roads to the park. The Crater Lake Highway out of Medford is now nearing completion and by next season will be widened and surfaced to the park gate. The work on the Klamath Highway has been similarly pushed even more energetically. Construction of The Dalles-California Highway is being carried along

rapidly, so that within two years it will be a most important approach highway.

ROADS WITHIN THE PARK.

The unprecedented travel over our own 57 miles of roads punished them severely, and while they were maintained as something better than passable the time has come when surfacing is imperative. Oregon has spent and is spending tremendous sums to bring visitors safely and comfortably to the park gate, and in simple justice to all concerned the Federal Government must hold up its end. All three entrance roads contain stretches of volcanic dust which rut deeply and dust up miserably but which can be surfaced at comparatively small cost. The improvement of these stretches together with the light graveling of about 25 miles of the park road system is not only an immediate need but an absolute obligation.

OTHER PUBLIC FACILITIES.

Aside from the road situation, public facilities are in excellent condition and balanced nicely against requirements. With a few exceptions, sanitary provisions and water supply are well ahead of demands, trails are adequate and well maintained, sufficient dockage is provided on the lake, and auto camp grounds are well distributed and were splendidly maintained all season. Firewood has been available in all camp grounds. A number of new signs designed to reduce speeding at critical points were put up and traffic so regulated that no one was injured throughout the entire season, only two minor collisions occurring.

The reaction of visitors to the efforts of the park forces was beyond praise, nearly all being imbued with the finest possible spirit—that splendid spirit that tends to highest development among men and women who gather nightly around camp fires in the mountains.

WILD ANIMAL LIFE ABUNDANT.

Wild life has been more abundant than heretofore, several bears daily visiting Government Camp to be fed or kodaked liberally by visitors. They became quite tame by midseason, a fact which unfortunately makes such of them as do not hibernate within the park easy game for hunters. Deer have been exceedingly abundant. Several elk, progeny of the herd transplanted into Klamath County, have been seen occasionally. Foxes, timber wolves, and coyotes were not uncommon sights, and one cougar was reported. Small game is present in countless numbers. Bird life has also been very abundant; a number of rare birds have been identified, and an unusual number of humming birds have been present in the great fields of wild flowers that carpet the forest glens. The ranger force is, however, not sufficient to adequately patrol the 249 square miles of park to protect against poaching.

The fishing has been unusually good. Trolling was not so dependable as usual, but fly fishermen easily took the limit of large rainbows from the lake. The silversides planted in the lake last year have done well, having grown to 10 or 12 inches. Stream fishing was also satisfactory. Both lake and streams were restocked with trout this summer.

IMPROVEMENTS.

The most noteworthy physical improvements have been the construction of a large cabin at Lost Creek for the use of early visitors entering by the east gate; the construction of a 70-foot boat landing at Wizard Island; construction of flush toilets and septic tank at the Rim auto camp grounds and the installation of water-heating apparatus; construction of flush toilets at Anna Spring; a large barn at Anna Spring; the laying of over 1,000 feet of additional water line for the convenience of campers; and the provision of 40,000 gallons additional water storage. A large amount of minor improvements have been made, all designed for the safety, comfort, and convenience of campers. It is a source of genuine pride that sanitation has been so handled throughout the years that not one of the hundred streams and springs of this large park is posted as not potable.

NO ACTION TAKEN ON DIAMOND LAKE EXTENSION.

The proposition to incorporate Diamond Lake together with Mount Thielsen and Mount Bailey into Crater Lake National Park is still pending. If this desirable rounding out of the park is to be accomplished it must be undertaken immediately, before the project is further complicated by long-term leases of lake front footage. Unless action be taken soon private interests will have thoroughly consolidated their holdings and a lovely area forever lost to free access by the people of America.

CHANGES IN ADMINISTRATION.

The resignation of Mr. Alex Sparrow as superintendent in February was a distinct loss to the service. An indefatigable worker and gifted with a rare personality, he typified the ideal park man. Mr. C. G. Thomson was appointed to fill the vacancy.

SEQUOIA NATIONAL PARK, CALIF.

Perhaps the outstanding feature in the Big Tree Park is the progress in permanent improvements that has continued despite smallness of appropriations. A winter headquarters has been built at Alder Creek, 1,600 feet altitude, where, for the first time in the 33 years of the park's existence, its personnel and material will be concentrated during the seven or eight winter months. A new water system for Giant Forest has been successfully installed for the estimated sum of \$18,670, despite the fact that these figures were based on joint construction of a water and sanitation system; so that with the latter item disapproved the water system had to bear the overhead costs for both systems. That the work was completed within the appropriation reflects credit on the park personnel.

TRAVEL AND CAMP DEVELOPMENTS.

The travel for the 1923 season was 9,796 autos and 30,158 visitors, a gain of 1,910 autos and 2,644 visitors over 1922, due to heavier patronage from distant points in California and other States. Local visitors were fewer owing to tightened finances in the San Joaquin Valley. The steady increase in visitors from 1,251 in 1908 to 30,158 in 1923 has been unaccompanied by appropriations to provide public

camp grounds, but which have been developed with difficulty from the sums provided for maintenance. The park appropriation for general purposes, exclusive of new construction, has not been increased since 1920, when \$35,000 was granted.

THE GENERALS' HIGHWAY.

This new avenue of approach to the sequoia forests is nearing completion. Over 5 miles of grading are done, and before snow flies this fall connection should be effected with the old Smith Grade, 4½ miles from Giant Forest. Thus it will be possible to motor to the Big Trees at all seasons, although, until the new road has settled and is metaled, traffic interruption at times must be expected.

There will remain to be built the switchback up to the Giant Forest Road from the Smith Grade and the reconstruction of the 6½ mile section of old road between Hospital Rock and park boundary. When this is done the park will connect with the new State highway, on which \$300,000 has been spent between Three Rivers and the park, and an unrivaled approach to the Mammoth Trees and the High Sierra will be available for the swelling flood of motor tourists.

The costs on this road project have been kept remarkably low by Chief Civil Engineer Goodwin and General Foreman Small, while construction has been of such a nature that, when Congress authorizes, the road may be economically widened to double width. In this connection it is noteworthy to record the care Foreman Small has exercised in protecting the tree growth and natural features along the road, doing this so thoroughly that nearly all of the original beauty of the hillsides has been preserved. I have seen so much devastation in connection with road building in the last two or three years that Mr. Small's work was a revelation in what can be done with care and judgment and should be an example to others who are building roads through scenic mountain areas.

As this is the first link in the highway which will eventually lead from the General Sherman Tree in the Sequoia National Park to the General Grant Tree in the General Grant National Park, the name "The Generals' Highway" seems most suitable for the road and has been officially approved.

EDUCATIONAL AND OTHER SERVICES.

The nature guide service was expanded under the leadership of United States Commissioner Walter Fry and many informative bulletins were issued to newspapers. The Tulare County Library again maintained a branch in the Giant Forest for the convenience of park visitors. A wild-flower show was eagerly studied and additional specimens were prepared for a park museum, which is an urgent need. On August 11 and 12 the second presentation of "Ersa of the Red Trees" was given by Garnet Holme's company of 14 Mountain Forest and Desert Players; there was a larger attendance than last year, and the success of this annual event is assured. On August 10 while our late President was being taken to his final resting place at Marion, Ohio, several hundred people gathered in

the Congress Grove at Giant Forest to witness the dedication by park officers of a mammoth sequoia to the memory of Warren G. Harding. With the assistance of public-spirited campers, an open air church and auditorium was built at Giant Forest, and many religious and secular entertainments were held beneath the Big Trees.

PROPOSED PARK EXTENSION.

Although Congressman Barbour's bill to extend the present park failed of passage in the last Congress, there seems every hope that the park enlargement program will receive favorable consideration next session. The delay has enabled further consideration of boundaries, the adjustment of which, in a forested and mountainous region, is always one of great difficulty.

In view of the increasing travel to California's High Sierra, the rounding out of the present park, by the addition of the Kings and Kern Canyons, is a matter of importance to the American people, who are turning their faces to the hills every summer, eager to reach the comparatively few wilderness spots of supreme grandeur still remaining in America.

PRIVATE HOLDINGS ACQUIRED.

Two of the key spots of the Sierra and the proposed park are safe at last from possible exploitation against the public interest. Redwood and Wet Meadows, comprising 160 acres on the Kaweah River, and Lower Funston Meadows, containing 400 acres on the Kern River, have been purchased by lovers of the region and are held in trust until the areas are included in a national park. A total sum of \$23,000 was raised to purchase these private holdings.

There remain in the Sequoia National Park 1,400 acres in private ownership, but fortunately, with the exception of 40 acres near Atwell Mill, these holdings are, situated at some distance from tourist areas.

LARGER APPROPRIATIONS NEEDED.

The Sequoia National Park should be granted larger appropriation, for, on the completion of The Generals' Highway, there is certain to be a heavy increase of travel with which the park is ill equipped to cope until funds are granted for extension of camp grounds and other betterments.

HAWAII NATIONAL PARK, TERRITORY OF HAWAII.

The remarkable volcanic activity that has occurred in the Kilauea section of the Hawaii National Park during the past year has been the outstanding feature and has attracted world-wide attention. The disappearance of the "Lake of Living Fire" as a result of subterranean disturbances and its reappearance after several months of dormancy have been accompanied by spectacular scenes with fountains of incandescent lava brilliantly illuminating the fumes and clouds above the crater at night. On May 12 last scores of fiery geysers poured nearly 2,000,000 cubic yards of liquid rock into the pit, raising the level of the lake nearly 30 feet. The crater in

July, 1922, was 1,000 feet deep, but by July 4, 1923, the lake was within 120 feet of the rim; on August 25 a score of earthquakes rapidly lowered the level 600 feet, the lake disappearing from the crater to reappear the next day spurting up through fresh earthquake cracks 8 miles distant, destroying many acres of forest and bleaching thousands of ferns with dense clouds of sulphuric-acid gas. The Department of Agriculture and the Hawaiian Volcano Research Association jointly maintain a volcano observatory on the rim of the crater in the Kilauea section for the study of volcanism.

INCREASED ATTENDANCE AND PUBLICITY.

As a result of the volcanic activity and the printing and distribution of 100,000 Hawaii National Park folders by the Hawaii Tourist Bureau, a greatly increased attendance at the park has resulted, the total number of visitors for the year being 41,150 persons, compared with 27,750 in 1922. Much favorable publicity has been given the Hawaii Park through the valuable cooperation of the several newspapers of the Islands and the advertising of the several steamship lines, both interisland and those from the mainland. The Honolulu post office prints "Visit Hawaii National Park; open all year" on 700,000 pieces of first-class mail matter each month; the Hilo post office similarly marks at least 30,000 pieces each month.

Early in the year the Kilauea Volcano House Co. purchased the Crater Hotel, located just outside the park entrance, and used the material to build two cottages, which now give the present Kilauea Volcano House a total of 120 rooms. Even with these additional accommodations the hotel has been filled to capacity at times during the past season, handling successfully a record attendance of nearly 1,000 visitors in one day. The hotel company now has under consideration the establishment of an experimental summer camp. The War Department maintains the Kilauea military camp on a leased area in the park and has enabled over 7,000 soldiers from Honolulu camps to enjoy a visit to this volcanic district at slight personal expense. The conduct of the soldiers has been a credit not only to themselves but to their department.

ADDITIONAL ROADS AND TRAILS NEEDED.

There are but 14 miles of good auto roads inside the park and additional road construction is essential to its proper development. The Six Crater Trail in the Kilauea section, a 10-mile loop, passing the Thurston Lava Tube and 10 craters of various sizes, 2 of which are always steaming, should be developed into an automobile road. A road to connect the Kilauea and the Mauna Loa sections should be constructed. The organic act creating the park authorized the acquisition of a right of way for this road, but owing to lack of funds a location survey has not been made, and until this is done no steps can be taken to secure the right of way. Further trail development in all three sections of the park is also essential, but before extensive road or trail development can be undertaken the inhibition limiting appropriations for the park to \$10,000 annually must be removed by appropriate legislative action.

PARK ENLARGEMENT AND PRIVATE LAND ACQUISITION.

The third or Haleakala section of the park on the Island of Maui contains approximately 21,150 acres one-third of which is territorial land, the balance held in private ownership. The acquisition of this privately owned land by the Federal Government is necessary before development of this section can be undertaken. The Kilauea section should be slightly enlarged to include such natural features as the Thurston Lava Tube, the fossil footprints, and the Kau petroglyphs, which at present are just outside the present limits of the section.

MESA VERDE NATIONAL PARK, COLO.

In spite of the comparative inaccessibility of Mesa Verde National Park by rail and automobile highway and an unusually rainy August, which literally closed the park to travel as result of the heaviest precipitation reported in 47 years, the number of visitors to the park has exceeded that of any other previous season. The fact that 5,236 visitors entered the park this year as compared with only 1,385 visitors in 1916 is proof that Mesa Verde is coming into its own as a great educational park.

CHANGES IN UTILITY AND SERVICE AREAS GREAT IMPROVEMENT.

The Spruce Tree Camp Hotel, together with all its tents, cottages, service buildings, etc., were moved to a new location overlooking Spruce Tree and Navajo Canyons. Accommodations for the public could not be enlarged on the old site, and with the increased travel such enlargement and improvement was greatly needed. Roads were constructed to the new location, and in laying out these roads additional space has been added to the public camp grounds. Sixty per cent of the visitors made use of the camp-ground facilities, which were maintained in a most satisfactory manner. With the removal of the hotel camp to its new site, the development of administrative headquarters has been continued along approved lines and the changes made are a great improvement. The new administration building has been completed, and the new museum building, the gift of Mrs. Stella M. Leviston, of San Francisco, is undergoing rapid construction. These units, designed after the style of building of the early modern Pueblo Indians, are particularly adapted for use at Mesa Verde and fit in with the atmosphere of the park so well as to attract special commendation from park visitors. The furniture, hand carved and constructed by the superintendent, follows the old style and method introduced in the Southwest by the early Franciscan fathers and is worthy of special comment.

MUSEUM A REALITY AND GIFTS.

With the building of the museum have come many additional offers of collections made long ago on the park and these will be accepted and installed on completion of the building. Mrs. Mary T. Sedgwick, of Berkeley, Calif., has generously offered to finance the excavation of one of the Mesa Ruins at a cost not to exceed \$500, the collections made to be placed in the new museum. This work will be undertaken next summer. Another generous gift is that of \$125 made by

Miss Martha White, of New York City, for the purchase of hospital supplies and for payment of doctor bills in case of accidents to park employees.

WATER SUPPLY SERIOUS PROBLEM.

The lack of an adequate and unfailing source of water supply again this season nearly resulted in the closing of the park at the height of the season. On July 3 all construction work was stopped and labor forces and teams sent from the park in an effort to conserve sufficient water to supply the reasonable needs of visitors. The discovery of nearly 200 ancient cliff-dweller dams in a small canyon near park headquarters has given a clue to a proper plan of procedure. Two additional small reservoirs were constructed on the rim rock at the head of Spruce Tree Canyon and 1½ miles of gathering drainage ditches were constructed to convey flood waters to the reservoirs. Additional reservoirs must be built to saturate the sandstone farther back from the seam where the water is regained after a purifying process of percolation through some 200 feet of sandstone. An emergency concrete storage tank of at least 100,000 gallons capacity must be constructed above headquarters to carry the park through protracted periods of drought. This storage tank can be filled in early spring when water is plentiful.

ARCHÆOLOGICAL AND TRAIL WORK.

No excavation work in the ruins was accomplished this season and all funds available for this work will be used in repair work to offset the cumulative damage of visitors' hobnailed boots and the elements. The Rock Springs Trail, a long-awaited development constructed this year, opens up the greatest group of ruins in the park outside the Chapin Mesa group and makes it possible to patrol this hitherto inaccessible portion of the park. Among the larger ruins on this trail which compare favorably with the well-known ruins of Chapin Mesa may be mentioned Spring House, Long House, Double House, Step House, Jug House, Kodak House, Ruin Sixteen, and Pinnacle Tower House. The Navajo Canyon Trail, improved this season, passes 28 other ruins of great interest.

ROADS MUST BE SURFACED.

The Knife Edge Entrance Road was completed and has been in use for over two months. This road provides one of the most spectacular drives in America, as it commands views of tremendous expanses of diversified terrain in the four adjacent States of Colorado, Utah, Arizona, and New Mexico as from an airplane at an altitude of 2,000 feet. Besides widening and reducing heavy grades on existing roads, the surfacing of the main park roads so that rains will not close the park in the middle of the season is an essential improvement that must be undertaken. Constructed through a clayey soil and unsurfaced, the roads are not safe to negotiate in bad weather because of the extreme grades, sharp switchbacks, and turns, and narrowness of roadway.

APPROACH ROAD FROM GALLUP, N. MEX., IMPORTANT.

During the past season stage service from Gallup, N. Mex., on the main line of the Santa Fe Railroad was inaugurated, but on account of unfavorable weather and poor condition of the road or more nearly lack of road after the cloudbursts of August, travel by this new approach was very small. This road is so important as an avenue of travel to the park as well as an outlet for products of the great Montezuma Valley in southwestern Colorado and southeastern Utah that I deem it proper to express herein the hope that the State Highway Commissions of New Mexico and Colorado will give consideration to placing it on their 7 per cent road systems in order that Federal aid may be utilized in its reconstruction into a standard automobile highway. The route is via Shiprock, N. Mex., and Cortez, Colo., and is largely through the Navajo and Ute Indian Reservations. Under decision of the Comptroller General, should the State agree and comply with the other provisions of the Federal highway act, the entire cost of that portion of any public highway across an Indian Reservation may be paid from the funds apportioned under the act to the State within which the reservation is located, but the State must make provision for the upkeep and repair thereof as in other cases. Under this decision nearly the entire cost of construction of the Gallup-Cortez Road could be met by Federal funds.

LAFAYETTE NATIONAL PARK, ME.

The saving of a great landscape for the people by the splendid gift to the Nation of the lands on Mount Desert Island, Me., comprising Lafayette National Park, has aroused such deep interest that further lands of importance have been secured and motor road construction in the park been started from private donations. Congress, in recognition of the growing importance of the park, increased the appropriation for its maintenance and protection from \$25,000 to \$30,000 for the present fiscal year.

THE MOUNTAIN ROAD.

A motor road to the summit of Cadillac Mountain, the greatest elevation near the sea on our Atlantic coast, is projected, and 1 mile, to a splendid point of view, has been constructed with funds privately contributed. From this point another projected road will extend to Bubble Pond, then skirting the side of Pemetic Mountain to the foot of Jordan Pond, a distance of 4 miles. On condition that an appropriation will be made by Congress for the construction of the summit road, promise of private contribution to complete the 4 miles of projected road to Jordan Pond has been made. It is hoped that Congress by such appropriation will enable acceptance of this generous gift. From a national standpoint there will be nothing like the Cadillac Mountain road accessible to our eastern motorists, to whom it will be a boon of the first magnitude. It is the only road proposed to the summit of a mountain in the island chain; the other mountain tops will be reached by trails only and left in native wildness.

A system of bridle paths and roads for saddle horse use is also being constructed in the section west of Jordan Pond and Eagle Lake which, when completed, will be over 20 miles in length and will cover representative portions of the park landscape.

FEDERAL OBLIGATIONS.

While but little has as yet been done by the Federal Government in the development of the park, its use by the people resorting to it has been great. The park is a potential source of enjoyment and interest to many thousands of people annually, but large appropriations, annually, are needed to provide for camping grounds with proper water supply and sanitary facilities for the incoming throngs of motor campers, for construction of foot paths and mountain trails, and for greater protection of the park's splendid forests.

The use of the ocean as a recreational feature, in connection with the park, is increasing rapidly and promises to become an element of great delight for park visitors.

HOT SPRINGS NATIONAL PARK, ARK.

A very satisfactory amount of constructive work has been accomplished in the Hot Springs National Park during the year, including a rearrangement of the park personnel into an effective and economical organization which is giving excellent service; a systematic working plan for the routine activities of the park; the putting into effect of a detailed cost account system; a course of instruction to attendants and other bathhouse employees handling bathers; a complete physical examination of all bathhouse employees at regular intervals, the reports becoming a matter of record; a system of bacteriological examinations of the water from the springs on the park, and the adoption of necessary public health measures over the entire park area to prevent soil pollution and the breeding of mosquitoes.

The old free bathhouse was condemned and demolished during the year. Two modern comfort stations on the Central Avenue front were practically completed by the end of the year, filling a long-felt need.

The historic Arlington Hotel was destroyed by fire during the year and a flood occurred, causing heavy financial damage, happily, though, with no loss of life. The exaggerated reports spread broadcast as to the effects of the flood materially affected the attendance and business of the resort, although bathing was interfered with for one day only.

GOVERNMENT FREE BATHHOUSE AND CLINIC.

A total of 3,885 persons bathed in the Government free bathhouse during the year, receiving 57,553 baths. Of the individuals receiving baths, 2,743 were new applicants. The total number of baths given in all bathhouses was 667,212.

A total of 3,389 persons were examined and treated in the free clinic during the year. Of these, 1,905 were venereal and 1,484 nonvenereal cases. The total number of treatments and examinations given was 49,130. The course of instruction for physicians was continued and 36 have now completed it.

PAY BATHHOUSES.

With the completion of the Lamar, the last bathhouse site on the "Row" has been occupied. The Pythian Bathhouse and Sanitarium, a colored institution of the park, was completed and placed in operation.

The total profits reported by 17 bathhouses were \$101,171.28. Three bathhouses reported a deficit for the year. The total baths sold were 695,844, while the total baths given were 608,406, showing a heavy loss through redemption of paid baths.

SANITATION AND PUBLIC HEALTH MEASURES.

A course of instruction was given bath attendants during the year, the subjects covered being general and personal hygiene, the operation of the bath, first aid, ethics and regulations of the department. A complete physical examination was made of all employees of the bathhouses and health cards issued to each of them. This examination was continued at regular intervals during the year and the results noted on the individual health cards. No attendant is permitted to work unless free from all communicable diseases.

MOUNT M'KINLEY NATIONAL PARK, ALASKA.

With the completion of the Alaska Railroad from Anchorage on the coast to Fairbanks in the interior, the Mount McKinley National Park, which offers in the tremendous uplift of Mount McKinley, altitude 20,300 feet, the climax of Alaskan scenery, focused the attention of tourist travel on Alaska. Several large parties, including the presidential party, numbering 70 persons, and the congressional party, numbering 65 persons, came to the very gates of the park, but were unable to enter because of the lack of roads and accommodations. While a permit was given last winter to operate a pack and saddle train service into the park, under which three camps were to be established extending 50 miles into the park from the railroad at McKinley Park station, only one camp was operated, this being at Savage River, 12 miles from the railroad. The difficulty of travel by saddle and pack horse and the primitive accommodations available deterred all except the most hardy visitors from making a purely park trip. The number of persons actually to make a park trip this year was 34, as compared to 7 in 1922.

DEDICATION OF THE PARK.

The Brooklyn Daily Eagle party, numbering 70 persons, which was specially organized as the result of an invitation from your predecessor to assist in the dedication of the park, was one of the largest parties to visit Alaska. On instructions from you the formal dedicatory exercises for the park were held on the occasion of their visit to the park on July 9. Plans had been made to transport the party to Savage River, at which point the dedication services were to have been held, but because of the difficulties of the trip this plan was abandoned, the services being held at the entrance to the park. A mountain-sheep barbecue served in the open air followed the ceremonies. The formal speech of dedication was made by William V. Hester, jr., son of the president of the Brooklyn Daily Eagle, who

declared Mount McKinley National Park to be formally dedicated to its rightful owners, the people of the United States.

THE GAME SITUATION.

Although the park was created primarily for protection of its vast herds of caribou, mountain sheep, and other game, the law creating the park permits mining and prospecting, and prospectors and miners in the park may take and kill therein so much game or birds as may be needed for their actual needs when short of food, but in no case are animals or birds permitted to be killed for sale or removal therefrom or wantonly. There have been a large number of prospectors in the park during the year, and it is reported by the superintendent that most of these prospectors do not observe the rules and wantonly kill game for themselves and dogs. On a recent trip through the park the superintendent reported evidences of many recent and wanton killings, and as a result only 300 mountain sheep had been counted, whereas on previous trips never less than 800 sheep could be counted. The game supply of the park is still large, but the game is being driven back from the trail through the park, and if the present rate of destruction continues the object for which the park was created will be defeated. It is impossible to cope with this situation on the small annual appropriation of \$8,000 now granted for the park, as this permits the employment of only the superintendent and one ranger. Prospecting is widespread and travel is difficult through this area of 2,645 square miles.

COOPERATION OF ALASKA ROAD COMMISSION.

The construction of a road into the park and the extension therefrom of a good trail across it is the park's greatest need. In this connection grateful acknowledgment is made for the splendid co-operation given the service by the Alaska Road Commission, which has prepared a project covering this road and trail. During the current year the commission is spending \$5,000 on a permanent park road from the railroad at McKinley Park station to the park boundary at the head of Hines Creek. During last season the commission expended nearly \$2,000 in brushing out the trail across the park via Sable, Polychrome, Highway, and Thorofare Passes to the foot of Muldrow Glacier, then down the McKinley River, passing out of the park at Wonder Lake and on to Kantishna post office. At confusing points the trail was tripoded and eight tents with small stoves were erected at about 10-mile intervals for shelter. Mile posts were erected and sign posts placed at principal points.

GENERAL GRANT NATIONAL PARK, CALIF.

It is pleasant to record real progress in the improvement of General Grant Park, made possible by the appropriation of \$50,000 granted by Congress for fiscal year 1924. An adequate water and sanitation system has been installed within the appropriated sums of \$38,878, the ranger force was enlarged, the grove of sequoias better protected, camp grounds extended, and many other long-delayed improvements were effected.

The size of the park, 4 square miles, is no index either of its usefulness to the public or of the problems involved in its maintenance

and development, which are enhanced by the surrounding private holdings. An excellent State highway on a 6 per cent grade runs through the park to the large lumbering operations at Hume; several summer resorts and a Y. M. C. A. camp are near by, while the 160-acre summer colony of Wilsonia is entirely within its boundaries. Only a continuance of appropriations on a comparatively liberal scale will permit the park to keep pace with a patronage which has risen from 1,773 visitors in 1908 to 50,456 in 1922 but has dropped back to 46,230 in 1923.

When The General's Highway joins this park with Giant Forest it will come into full usefulness as one of the principal links in that chain of scenic spots which will eventually bind the Sequoia and Grant Parks with the Kings and Kern Canyons and other attractions of California's High Sierra. Meanwhile the protection of the sequoia grove and the large number of visitors make demands which can not be neglected.

WIND CAVE NATIONAL PARK, S. DAK.

The most striking feature of the year in the Wind Cave National Park was the remarkable increase in the number of its visitors, which emphasizes the importance of this park as an objective in transcontinental travel. With the progressive development being made in the Custer State Park to the north and the highway improvements in the Black Hills, the lack of material improvements in Wind Cave National Park to meet the increasing use being made of it is becoming noticeable and a matter of unfavorable comment.

More funds should be made available for the development and maintenance of the Federal park. Several new buildings and additional equipment are very much needed. The entire park appropriation has been for the past several years but \$7,500 annually, while the revenues have amounted annually to nearly 50 per cent of the appropriation. For the current year the appropriation was increased to \$10,000, but because of the increase in the number of visitors this season it was necessary to abandon the construction of some small buildings and to dispense with needed equipment and improvements, the funds thus released being used to employ additional temporary rangers required for guide duty. An adequate electric lighting system for the cave is an urgent necessity and a special appropriation should be made for its purchase and installation.

ZION NATIONAL PARK, UTAH.

Zion National Park had the distinction of being the first national park to be visited by the late President. As a member of President Harding's party, you had the opportunity to observe its wonderful natural attractions. Perhaps stimulated by the President's visit, the park has enjoyed greatly increased travel, visitors coming from practically every State and from several foreign countries.

Under a franchise negotiated with the Utah Parks Co., the development of the tourist accommodations and facilities in Zion National Park to a high standard seems assured. Plans prepared by the architect of the company, Mr. Gilbert S. Underwood, of Los Angeles, were approved by the Fine Arts Commission of Washing-

ton, who praised the good taste shown in planning the building to harmonize with its wonderful surroundings. Work will be pushed on the construction of the hotel in order that it may be open for the 1924 season. The Utah Parks Co. is interested not alone in the Zion National Park but in the development of the scenic southwestern Utah section, having taken over and completed the new hotel in Cedar City, now the terminus of a branch line of the Union Pacific System, and also planning to erect a hotel on the rim of Bryce Canyon. Plans also provide for the installation of a modern automobile transportation system. With the improvement of roads, this section, because of its magnificent and gorgeously colored scenery, is destined for one of the biggest tourist developments that the United States has known.

Recognizing the necessity of the Federal Government doing its share in this big development, Congress granted a deficiency appropriation of \$133,000 for road and trail construction within Zion National Park, including \$40,000 for the construction of a bridge on public land outside the boundaries of the park, crossing the Virgin River, near Springdale, Utah, which will permit of a short cut into Arizona, reducing the distance to the north rim of the Grand Canyon National Park by 23 miles. The land on which the bridge is to be constructed is to be donated to the Federal Government and the State and county are to construct the 10 miles of connecting road. Under the appropriation the existing 4 miles of road in the park will be reconstructed and surfaced with shale and the road will be extended 4 miles to the Narrows. The contract for this road work, has been let and it will be rushed to completion during the fall and winter months, when operations will least interfere with travel and danger to visitors from rock slides, and the handling of explosives will be reduced to a minimum. Trails to the east and west rims will also be constructed to give access to the park land above the canyon, which itself is of exceptional scenic character.

Some sanitation work has been accomplished in the present public camp ground, but with the increased patronage which is sure to result these camp grounds must be greatly expanded. Because of the sandy soil and the narrow floor of the canyon, the problem of providing adequate camp grounds will be a difficult one to satisfactorily solve.

All in all, the future of Zion National Park, the youngest member of the national park system, is decidedly bright, for it is destined to play an extremely important part in the economic development of the entire southwestern Utah section.

PLATT NATIONAL PARK, OKLA.

During the year the city of Sulphur, which adjoins Platt National Park, continued its cooperation in every way possible in helping the park serve the thousands of visitors. Records show that 470, 841 people entered the park gates, but as many of them undoubtedly repeated their visits from day to day, 117,710 individuals is considered a fair estimate of the travel. The park is a focal point for motor travel from all the southern States west of the Mississippi, and its popularity as a health and pleasure resort is increasing yearly.

Little in the way of extensive improvements has been made, and to properly care for the increased patronage there is needed larger annual appropriations for the extension of camp grounds, sewer, water, and light systems, and for general sanitation. The park roads were not constructed for automobile traffic; they are narrow and need to be widened and resurfaced.

In March, Robert G. Morris was appointed superintendent, vice Thomas Ferris.

The wild animals maintained under fence in the park were added to, five fawns being added to the deer herd and a baby elk was born in the park.

LASSEN VOLCANIC NATIONAL PARK, CALIF.

Although Congress a year ago removed the inhibition against an appropriation of more than \$5,000 annually for Lassen Volcanic National Park, the service has not been able to submit necessary estimates to the Bureau of the Budget and to Congress for initial development of the park because of the present national policy of retrenchment where new projects are concerned. In anticipation of the time when such estimates can be submitted the chief civil engineer of the service made a careful inspection of the entire area late in the summer of 1922 and submitted a comprehensive report covering the needs of the park.

In order that surveys for a park road system could be undertaken, the California Legislature at its last session, at the urgent request of the Lassen Volcanic National Park Association, appropriated \$8,000 from State funds for these surveys to be used in conjunction with the service's appropriation of \$3,000.

One of the most important items on the service's future program is the early development of this park to open it up to travel. Its magnificent combination of nature's offerings, including the only active volcano in continental United States, cinder cones, hot springs, mud geysers, ice caves, majestic canyons, forests, mountain lakes and streams, when accessible are bound to attract great interest from the touring public.

SULLYS HILL NATIONAL PARK, N. DAK.

Sullys Hill Park, comprising only 780 acres, is not actively administered by the National Park Service, no funds having been made available by Congress for this purpose. The reservation is utilized primarily as a game preserve by the Bureau of Biological Survey, Department of Agriculture, and as such is a very important factor in preserving the wild life indigenous of the region. The park is used, however, by local people for recreational purposes, although such use is incidental to its larger and more important use as a game preserve. The park is not of national park caliber, and its designation as such should be ended and its elimination from the national park system accomplished by appropriate legislation.

WORK IN THE NATIONAL MONUMENTS.

Under authority of the act for the preservation of American antiquities, approved June 8, 1906, the President of the United States is authorized "in his discretion, to declare by public proclamation

historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States to be national monuments, and may reserve as a part thereof parcels of land, the limits of which in all cases shall be confined to the smallest area compatible with the proper care and management of the objects to be protected." Under this provision of law 28 national monuments have been created and placed under the jurisdiction of the Department of the Interior, with their active administration and protection by the National Park Service. These are listed on page 94 and give an idea of their widespread location throughout the West and in Alaska.

The tremendous travel to the national parks has resulted in a large increase in visitors to the national monuments, which form interesting accents in transcontinental and interpark travel and are places to which local residents foregather. The Petrified Forest National Monument in Arizona this year has seen 45,475 visitors, the Muir Woods National Monument in California 91,253 visitors, and the Casa Grande National Monument in Arizona 6,787 visitors. The total number of visitors to the national monuments for which records are available amounts to 212,826 people.

The monuments contain our choicest historic and scientific exhibits nationally owned, and for this reason it is important to give them adequate protection from vandalism and other depredations. For several years we have been receiving annually the sum of \$12,500 for their administration, protection, and maintenance, which must pay the salary of the custodians, the signing of the monuments, and other details of repair and maintenance. With the exception of three custodians of monuments which require their entire time, the other custodians serve for the nominal salary of \$12 a year. This gives them a Federal appointment and clothes them with legal authority to make arrests and otherwise enforce the regulations. One of the most important accomplishments of our care of these areas during the past few years has been their practically complete signing by posting of warning and guiding signs. That this had beneficial effect is shown by the better care taken by visitors in safeguarding the monument exhibits. The placing of warning signs in conspicuous locations has also had the effect of nullifying pleas of vandals that they had no knowledge of the rules for the protection of the exhibits.

The Muir Woods National Monument, near San Francisco, containing the only nationally owned stands of the wonderful Sequoia sempervirens, the California redwood, requires a resident custodian to make daily patrols, supplemented on Sundays and holidays by additional assistants to handle the large throngs crowding the monument on these days. For the first time during the past year this monument has received proper protection. Our patrolling forces have been constantly on the alert to impress careless and thoughtless visitors with the fact that littering the grounds with trash and breaking shrubs only spoils the enjoyment of the monument for others, with the result the appearance of the monument grounds has been greatly improved during the past year. With such improvements as our small monument funds enabled us to work out I am

glad to say that the administration of this area has been very satisfactory to me.

In the Chaco Canyon National Monument the National Geographic Society has been continuing its excavation and exploration work under the personal direction of Mr. Neil M. Judd, curator of the National Museum and director of this field expedition. The School of American Research at Santa Fe has also for several years, under permit from the department, been doing some excavation work there, confining its activities to one large ruin, Chetro Kettle.

The area giving us perhaps the largest amount of trouble in protecting is the Petrified Forest National Monument. For many years we permitted visitors to pick up chips lying on the ground not weighing in the aggregate more than a few pounds, but experience finally compelled the withdrawal of this permission altogether. Instead of limiting their souvenirs to a choice piece of small size, visitors would too often hide in their cars pieces weighing many pounds, which, unfortunately also, too often were thrown away after the thrill of acquisition had subsided and the load was getting too heavy for the automobile to carry, so that fine good-sized pieces of petrified wood were found for many miles along the roads leading from the monument. Many of the wonderful petrified trunks of trees lying on the ground were also attacked by hammer and chisel, scarring and marring them; all this was to the irreparable damage of the forest. The experiment of having a patrolling ranger in the monument did not work out, because it was difficult to find anyone with a sufficient sense of responsibility without constant supervision to devote his time to effective patrolling. For many years Mr. William Nelson, the proprietor of a hotel at Adamana, the entrance station to the monument, had acted as custodian at a nominal salary, due to his great interest in this national monument. When it became apparent that daily patrol by a ranger was impracticable, Mr. Nelson was fortunately in the position, through sale of his properties, to take up permanent residence in the forest area himself, where at a regular ranger salary he has been, during the past summer, doing excellent work in keeping depredations to the minimum. Due to his tactful handling of the visitors it has not been necessary to take court action in any case thus far, but his monthly reports have shown many tons of petrified wood taken away from visitors that had been gathered in contravention of existing regulations.

Two of the most interesting monuments housing venerable ruins are the Casa Grande and Tumacacori National Monuments in Arizona. Both of these monuments are under the personal supervision of Frank Pinkley, who lives within the Casa Grande Monument area, and whose personal supervision of these monuments and personal explanations to the large crowds of visitors made the value of these relics historically to the United States more and more appreciated. A personal tribute to his indefatigable efforts was the action of the Arizona Legislature at the past session in donating \$1,000 toward repair work of the Tumacacori Mission. Gradually this splendid old structure will, we hope, be restored to its original form.

The small museum constructed during the past year in Casa Grande, and gradually being filled with interesting exhibits typical

of the areas involved, has received much praise. Eventually this museum will be developed into one of the most renowned places in the Southwest desert region where relics of prehistoric inhabitants of the region and of the missionary days may be viewed. The grounds of both these monuments were kept clean and pleasant to the eye.

For a number of years Gran Quivira, one of the most important of the early Spanish ruins in the Southwest, containing also some pueblo ruins, has lain dormant without any work on it. This past summer, through the cooperation of the School of American Research, some clearing out of the ruins was undertaken and the entire ruin area fenced to keep out cattle and sheep. During the next few years it is hoped that with the assistance of this cooperative body these ruins can be further excavated, explored, and restored so that they may take their proper place as educational exhibits for the enjoyment of the people of the country.

One of the most treasured of the historic monuments of the Southwest is El Morro, a huge sandstone rock jutting out of the plains, containing historic inscriptions carved by early Spanish explorers of the sixteenth and seventeenth centuries. These give it the popular name of Inscription Rock. As these inscriptions are the most precious exhibits of the monument, great care for their preservation is necessary. In the past vandals had carved their names in the soft sandstone, and even sometimes through the inscriptions, due to the fact that there was no regular daily patrol of the monument grounds available. Several years ago the service had the most of these modern inscriptions erased and then had placed a cedar guard rail around those inscriptions that could be reached from the ground, planting yucca, cacti, and other spiked desert growth between the rail and the inscriptions. This has served to keep vandalism to a minimum. There were but three cases this summer, and the three men who had carved their names on the surface of the rock were required to return and erase them. Repairs to fences around the monument, gates, and warning signs were attended to, and the monument kept in an attractive sanitary condition.

Experiments are now being made with the cooperation of the National Bureau of Standards for testing of various fluids which by impregnating the rock are claimed to prevent weathering, and if any one of these turns out satisfactorily it is believed it can be used to advantage, prolonging the life or altogether preserving these wonderful inscriptions.

In the Sitka National Monument in Alaska the wonderful old totem poles, forming its chief historic exhibit, were painted and repaired when necessary, and the monument generally kept in excellent condition.

In the Montezuma Castle National Monument in Arizona \$300 was spent under the personal supervision of Custodian Martin L. Jackson and Frank Pinkley of the Casa Grande, who attended to the most important work themselves in the underpinning and strengthening of some of the walls which were threatening to disintegrate. The trails were kept in excellent condition, and altogether the monument was in better shape throughout the year than it had been for years. Unfortunately in this monument vandals occasionally also dig for treasure or relics at times when it is not possible for the cus-

todian to be there, and it is hoped that it will be possible to catch some of these parties at work in order that an example may be made of them as a warning to others.

Protection and maintenance of all the other national monuments has been carried on where the nature of the exhibits has necessitated a local custodian; particularly in the Pinnacles National Monument, Colorado National Monument, Scotts Bluff National Monument, and Devils Tower National Monument has good progress been made.

Reports of the custodians of the individual national monuments are printed in Appendix C.

LEGISLATION.

The following is a brief summary of legislation affecting the national parks considered in Congress since the preparation of the sixth annual report. The text of new laws will be found in Appendix D of the report.

PARK BILLS ENACTED INTO LAW.

The Interior Department appropriation act of January 24, 1923,¹ carried appropriations amounting to \$1,690,330 for the National Park Service in Washington and for the administration, protection, maintenance, and improvement of the various national parks and monuments.

The act of February 28, 1923,² entitled "An act to authorize an exchange of lands with owners of private land holdings within Glacier National Park," empowered the Secretary of the Interior to obtain for the United States complete title to any or all of the private holdings within Glacier National Park by exchanging for them other public lands in the State of Montana of equal value.

S. J. Res. 270, signed by the President March 2, 1923,³ entitled "Joint resolution concerning lands devised to the United States Government by the late Joseph Battell, of Middlebury, Vermont," provided that the United States decline to accept the lands in Vermont offered in the will of Joseph Battell for national park purposes, and discharged the estate of Joseph Battell from any obligation to the United States growing out of the devise of the land.

The deficiency act of March 4, 1923,⁴ carried an appropriation of \$133,000 for the building of roads and trails in Zion National Park, including the construction of a bridge across the Virgin River on public lands outside the park.

NEW BILLS INTRODUCED BUT NOT ENACTED BEFORE THE CLOSE OF THE LAST SESSION.

H. R. 13385, "A bill to transfer certain lands of the United States from the Rocky Mountain National Park to the Colorado National Forest, Colo.," was introduced December 13, 1922. The purpose of this bill was to permit the establishment of a reservoir on a small piece of land now within the Rocky Mountain National Park adjacent to the Colorado National Forest.

¹ Public No. 395, 67th Cong. See p. 184.

² Public No. 453, 67th Cong. See p. 187.

³ Public Resolution No. 97, 67th Cong. See p. 187.

⁴ Public No. 543, 67th Cong.

Other bills were introduced for the creation of the Appalachia National Park, Va., and the Lincoln National Park, Ky.-Tenn.-Va.

PRESIDENTIAL PROCLAMATIONS.

Presidential proclamations affecting national monuments were issued as follows:

October 21, 1922,⁵ creating the Fossil Cycad National Monument, S. Dak., which was placed under the jurisdiction of the Department of the Interior.

January 24, 1923,⁶ creating the Aztec Ruin National Monument, N. Mex., placed under the jurisdiction of the Department of the Interior.

March 2, 1923,⁷ establishing the Hovenweep National Monument, Utah-Colo., placed under the Department of the Interior.

May 31, 1923,⁸ establishing the Pipe Spring National Monument, Ariz., placed under the Department of the Interior.

May 7, 1923,⁹ increasing the area of the Pinnacles National Monument, Calif.

October 14, 1922,¹⁰ establishing the Timpanogos Cave National Monument, Utah, placed under the jurisdiction of the Department of Agriculture.

June 8, 1923,¹¹ establishing the Bryce Canyon National Monument, placed under the jurisdiction of the Department of Agriculture.

March 2, 1923,¹² establishing the Mound City Group National Monument, Ohio, under the jurisdiction of the War Department.

EXECUTIVE ORDERS.

Executive orders affecting national parks and national monuments were issued as follows:

October 23, 1922,¹³ withdrawal of lands in the State of South Dakota, pending enactment of appropriate legislation for their proper disposition. These lands withdrawn in the interest of the proposed Wonderland National Park or Monument.

December 28, 1922,¹⁴ modifying proclamation of January 31, 1914, reserving 2,050.43 acres in Arizona for the Papago Saguaro National Monument by eliminating certain sections, thus reducing the area of the monument to 1,940.43 acres.

March 2, 1923,¹⁵ amending order of January 13, 1922 (No. 3617), by including additional lands in the withdrawal for use in connection with the administration of the Mount McKinley National Park, Alaska, and to protect a right of way for a proposed road into the park.

September 5, 1923,¹⁶ modifying proclamation of September 24, 1918, establishing the Katmai National Monument, Alaska, to eliminate tract of land to the end that a coal mining permit may be granted.

⁵ No. 1641. See p. 188.

⁶ No. 1650. See p. 188.

⁷ No. 1654. See p. 189.

⁸ No. 1663. See p. 191.

⁹ No. 1660. See p. 190.

¹⁰ No. 1640. See p. 192.

¹¹ No. 1664. See p. 192.

¹² No. 1653. See p. 193.

¹³ No. 3748. See p. 194.

¹⁴ No. 3769. See p. 194.

¹⁵ No. 3800. See p. 194.

¹⁶ No. 3897. See p. 195.

IN CONCLUSION.

This concludes the brief presentation of the operations and accomplishments of the National Park Service during the past year. I consider the showing made a fine demonstration of the effectiveness and value of the national park system to the people of the United States. Nearly 1,500,000 visitors this past season from all parts of the country, compared with 356,000 in 1916, proves its national popularity. It also conclusively evidences permanent redirection of interest of the American people in their national scenic possessions, a result the service started to achieve as one of the purposes of its creation. It has been our duty and pleasure to render such service to these our guests as would enable them to get the fullest measure of enjoyment and recreation out of their visits, and we have done our very best to have them leave satisfied and content. For the greater part we have been successful, but we have also met with discouragements in not being able to do all we planned, because of financial limitations. Larger use of the parks inevitably requires expansion of activities, of facilities, in fact larger development in all its varied ramifications. We can not stand still; to do so means to retrogress. But to go ahead on our larger development program, particularly the reconstruction of existing roads and the construction of new roads and trails, requires additional funds from Congress. Gradually, however, the things most needed are being accomplished, and as soon as the demands for national retrenchment are less urgent than at present, I am confident that the necessary funds to permit the parks to render the highest standard of service possible to the public will be forthcoming.

In closing, I desire to make grateful acknowledgment of the splendid efforts of my associates in this work in Washington and in the field and to the various park operators who have made such a satisfactory showing possible. With but few exceptions, I have found only the most loyal and earnest cooperation, without which it would not be possible for me to point out the many real accomplishments achieved in the past or to enter confidently upon the work of the future.

Very respectfully,

STEPHEN T. MATHER,
Director.

The SECRETARY OF THE INTERIOR.

APPENDIXES.

APPENDIX A.

THE NATIONAL PARKS AND MONUMENTS.

The national parks administered by the National Park Service, Department of the Interior.....	Page. 90
The national military and other parks administered by the War Department.....	93
The national monuments administered by the National Park Service, Department of the Interior.....	94
The national monuments administered by the Department of Agriculture.....	96
The national monuments administered by the War Department.....	97
Organization of the National Park Service.....	98

NATIONAL PARKS ADMINISTERED BY THE NATIONAL PARK SERVICE, DEPARTMENT OF THE INTERIOR.

[Number, 19; total area, 11,372 square miles, or 7,277,765.45 acres; chronologically in order of creation.]

Name.	Location.	Nearest rail stations.	When established.	Statute reference.	Area (square miles).	Area (acres).	Private lands (acres).	Special characteristics.
Hot Springs.....	Middle Arkansas....	{ Hot Springs, Rock Island and Missouri Pacific Systems.	Apr. 20, 1832	{ 4 Stat., 505..... 21 Stat., 288..... 41 Stat., 1407....	1½	911.63	None.	{ 46 hot springs possessing curative properties—Many hotels and boarding houses—20 bathhouses under public control.
Yellowstone.....	Wyoming, Montana, and Idaho.	Gardiner, Mont., Northern Pacific; West Yellowstone, Mont., Union Pacific; Cody, Wyo., Burlington Route; Lander, Wyo., Chicago & North Western.	Mar. 1, 1872	17 Stat., 32, 33...	13,348	2,142,720	None.	More geysers than in all rest of world together—Boiling springs—Mud volcanoes—Petrified forests—Grand Canyon of the Yellowstone, remarkable for gorgeous coloring—Large lakes—Water falls—Vast wilderness inhabited by deer, elk, bison, moose, antelope, bear, mountain sheep, etc.—Greatest wild bird and animal preserve in world.
Sequoia (sē-kwof'á)....	Middle eastern California.	Exeter or Visalia, Santa Fe and Southern Pacific; thence Visalia Electric to Lemon Cove.	Sept. 25, 1890	26 Stat., 478, 650.	252	161,597	1,400	The Big Tree National Park—Several hundred Sequoia trees over 10 feet in diameter, some 25 to 36 feet in diameter—Towering mountain ranges—Startling precipices—Mile-long cave of delicate beauty—Fine trout fishing.
Yosemite (yō-sēm'-f-tē).....do.....	.....do.....	{ Merced, Southern Pacific and Santa Fe; thence Yosemite Valley R. R. to El Portal.	{ Oct. 1, 1890	{ 26 Stat., 650..... 33 Stat., 702..... 34 Stat., 831.....	1,125	719,802.4	10,959.89	{ Valley of world-famed beauty—Lofty cliffs—Romantic vistas—Waterfalls of extraordinary height—3 groves of big trees—Large areas of snowy peaks—Water wheel Falls—Good trout fishing.
General Grant.....	.....do.....	Fresno, Sanger, or Visalia, Santa Fe and Southern Pacific.	.....do.....	26 Stat., 650.....	4	2,536	160	Created to preserve the celebrated General Grant Tree, 35 feet in diameter—6 miles from Sequoia National Park.
Mount Rainier (rā-nēr').....	West central Washington.	Ashford, Chicago, Milwaukee & St. Paul.	Mar. 2, 1899	30 Stat., 993.....	324	207,360	18.2	Largest accessible single peak glacier system—28 glaciers, some of large size—48 square miles of glacier, 50 to 500 feet thick—Wonderful subalpine wild-flower fields.
Crater Lake.....	Southern Oregon....	Medford or Klamath Falls, Southern Pacific.	May 22, 1902	32 Stat., 202.....	249	159,360	1,949.21	Lake of extraordinary blue in crater of extinct volcano, no inlet, no outlet—Sides 1,000 feet high—interesting lava formations—Fine fishing.

Wind Cave.....	South Dakota.....	Hot Springs, Burlington Route and Chicago & North Western.	Jan. 9, 1903	32 Stat., 765.....	17	10,899.22	None.	Cavern having many miles of galleries and numerous chambers of considerable size containing many peculiar formations.
Platt.....	Southern Oklahoma.	{ Sulphur, Santa Fe System and Frisco lines. Devils Lake, Great Northern and Soo Line.	July 1, 1902	32 Stat., 641, 655.....	1½	848.22	None.	{ Many sulphur and other springs possessing medicinal value. Small park with woods, streams, and a lake—Is an important wild-animal preserve.
Sullys Hill.....	North Dakota.....		Apr. 21, 1904	33 Stat., 220.....				
			Apr. 27, 1904	33 Stat., 322, 323, 2368.	1½	780	None.	
Mesa Verde (mā'sa vēr' dā).	Southwestern Colorado.	Mancos, Denver & Rio Grande Western.	June 29, 1906	34 Stat., 616.....	77	48,966.4	993	{ Most notable and best preserved, prehistoric cliff dwellings in United States, if not in the world. Rugged mountain region of unsurpassed Alpine character—250 glacier-fed lakes of romantic beauty—60 small glaciers—Precipices thousands of feet deep—Almost sensational scenery of marked individuality—Fine trout fishing.
Glacier (glā'shēr).....	Northwestern Montana.	Glacier Park Station and Belton, Great Northern.	June 30, 1913	38 Stat., 82, 83, 84.				
			May 11, 1910	36 Stat., 354.....	1,534	981,681	16,508.1	
		{ Longmont, Burlington Route and Colorado & Southern; Loveland, Colorado & Southern; Lyons, Burlington Route; Boulder, Denver Interurban and Colorado & Southern; Fort Collins, Union Pacific and Colorado & Southern; Granby, Denver & Salt Lake.	Jan. 26, 1915	38 Stat., 798.....	397½	254,327	220,693	{ Heart of the Rockies—Snowy range, peaks 11,000 to 14,255 feet altitude—Remarkable records of glacial period.
Rocky Mountain.....	{ North middle Colorado.		Feb. 14, 1917	39 Stat., 916.....				
					</			

¹ In Wyoming, 3,114 square miles; in Montana, 198 square miles; in Idaho, 36 square miles.² Estimated.

National parks administered by the National Park Service, Department of the Interior—Continued.

Name.	Location.	Nearest rail stations.	When established.	Statute reference.	Area (square miles).	Area (acres).	Private lands (acres).	Special characteristics.
Lassen Volcanic (lăs'én)	Northern California.	Red Bluff, Southern Pacific; Paxton, Western Pacific.	Aug. 9, 1916	39 Stat., 442.....	124	79,561.58	2,955	Only active volcano in United States proper—Lassen Peak, 10,465 feet in altitude—Cinder Cone, 6,879 feet—Hot springs—Mud geysers—Ice caves—Ma estic canyons—Numerous lakes—Fine forests.
Mount McKinley.....	South central Alaska	McKinley Park Station, United States Alaska Railroad.	{ Feb. 25, 1917 Jan. 30, 1922 }	{ 39 Stat., 938..... 42 Stat., Public No. 153. }	2,645	1,692,800	None.	{ Highest mountain in North America (altitude 20,300 feet)—Rises higher above surrounding country than any other mountain in world.
Grand Canyon *.....	North central Arizona.	{ Grand Canyon Station, Santa Fe System; North Rim motor stage from Lund, Utah, Union Pacific or from Marysville, Utah, Denver & Rio Grande Western.	{ Jan. 11, 1908 Feb. 26, 1919 }	{ 35 Stat., 2175..... 40 Stat., 1175..... }	958	613,120	1,057.99	{ The greatest example of erosion and the most sublime spectacle in the world.
Lafayette †.....	Maine coast.....	Mount Desert Ferry, Maine Central System.	{ July 8, 1916 Feb. 26, 1919 }	{ 39 Stat., 1785..... 40 Stat., 1178..... }	8	5,000	None.	{ The group of granite mountains upon Mount Desert Island.
Zion ‡.....	Southwestern Utah.	{ Lund, Union Pacific System.	{ July 31, 1909 Mar. 18, 1918 Nov. 19, 1919 }	{ 36 Stat., 2498..... 40 Stat., 1760..... 41 Stat., 356..... }	120	76,800	3,297.72	{ Magnificent gorge (Zion Canyon), depth from 800 to 2,000 feet, with precipitous walls—Of great beauty and scenic interest.

* Formerly Grand Canyon National Monument.

† Formerly Sieur de Monts National Monument; donated to the United States.

‡ Formerly Zion National Monument.

THE NATIONAL MILITARY AND OTHER PARKS ADMINISTERED BY THE WAR DEPARTMENT.

[Number, 7; total area, 22 square miles or 14,038 acres; chronologically in order of creation.]

Name.	Location.	Approaches.	When established.	Statute reference.	Area (acres).	Special characteristics.
Chickamauga and Chattanooga	Georgia and Tennessee.	Chattanooga, several southern roads.	Aug. 19, 1890	26 Stat., 333, 978.	6, 543	Beautiful natural park—Embraces battle fields of Chickamauga and Missionary Ridge and scenes of other conflicts of the Civil War fought in the vicinity of Chattanooga during 1863.
Antietam Battle Field.....	Maryland.....	Antietam, Norfolk & Western.	Aug. 30, 1890	26 Stat., 401.....	50	Scene of one of the greatest battles of the Civil War.
Shiloh.....	Tennessee.....	Corinth, Miss., Illinois Central and Southern.	Dec. 27, 1894	28 Stat., 597.....	3, 546	Natural park embracing the battlefield of Shiloh near Pittsburg Landing.
Gettysburg ¹	Pennsylvania...	Gettysburg, Philadelphia & Reading and Western Maryland.	Feb. 11, 1895	28 Stat., 651.....	2, 451	Beautiful natural park—Scene of Civil War combat—Probably better marked than any other battlefield in the world.
Vicksburg.....	Mississippi.....	Vicksburg, Alabama & Vicksburg, Vicksburg, Shreveport & Pacific, and Yazoo & Mississippi Valley.	Feb. 21, 1899	30 Stat., 841.....	1, 323	Beautiful natural park—Scene of the siege and surrender of Vicksburg in 1863 during the Civil War.
Lincoln's Birthplace ¹	Kentucky.....	Hodgenville, Illinois Central.	July 17, 1916	39 Stat., 385.....	.....	Contains the log cabin and part of the farm where Abraham Lincoln was born.
Guilford Courthouse.....	North Carolina..	Greensboro, Southern and Atlantic & Yadkin.	Mar. 2, 1917	39 Stat., 996.....	125	Near Greensboro—Scene of one of the great battles of the Revolution: fought in 1781.

Donated in whole or in part to the United States.

THE NATIONAL MONUMENTS.

ADMINISTERED BY THE NATIONAL PARK SERVICE, DEPARTMENT OF THE INTERIOR.

[Number, 28; total area, 1817.5 square miles or 1,163,174.19 acres chronologically in order of creation.]

Name.	Location.	Approaches.	Date of creation.	Statute reference of proclamation.	Area (acres).	Special characteristics.
Devils Tower.....	Wyoming.....	Moorcroft, Burlington Route	Sept. 24, 1906	34 Stat., 3236....	1,152	Remarkable natural rock tower, of volcanic origin, 1,200 feet in height.
Montezuma Castle.....	Arizona.....	Clarkdale, Santa Fe System.	Dec. 8, 1906	34 Stat., 3265....	160	Prehistoric cliff-dwelling ruin of unusual size situated in a niche in face of a vertical cliff. Of scenic and ethnologic interest.
El Morro.....	New Mexico.....	{Gallup or Thoreau, Santa Fe System.	Dec. 8, 1906 June 18, 1917	34 Stat., 3264.... 40 Stat., 1673....	160 240	{Enormous sandstone rock eroded in form of a castle, upon which inscriptions have been placed by early Spanish explorers. Contains cliff-dweller ruins. Of great historic, scenic, and ethnologic interest.
Petrified Forest.....	Arizona.....	{Adamana or Holbrook, Santa Fe System.	Dec. 8, 1906 July 31, 1911	34 Stat., 3266.... 37 Stat., 1716....	25,625	{Abundance of petrified coniferous trees, one of which forms a small natural bridge. Is of great scientific interest.
Chaco Canyon (chä'kō).....	New Mexico.....	Thoreau, Santa Fe System..	Mar. 11, 1907	35 Stat., 2119....	120,629	Numerous cliff-dweller ruins, including communal houses, in good condition and but little excavated.
Muir Woods ² (mūr).....	California.....	{Ferry from San Francisco, thence Mount Tamalpais & Muir Woods R. R.	{Jan. 9, 1908 Sept. 22, 1921	{35 Stat., 2174.... 42 Stat., Proc., 1608.	295 426.43	{One of the most noted redwood groves in California, and was donated by Hon. William Kent, ex-Member of Congress. Located 7 miles from San Francisco.
Pinnacles.....	.....do.....	{Soledad or Hollister, Southern Pacific.	{Jan. 16, 1908 May 7, 1923	{35 Stat., 2177.... 42 Stat., Proc., 1660.	2,080.00 2,653.46	{Many spire-like rock formations, 600 to 1,000 feet high, visible many miles; also numerous caves and other formations.
Natural Bridges.....	Utah.....	{Pack trip from Blanding, Utah, reached by stage from Thompson, Utah, or Mancos, Colo., stations on Denver & Rio Grande Western.	{Apr. 16, 1908 Sept. 25, 1909 Feb. 11, 1916	{35 Stat., 2183.... 36 Stat., 2502.... 39 Stat., 1764....	120 12,740 12,740	{3 natural bridges, among largest examples of their kind, Largest bridge is 222 feet high, 65 feet thick at top of arch; arch is 28 feet wide; span 201 feet; height of span, 157 feet. Other two slightly smaller.
Lewis and Clark Cavern ²	Montana.....	Temporarily closed to public	{May 11, 1908 May 16, 1911	{35 Stat., 2187.... 37 Stat., 1679....	160 160	{Immense limestone cavern of great scientific interest, magnificently decorated with stalactite formations. Now closed to public because of depredations by vandals.
Tumacacori (tū-mä-kü'kō-iō).....	Arizona.....	Tucson, Southern Pacific and El Paso & Southern.	Sept. 15, 1908	35 Stat., 2205....	10	Ruin of Franciscan mission dating from seventeenth century. Being restored by National Park Service as rapidly as funds permit.
Navajo (nä'v'ä-hō).....	.....do.....	{Gallup, N. Mex., or Flagstaff, Ariz., Santa Fe system.	{Mar. 20, 1909 Mar. 14, 1912	{36 Stat., 2491.... 37 Stat., 1733....	1600 360	{Numerous pueblo, or cliff-dweller ruins, in good preservation.

Shoshone Cavern (shō-shō'ně).	Wyoming.....	Cody, Burlington route.....	Sept. 21, 1909	36 Stat., 2501....	210	Cavern of considerable extent, near Cody
Gran Quivira (grän kē-vě'rä).	New Mexico.....	{Mountainair, Santa Fe Sys- tem.	Nov. 1, 1909 Nov. 25, 1919	36 Stat., 2503.... 41 Stat., 1778....	¹ 160 ¹ 590	{One of the most important of earliest Spanish mission ruins in the Southwest. Monument also contains pueblo ruins.
Sitka.....	Alaska.....	Port of call for steamships from Seattle.	Mar. 23, 1910	36 Stat., 2601....	¹ 57	Park of great natural beauty and historic interest as scene of massacre of Russians by Indians. Contains 16 totem poles of best native workmanship.
Rainbow Bridge.....	Utah.....	Pack trip from Kayenta, Ariz., reached from Gal- lup, N. Mex., or Flagstaff, Ariz., Santa Fe System.	May 30, 1910	36 Stat., 2703....	160	Unique natural bridge of great scientific interest and symmetry. Height 309 feet above water, and span is 278 feet, in shape of rainbow.
Colorado.....	Colorado.....	Grand Junction, Denver & Rio Grande Western.	May 24, 1911	37 Stat., 1681....	13,883	Many lofty monoliths, and is wonderful example of ero- sion, and of great scenic beauty and interest.
Papago Saguaro (pä'pä-gō sā- gwä'rō).	{Arizona.....	{Phoenix or Tempe, South- ern Pacific.	{Jan. 31, 1914 {Dec. 28, 1922	{38 Stat., 1991.... {Ex. Order No. 3769.	2,050 1,940.43	Splendid collection of characteristic desert flora and numerous pictographs. Interesting rock formations.
Dinosaur (di'nō-sōr).....	Utah.....	Watson, Uintah Railway...	Oct. 4, 1915	39 Stat., 1752....	80	Deposits of fossil remains of prehistoric animal life of great scientific interest.
Capulin Mountain (käpū'-lin)	New Mexico.....	Folsom, Colorado & South- ern.	Aug. 9, 1916	37 Stat., 1792....	681	Cinder cone of geologically recent formation.
Verendrye (vē'r-ōn-drē).....	North Dakota.....	Sanish, Soo Line.....	June 29, 1917	40 Stat., 1677....	253.04	Includes Crowhigh Butte, peculiar mountain forma- tion, from which Explorer Verendrye first beheld ter- ritory beyond Missouri River.
Casa Grande (kä'sä grän'dä).....	Arizona.....	{Casa Grande, Southern Pa- cific.	{Mar. 2, 1889 ^a {Dec. 10, 1909 {Aug. 3, 1918	{25 Stat., 961.... {36 Stat., 2504.... {40 Stat., 1818....	480	{These ruins are one of the most noteworthy relics of a prehistoric age and people within the limits of the United States. Discovered in ruinous condition in 1694
Katmai (kät'mi).....	Alaska.....	Sailing vessel from Kodiak, reached by steamship from Seattle.	Sept. 24, 1918	40 Stat., 1855....	¹ 1,088,000	Wonderland of great scientific interest in the study of volcanism. Phenomena exist upon a scale of great magnitude. Includes "Valley of Ten Thousand Smokes."
Scotts Bluff.....	Nebraska.....	Gering, Union Pacific.....	Dec. 12, 1919	41 Stat., 1779....	2,053.83	Region of historic and scientific interest. Many famous old trails traversed by the early pioneers in the win- ning of the West passed over and through this mount- ment.
Yucca House ² (yūc-cä).....	Colorado.....	Mancos, Denver & Rio Grande Western.	Dec. 19, 1919	41 Stat., 1781....	9.6	Located on eastern slope of Sleeping Ute Mountain. Ruins of great archaeological value, relic of prehistoric inhabitants.
Fossil Cycad.....	South Dakota...	Minnekahta, C. B. & Q.....	Oct. 21, 1922	42 Stat. Proc., 1641.	320	Area containing deposits of plant fossils
Aztec Ruin ²	New Mexico.....	Aztec, D. & R. G. W.....	Jan. 24, 1923	42 Stat. Proc., 1650.	4.6	Prehistoric ruin of pueblo type containing 500 rooms
Hovenweep.....	Utah-Colorado...	Mancos, D. & R. G. W.....	Mar. 2, 1923	42 Stat. Proc. 1654.	285.8	Four groups of prehistoric towers, pueblos and cliff dwellings.
Pipe Spring.....	Arizona.....	Cedar City and Utah, U. P	May 31, 1923	42 Stat. Proc., 1663.	40	Old stone fort and spring of pure water in desert region. Serves as memorial to early western pioneer life.

¹ Estimated.² Donated to the United States.^a From Mar. 2, 1889, until Aug. 3, 1918, classified as a National Park.

THE NATIONAL MONUMENTS—Continued.

ADMINISTERED BY THE DEPARTMENT OF AGRICULTURE.

[Number, 13; total area, 522 square miles or 334,386.33 acres; chronologically in order of creation.]

Name.	Location.	Approaches.	Date of creation.	Statute reference of proclamation.	Area (acres).	Special characteristics.
Gila Cliff Dwellings (he'lä).....	New Mexico.....	Silver City, via Pinos Altos, Santa Fe System.	Nov. 16, 1907	35 Stat. 2162.....	160	Numerous cliff-dweller ruins of much interest and in good preservation.
Tonto.....	Arizona.....	Globe, Southern Pacific.....	Dec. 19, 1907	35 Stat. 2168.....	1 640	Do.
Jewel Cave.....	South Dakota.....	Custer, Burlington Route..	Feb. 7, 1908	35 Stat. 2180.....	1 1,280	Limestone cavern of much beauty and considerable extent, limits of which are as yet unknown.
Wheeler.....	Colorado.....	Wagon - Wheel Gap or Creede, Denver & Rio Grande Western.	Dec. 7, 1908	35 Stat. 2214.....	300	Of much interest from geological standpoint as example of eccentric erosion and extinct volcanic action. Of much scenic beauty.
Mount Olympus.....	Washington.....	Port Angeles by ferry from Seattle.	Mar. 2, 1909 Apr. 17, 1912	35 Stat. 2247..... 37 Stat. 1737.....	608,640 608,480	Contains many objects of great and unusual scientific interest, including many glaciers. Is summer range and breeding ground of the Olympic elk.
Oregon Caves.....	Oregon.....	Grants Pass, Southern Pacific.	May 11, 1915 July 12, 1909	39 Stat. 1726..... 36 Stat. 2497.....	299,370 480	
Devil Postpile.....	California.....	Laws, Southern Pacific, thence stage to Mammoth.	July 6, 1911	37 Stat. 1715.....	800	Extensive caves in limestone formation of much beauty; magnitude not entirely ascertained.
Walnut Canyon.....	Arizona.....	Flagstaff, Santa Fe System..	Nov. 30, 1915	39 Stat. 1761.....	960	Spectacular mass of hexagonal basaltic columns, like an immense pile of posts. Said to rank with famous Giant's Causeway in Ireland.
Bandelier (Bän-dë-lër).....	New Mexico.....	Santa Fe, Santa Fe System, and Denver & Rio Grande Western.	Feb. 11, 1916	39 Stat. 1764.....	22,075	Contains cliff dwellings of much scientific and popular interest.
Old Kasaan (kü-sän).....	Alaska.....	Steamships, Seattle to Ketchikan.	Oct. 25, 1916	39 Stat. 1812.....	38.3	Vast number of cliff-dweller ruins, with artificial caves, stone sculpture, and other relics of prehistoric life.
Lehman Caves.....	Nevada.....	Ely, Nevada Northern.....	Jan. 24, 1922	42 Stat., Proc., 1618.	593.03	Abandoned Indian village in which there are numerous remarkable totem poles and other objects of historical interest.
Timpanogos Cave.....	Utah.....	American Fork, U. P. System; D. & R. G. W.	Oct. 14, 1922	42 Stat., Proc., 1640.	250	Limestone caverns of much beauty and of scientific interest and importance.
Bryce Canyon.....	do.....	Cedar City, U. P. System; Marysvale; D. & R. G. W.	June 8, 1923	42 Stat., Proc., 1664.	7,440	Limestone cavern.
						Box canyon filled with countless array of fantastically eroded pinnacles. Best exhibit of vivid coloring of earth's materials.

ADMINISTERED BY THE WAR DEPARTMENT.

[Number, 3; total area, 63 acres; chronologically in order of creation.]

Big Hole Battle Field ⁴	Montana.....	Divide, Union Pacific.....	June 23, 1910	.....	5	Site of battlefield on which battle was fought Aug. 9, 1877, between a small force of United States troops and a much larger force of Nez Perce Indians, resulting in rout for the Indians.
Cabrillo (kä-brél'yo).....	California.....	San Diego, Southern Pacific, and Santa Fe systems.	Oct. 14, 1913	38 Stat. 1965.....	1	Of historic interest because of discovery of the territory now partly embraced in the State of California by Juan Rodriguez Cabrillo, who at this point first sighted land on Sept. 28, 1542.
Mound City Group.....	Ohio.....	Chillicothe, B. & O., and N. & W.	Mar. 2, 1923	42 Stat., Proc., 1653.	57	Famous group of prehistoric mounds in Camp Sherman Military Reservation.

¹ Estimated.⁴ Set aside by Executive order.

ORGANIZATION OF THE NATIONAL PARK SERVICE.

(Department of the Interior, Washington, D. C.)

Stephen T. Mather, director.
 Arno B. Cammerer, assistant director.
 B. L. Vipond, chief clerk.
 A. E. Demaray, editor.

FIELD SERVICE.**GENERAL.**

(Yellowstone Park, Wyo.)

Horace M. Albright, field assistant to the director.

CIVIL ENGINEERING DIVISION.

(811 Couch Building, Portland, Oreg.)

George E. Goodwin, chief civil engineer.
 Merrill F. Daum, office engineer.

LANDSCAPE ENGINEERING DIVISION.

(Yosemite, Calif.)

Daniel R. Hull, landscape engineer.

THE NATIONAL PARKS.

Crater Lake, Charles Goff Thomson, superintendent, Medford, Oreg.
 Glacier, J. Ross Eakin, superintendent, Belton, Mont.
 Grand Canyon, W. W. Crosby, superintendent, Grand Canyon, Ariz.
 Hawaii, Thomas Bole, superintendent, Volcano House, Hawaii.
 Hot Springs, Dr. Clarence H. Waring, superintendent, Hot Springs, Ark.
 Lafayette, George B. Dorr, superintendent, Bar Harbor, Me.
 Mesa Verde, Jesse L. Nusbaum, superintendent, Mancos, Colo.
 Mount McKinley, Henry P. Karstens, superintendent, McKinley Park, Alaska.
 Mount Rainier, Owen A. Tomlinson, superintendent, Ashford, Wash.
 Platt, Robert G. Morris, superintendent, Sulphur, Okla.
 Rocky Mountain, Roger W. Toll, superintendent, Estes Park, Colo.
 Sequoia, John R. White, superintendent, Three Rivers, Calif.
 General Grant, John R. White, acting superintendent, Three Rivers, Calif.
 Sullys Hill, Wm. H. Beyer, acting superintendent, Fort Totten, N. Dak.
 Wind Cave, Roy Brazell, superintendent, Hot Springs, S. Dak.
 Yellowstone, Horace M. Albright, superintendent, Yellowstone Park, Wyo.
 Yosemite, W. B. Lewis, superintendent, Yosemite National Park, Calif.
 Zion, Walter Ruesch, acting superintendent, Springdale, Utah.

THE NATIONAL MONUMENTS.

Aztec Ruin, Earl Morris, custodian, Aztec, N. Mex.
 Capulin Mountain, Homer J. Farr, custodian, Capulin, N. Mex.
 Casa Grande, Frank Pinkley, custodian, Blackwater, Ariz.
 Colorado, John Otto, custodian, Grand Junction, Colo.
 Devils Tower, John M. Thorn, custodian, Hulett, Wyo.
 El Morro, Evon Z. Vogt, custodian, Ramah, N. Mex.
 Gran Quivira, W. H. Smith, custodian, Gran Quivira, N. Mex.
 Montezuma Castle, Martin L. Jackson, custodian, Camp Verde, Ariz.
 Muir Woods, John T. Needham, custodian, Mill Valley, Calif.
 Natural Bridges, Zeke Johnson, custodian, Blanding, Utah.
 Navajo, John Wetherill, custodian, Kayenta, Ariz.
 Papago Saguaro, J. E. McClain, custodian, Tempe, Ariz.
 Petrified Forest, William Nelson, custodian, Holbrook, Ariz.
 Pinnacles, Herman A. Hermansen, custodian, Cook Post Office, San Benito County, Calif.
 Scotts Bluff, Will M. Maupin, custodian, Gering, Nebr.
 Sitka, Peter Trierschield, custodian, Sitka, Alaska.
 Tumacacori, Frank Pinkley, acting custodian, Blackwater, Ariz.
 Verendrye, Adolph Larsen, custodian, Sanish, N. Dak.

No superintendent has been appointed for the Lassen Volcanic National Park, nor have custodians been appointed for the Chaco Canyon, Dinosaur, Katmaj, Lewis and Clark Cavern, Rainbow Bridge, Shoshone Cavern, Yucca House, Fossil Cycad, Hovenweep, or Pipe Spring National Monuments.

APPENDIX B.

STATISTICS.

Page.

Visitors to the national parks, 1908-1923.....	99
Visitors to some of the national monuments, 1919-1923.....	100
Private automobiles entering the national parks during seasons 1916-1923.....	100
Automobile and motorcycle licenses issued during seasons 1919-1923.....	100
Receipts collected from automobiles and motor cycles during seasons 1919-1923.....	101
Statement of appropriations made for and revenues received from the various national parks and national monuments and expenditures made therefrom during the fiscal years 1917-1923, inclusive; also appropriations for the fiscal year 1924.....	101
Summary of appropriations for the administration, protection, and improvement of the national parks and national monuments, together with the revenues received for the fiscal years 1917-1924, inclusive.....	104
National park and monument lands administered by the National Park Service in relation to national forest lands, including national monument lands administered by the Forest Service.....	104
National park and monument lands administered by the National Park Service in relation to the States and Territories in which they are located.....	105
National park and monument lands administered by the National Park Service in relation to the public lands.....	106

STATISTICS.

Visitors to parks, 1908-1923.

Name of park.	1908	1909	1910	1911	1912	1913	1914	1915
Hot Springs.....	(1)	(1)	² 120,000	² 130,000	² 135,000	² 135,000	² 125,000	² 115,000
Yellowstone.....	19,542	32,545	19,575	23,054	22,970	24,929	20,250	51,895
Sequoia.....	1,251	854	2,407	3,114	2,923	3,823	4,667	7,647
Yosemite.....	8,850	13,182	13,619	12,530	10,884	13,735	15,145	33,452
General Grant.....	1,773	798	1,178	2,160	2,240	2,756	3,735	10,523
Mount Rainier.....	2,826	5,968	8,000	10,306	8,946	13,501	15,038	35,166
Crater Lake.....	5,275	4,171	² 5,000	² 4,500	5,235	6,253	7,096	11,371
Wind Cave.....	3,171	3,216	3,387	3,887	3,199	3,988	3,592	2,817
Platt.....	² 26,000	² 25,000	² 25,000	² 30,000	² 31,000	² 35,000	² 30,000	² 20,000
Sullys Hill.....	² 250	² 190	² 190	² 200	² 200	² 300	² 500	² 1,000
Mesa Verde.....	² 80	165	250	206	230	280	502	663
Glacier.....				² 4,000	6,257	12,138	14,168	14,265
Rocky Mountain.....								² 31,000
Hawaii.....								
Lassen Volcanic.....								
Mount McKinley.....								
Grand Canyon.....								
Lafayette.....								
Zion.....								
Total.....	69,018	86,089	198,606	223,957	229,084	251,703	235,193	334,799

Name of park.	1916	1917	1918	1919	1920	1921	1922	1923
Hot Springs.....	² 118,740	² 135,000	² 140,000	² 160,490	² 162,850	² 130,968	² 106,164	² 112,000
Yellowstone.....	35,849	35,400	21,275	62,261	79,777	81,651	98,223	138,352
Sequoia.....	10,780	18,510	15,001	30,443	31,508	28,263	27,514	30,158
Yosemite.....	33,390	34,510	33,497	58,362	68,906	91,513	100,506	130,046
General Grant.....	15,360	17,390	15,496	21,574	19,661	30,312	50,456	46,230
Mount Rainier.....	23,989	35,568	43,901	55,232	56,491	55,771	70,371	123,708
Crater Lake.....	12,265	11,645	13,231	16,645	20,135	28,617	33,016	52,017
Wind Cave.....	² 9,000	16,742	14,431	25,312	27,023	28,396	31,016	41,505
Platt.....	² 30,000	² 35,000	² 36,000	² 25,000	² 38,000	² 60,000	² 70,000	² 117,710
Sullys Hill.....	² 1,500	2,207	4,188	4,026	9,341	9,100	² 9,548	8,478
Mesa Verde.....	1,385	2,223	2,058	2,287	2,890	3,003	4,251	5,236
Glacier.....	12,839	18,387	9,086	18,956	22,449	19,736	23,935	33,988
Rocky Mountain.....	² 51,000	117,186	101,497	169,492	240,966	² 273,737	² 219,164	218,000
Hawaii.....	(1)	(1)	(1)	(1)	(1)	² 16,071	27,750	41,150
Lassen Volcanic.....	(1)	² 8,500	² 2,999	² 2,500	² 2,000	² 10,000	² 10,000	² 9,500
Mount McKinley.....	(1)	(1)	(1)	(1)	(1)	(1)	47	34
Grand Canyon.....				37,745	67,315	67,485	84,790	102,166
Lafayette.....				² 64,000	² 66,500	² 69,836	73,779	64,200
Zion.....					3,692	2,937	4,109	6,408
Total.....	356,097	488,268	451,661	755,325	919,504	1,007,335	1,044,502	1,280,886

¹ No record.

² Estimated.

³ Indicated loss in travel from 1921 due largely to better methods of checking and estimating employed.

⁴ Actual park visitors; many miners and prospectors passed through park.

Visitors to some of the national monuments in 1919-1923.¹

Name.	1919	1920	1921	1922	1923
Aztec Ruin (New Mexico).....					6,234
Capulin Mountain (New Mexico).....	2 1,500	2 3,200	2 3,000	2 3,000	2 1,000
Casa Grande (Arizona).....	3,677	7,720	6,296	5,068	6,787
Colorado (Colorado).....	2 3,000	2 1,200	2 5,500	2 6,000	2 7,000
Devils Tower (Wyoming).....			2 7,000	2 8,500	2 3,000
El Moro (New Mexico).....		2 2,000	2 3,000	2 2,500	2 2,500
Katmai (Alaska).....					15
Montezuma Castle (Arizona).....		2 2,500	2 4,500	2 6,000	2 7,400
Muir Woods (California).....	2 43,200	2 77,577	2 87,400	2 90,370	91,253
Natural Bridges (Arizona).....			65	112	20
Navajo (Arizona).....		64	65		
Papago Saguaro (Arizona).....		2 5,000	2 3,000	2 8,000	2 6,000
Petrified Forest (Arizona).....	2 3,000	2 30,390	2 32,700	2 31,338	45,475
Pinnacles (California).....					2 6,500
Rainbow Bridge (Utah).....					142
Scotts Bluff (Nebraska).....		2 5,000	2 6,000	2 6,000	2 20,000
Tumacacori (Arizona).....		2 4,300	2 5,000	2 5,100	2 6,000
Verendrye (North Dakota).....			2 1,000		2 3,500
Total.....	54,377	138,951	164,461	171,988	212,826

¹ No records for other 11 national monuments.² Estimated.*Private automobiles entering the national parks during seasons 1916-1923.*

Name of park.	1916	1917	1918	1919	1920	1921	1922	1923 ¹
Yellowstone.....	3,445	5,703	4,734	10,737	13,586	15,736	18,253	27,359
Sequoia ²	736	2,334	1,627	3,852	5,657	7,139	7,886	9,796
Yosemite.....	4,043	6,521	7,621	12,109	13,418	18,947	19,583	27,233
General Grant.....	1,778	2,158	2,438	3,366	4,710	6,545	12,010	12,036
Mount Rainier.....	3,070	5,894	7,602	10,434	10,814	12,271	17,149	27,655
Crater Lake.....	2,649	2,756	3,105	4,637	5,158	7,892	9,429	15,377
Wind Cave ³	2 2,500	4,837	4,815	8,240	7,686	9,078	10,096	13,570
Platt ⁴						21,848	2 30,000	2 50,000
Mesa Verde.....	185	364	371	436	570	651	969	1,255
Glacier.....	902	1,121	1,065	1,697	2,009	2,614	2,416	5,599
Rocky Mountain ²	2 10,050	2 23,004	2 20,588	2 33,638	2 50,562	2 57,438	2 62,112	2 51,800
Hawaii ³								8,025
Grand Canyon ³				1,575	3,260	5,104	7,890	11,731
Lafayette ³				2 7,000	2 10,000	9,958	8,650	8,600
Zion ³					644	604	662	1,446
Total.....	29,358	54,692	53,966	97,721	128,074	175,825	197,105	271,482

¹ Automobiles entering parks with or without licenses, to and including Sept. 30, 1923.² License required only for Giant Forest Road.³ No license required.⁴ Estimated.*Automobile and motor-cycle licenses issued during seasons 1919-1923.*

Name of park. ¹	1919		1920		1921		1922		1923 ²	
	Automobiles.	Motor-cycles.	Automobiles.	Motor-cycles.	Automobiles.	Motor-cycles.	Automobiles.	Motor-cycles.	Automobiles.	Motor-cycles.
Yellowstone.....	9,543	38	13,238	85	11,552	58	20,158	149	25,357	131
Sequoia ³	1,665	6	2,019	13	3,041	23	3,197	1	4,350	
Yosemite.....	2 10,093	94	2 10,112	126	2 15,250	131	16,335	134	28,587	136
General Grant.....	2,982	26	4,350	37	6,300		6,217		8,037	
Mount Rainier.....	8,949	113	9,402	99	8,824	60	10,906	118	17,208	299
Crater Lake.....	3,196	14	3,783	19	5,821	41	8,101	42	10,864	61
Mesa Verde.....	464		548	5	665	2	967		1,146	2
Glacier.....	1,694	1	531		3,414	2	1,548	1	4,900	5
Total.....	38,586	292	43,983	384	54,867	317	67,429	6445	100,449	634

¹ No licenses required for Wind Cave, Hot Springs, Platt, Hawaii, Lassen Volcanic, Sullys Hill, Rocky Mountain, Grand Canyon, and Lafayette National Parks. No roads in Mount McKinley Park.² Number of licenses formally reported to Washington, to and including Sept. 30, 1923.³ Licenses required only for Giant Forest Road.⁴ Includes 5,360 autos in 1919, 1,419 in 1920, 1,210 in 1921, 665 in 1922, and 525 in 1923, the owners of which surrendered Yosemite Valley Highway Association certificates in lieu of payment of entrance fee.⁵ Includes 399 complimentary permits in 1922, 436 in 1923.⁶ Includes 1 complimentary permit.

Licenses not required in certain parks because of small road mileage or unimproved condition of roads (see footnote 1). Licenses also not required for travel on unimproved roads in other parks. No charge for license issued for operating cars on official business.

Receipts collected from automobiles and motor-cycles during seasons 1919-1923.

Name of park. ¹	1919	1920	1921	1922	1923 ²
Yellowstone.....	\$71,337.50	\$99,015.00	\$86,469.50	\$150,287.00	\$189,375.00
Sequoia ³	4,134.50	5,030.00	7,625.50	7,995.00	10,875.00
Yosemite.....	23,474.00	43,352.00	70,055.00	81,128.00	101,312.00
General Grant.....	1,504.00	2,180.50	3,146.00	3,053.50	3,975.00
Mount Rainer.....	22,167.00	23,587.50	22,112.50	27,330.50	43,309.00
Crater Lake.....	7,991.50	9,454.00	14,593.50	20,404.50	27,223.50
Mesa Verde.....	674.00	824.50	998.50	1,450.50	1,691.50
Glacier.....	2,665.00	450.00	5,488.50	2,303.00	7,926.50
Total.....	133,947.50	183,893.50	210,488.50	293,962.00	385,687.50

¹ No licenses required for Wind Cave, Hot Springs, Platt, Hawaii, Lassen Volcanic, Sullys Hill, Rocky Mountain, Grand Canyon, and Lafayette National Parks. No roads in Mount McKinley Park.

² Received in Washington to and including Sept. 30, 1923.

³ License required only for Giant Forest Road.

Statement of appropriations made for, and revenues received from, the various national parks and national monuments, and expenditures made therefrom during the fiscal years 1917-1923, inclusive; also appropriations for the fiscal year 1924.

Name of the national park.	Appropriations.		Revenues.	
	Appropriated.	Expended.	Received.	Expended.
Hot Springs:				
1917.....			\$35,611.75	\$31,302.98
1918.....			28,883.44	42,822.02
1919.....	\$140,000.00	140,000.00	52,109.15	32,130.36
1920.....			45,682.85	35,710.33
1921 (deficiency).....	60,000.00	60,000.00	57,807.00	74,021.19
1922.....			55,339.15	85,043.85
1923.....	63,900.00	63,127.11	56,669.16	(^c)
1924.....	67,600.00			
Yellowstone:				
1917.....	8,500.00	8,500.00	54,795.69	53,775.61
1918.....	10,500.00	9,645.82	71,393.56	96,812.34
1919.....	334,920.00	332,583.03	42,775.50	(^c)
1919.....	^a 3,259.48	539.44		
1920.....	255,500.00	253,577.15	120,027.61	
1920 (deficiency).....	71,023.64	71,026.64		
1921.....	278,000.00			
1921 (deficiency).....	8,000.00	285,992.28	158,806.84	
1922.....	350,000.00	349,453.96	165,014.53	
1923.....	361,800.00	361,487.38	203,140.02	
1924.....	368,000.00			
Sequoia:				
1917.....	22,300.00	15,605.28		
1917.....	450,000.00	50,000.00	10,326.60	415.04
1918.....	25,000.00	24,578.71	13,402.53	25,508.45
1919.....	30,510.00	30,420.98	9,772.52	(^c)
1920.....	35,000.00	34,824.54	15,899.00	
1921.....	36,000.00	35,732.79	19,584.99	
1922.....	86,000.00	85,917.12	20,086.27	
1923.....	78,000.00	77,989.82	3,917.22	
1924.....	120,000.00			
Yosemite:				
1917.....	250,000.00	249,987.45	53,500.66	55,098.45
1918.....	235,000.00	226,368.29	65,865.65	88,975.62
1919.....	255,000.00	254,294.64	57,520.03	(^c)
1920.....	200,000.00	197,611.29	85,601.54	
1921.....	300,000.00			
1921 (deficiency).....	3,000.00	300,645.44	95,894.47	
1922.....	300,000.00	295,864.83	131,797.51	
1923.....	280,000.00	278,355.77	148,860.60	
1924.....	295,000.00			

¹ For statement of appropriations and revenues prior to 1917 see 1920 Annual Report, pp. 354-358.

² Made available during fiscal years 1920 and 1921 by sundry civil acts approved July 19, 1919 (41 Stat. 204), and June 5, 1920 (41 Stat. 918).

³ Unexpended balance of 1918 War Department appropriation of \$20,000 made available under Interior Department during 1919. Sundry civil act of July 1, 1918 (40 Stat., 678).

⁴ For purchase of private holdings.

⁵ Expenditure of revenue for park purposes not authorized. Sundry civil act of June 12, 1917 (40 Stat., 153), Hot Springs. Act of May 24, 1922 (42 Stat. 590).

Statement of appropriations, made for, and revenues received from, the various national parks and national monuments, and expenditures made therefrom during the fiscal years 1917-1924, inclusive; also appropriations for the fiscal year 1924—Continued.

Name of the national park.	Appropriations.		Revenues.	
	Appropriated.	Expended.	Received.	Expended.
General Grant:				
1917.....	2,000.00	1,999.55	1,153.78	536.97
1918.....	2,000.00	1,999.97	1,801.63	3,951.88
1919.....	4,500.00	4,481.51	1,033.90	(⁵)
1920.....	6,000.00	5,992.79	1,870.83	.....
1921.....	5,300.00	5,300.00	2,663.37	.....
1922.....	6,000.00	5,976.65	3,480.45	.....
1923.....	6,500.00	6,481.76	3,180.16	.....
1924.....	50,000.00			.....
Mount Rainier:				
1917.....	\$30,000.00	\$29,999.19	\$14,346.80	\$17,617.01
1918.....	75,000.00	74,846.67	17,241.25	34,715.96
1919.....	24,600.00	24,552.28	17,336.47	(⁵)
1920.....	32,500.00	32,446.01	22,153.76	.....
1921.....	40,000.00	39,819.34	24,967.79	.....
1922.....	150,000.00	149,900.73	22,286.59	.....
1923.....	106,800.00	105,355.29	29,133.17	.....
1924.....	133,000.00			.....
Crater Lake:				
1917.....	8,000.00	7,999.88	4,565.25	.....
1918.....	15,000.00	14,738.44	5,505.72	.....
1919.....	13,225.00	13,203.84	5,958.21	(⁵)
1920.....	28,225.00	28,162.05	8,327.73	.....
1921.....	25,300.00	25,223.40	9,784.98	.....
1922.....	25,300.00	25,298.46	15,277.53	.....
1923.....	32,000.00	31,859.49	18,139.75	.....
1924.....	35,000.00			.....
Platt:				
1917.....	8,000.00	8,000.00	434.11	138.28
1918.....	7,180.00	7,179.84	1,010.40	1,699.88
1919.....	7,500.00	7,485.05	482.63	(⁵)
1920.....	6,000.00	5,980.24	486.59	.....
1921.....	9,000.00	8,900.70	726.20	.....
1922.....	7,500.00	7,196.32	519.80	.....
1923.....	7,500.00	7,449.84	65.30	.....
1924.....	10,000.00			.....
Wind Cave:				
1917.....	2,500.00	2,499.87	1,632.60	1,013.04
1918.....	2,500.00	2,498.40	4,082.60	8,006.53
1919.....	4,000.00	3,988.77	2,533.15	(⁵)
1920.....	4,000.00	3,987.24	3,714.15	.....
1921.....	5,000.00	4,971.55	2,918.20	.....
1922.....	7,500.00	7,471.09	3,785.25	.....
1923.....	7,500.00	7,467.08	3,869.00	.....
1924.....	10,000.00			.....
Mesa Verde:				
1917.....	10,000.00	9,999.00	130.14	(⁵)
1918.....	10,000.00	9,913.05	2,763.75	.....
1919.....	18,000.00	17,022.44	3,348.66	.....
1920.....	11,000.00	10,959.69	3,317.95	.....
1921.....	14,000.00	13,929.71	3,771.35	.....
1922.....	16,400.00	16,393.50	1,273.72	.....
1923.....	43,000.00	42,883.39	3,690.10	.....
1924.....	35,000.00			.....
Glacier:				
1917.....	110,000.00	108,148.16	3,202.40	1,352.75
1918.....	115,000.00	114,362.82	4,438.22	9,026.86
1919.....	80,000.00	79,958.69	2,624.53	(⁵)
1920.....	85,000.00	85,000.00	7,233.85	.....
1920 (deficiency).....	81,819.12	81,572.94		.....
1921.....	95,000.00			.....
1921 (deficiency).....	12,564.09	107,847.30	10,513.20	.....
1922.....	195,000.00	194,932.76	6,082.71	.....
1923.....	178,700.00	178,642.60	10,732.67	.....
1924.....	225,000.00			.....
Rocky Mountain:				
1917.....	10,000.00	9,964.24	871.27	(⁷)
1918.....	10,000.00	9,922.10	598.75	.....
1919.....	10,000.00	9,993.94	307.50	.....
1920.....	10,000.00	9,924.85	1,507.78	.....
1921.....	40,000.00	39,945.40	537.25	.....
1922.....	65,000.00	64,898.75	2,695.41	.....
1923.....	73,900.00	73,790.99	3,077.08	.....
1924.....	74,280.00			.....

⁵ Expenditure of revenue for park purposes not authorized. Sundry civil act of June 12, 1917 (40 Stat., 153).

⁶ Expenditure of revenues Mesa Verde Park for park purposes not authorized by statute.

⁷ Expenditure of revenues from Rocky Mountain Park for park purposes not authorized by statute.

Statement of appropriations made for, and revenues received from, the various national parks and national monuments, and expenditures made therefrom during the fiscal years 1917-1923, inclusive; also appropriations for the fiscal year 1924—Continued.

Name of the national park.	Appropriations.		Revenues.	
	Appropriated.	Expended.	Received.	Expended.
Hawaii:				
1919.....	750.00	731.40		
1920.....	750.00	747.52		
1921.....	1,000.00	125.00		
1922.....	10,000.00	9,946.27		
1923.....	10,000.00	9,915.68	775.00	
1924.....	10,000.00			
Lassen Volcanic:				
1917.....			81.25	(5)
1918.....			118.05	
1921.....	2,500.00	2,410.90		
1922.....	3,000.00	2,911.92		
1923.....	3,000.00	2,904.87	228.66	
1924.....	3,000.00			
Grand Canyon:				
1919.....			525.03	(5)
1920.....	40,000.00	39,874.27	399.32	
1921.....	60,000.00	59,948.45	8,305.43	
1922.....	100,000.00	99,906.14	4,872.02	
1923.....	75,000.00	74,065.63	7,508.72	
1924.....	125,400.00			
Mount McKinley:				
1922.....	8,000.00	7,993.31		
1923.....	8,000.00	8,000.00		
1924.....	8,000.00			
Lafayette:				
1919.....	8 10,000.00	9,972.42		
1920.....	10,000.00	9,930.06		
1921.....	20,000.00	19,997.73		
1922.....	25,000.00	24,990.67		
1923.....	25,000.00	24,915.69		
1924.....	30,000.00			
Zion:				
1917 (deficiency).....	15,000.00	14,963.81		
1920.....			511.50	(5)
1921.....	7,300.00	8,825.96	524.00	
1921 (deficiency).....	1,585.07			
1922.....	10,000.00	9,928.04	414.95	
1923.....	10,000.00	9,947.00	584.37	
1923-24 (deficiency).....	133,000.00			
1924.....	13,750.00			
Protection of national monuments:				
1917.....	3,500.00	2,586.66		
1918.....	5,000.00	4,832.70	225.00	(9)
1919.....	10,000.00	9,473.10	320.75	
1920.....	8,000.00	7,802.92	123.50	
1921.....	8,000.00	7,838.99	123.20	
1922.....	12,500.00	12,416.96	39.00	
1923.....	12,500.00	12,495.73	135.38	
1924.....	12,500.00			
Casa Grande National Monument: 10				
1917.....	900.00			
1918.....	900.00			
1919.....	900.00			
Improvement of Navajo National Monument, Ariz.: 1917.....	11 3,000.00	1,962.69		
National Park Service:				
1917.....	3,666.67	2,513.62		
1918.....	17,600.00	17,413.33		
1919.....	19,200.00	19,177.50		
1920.....	22,220.00	21,524.46		
1921.....	27,420.00	27,090.59		
1922.....	31,020.00	30,957.72		
1923.....	32,420.00	32,388.50		
1924.....	33,200.00			
Fighting forest fires:				
1922.....	25,000.00	9,614.40		
1923.....	25,000.00	17,764.16		
1924.....	25,000.00			
Accounting services:				
1923.....	6,000.00	5,202.65		
1924.....	6,000.00			

⁵ Expenditure of revenue for park purposes not authorized. Sundry civil act of June 12, 1917 (40 Stat. 153).

⁸ Appropriation for 1919 made under the name of Sieur de Monts National Monument.

⁹ Expenditure of revenue for monument purposes not authorized.

¹⁰ Expended under the direction of the Commissioner of the General Land Office.

¹¹ Expended under direction of Smithsonian Institution.

Summary of appropriations for the administration, protection, and improvement of the national parks and national monuments, together with the revenues received, for the fiscal years 1917 to 1924, inclusive.

Year.	Department.	Appropriation.		Revenues.
1917	Interior Department.....	\$537,366.67		
	War Department.....	247,200.00		
1918	Interior Department.....	530,680.00	\$784,566.67	\$180,652.30
	War Department.....	217,500.00		
1919	Interior Department.....	963,105.00	748,180.00	\$ 217,330.55
	War Department.....	50,000.00		
1920			1,013,105.00	196,678.03
1921			907,070.76	316,877.96
1922			1,058,969.16	396,928.27
1923			1,433,220.00	432,964.89
1924			1,446,520.00	513,706.36
			1,822,730.00	

¹ For summary of appropriations and revenues prior to 1917 see 1920 Annual Report, p. 359.

² The revenues from the various national parks were expendable during the years 1904 to 1918, inclusive, with the exception of those received from Crater Lake, Mesa Verde, and Rocky Mountain National Parks, the revenues from which were turned into the Treasury to the credit of miscellaneous receipts.

National park and monument lands administered by the National Park Service in relation to national forest lands, including national monument lands administered by the Forest Service.

State or Territory.	National forest lands. ¹	Park and monument lands. ¹	Relation.
	<i>Acres.</i>	<i>Acres.</i>	<i>Per cent.</i>
Alabama.....	2 97,198		
Alaska.....	20,571,549	2,780,857	13.52
Arizona.....	11,204,304	640,677	5.72
Arkansas.....	2 957,247	912	.10
California.....	19,147,587	951,102	4.96
Colorado.....	13,277,038	295,626	2.27
Florida.....	337,938		
Georgia.....	153,457		
Hawaii.....		77,695	
Idaho.....	19,056,871	23,040	.12
Maine.....	32,256	3 5,000	15.48
Michigan.....	124,082		
Minnesota.....	1,047,941		
Montana.....	15,881,715	1,092,053	6.88
Nebraska.....	205,944	2,054	.99
Nevada.....	4,976,513		
New Hampshire.....	404,945		
New Mexico.....	8,535,984	22,115	.26
North Carolina.....	359,690		
North Dakota.....		1,033	
Oklahoma.....	61,480	848	1.37
Oregon.....	13,137,447	157,411	1.20
Porto Rico.....	12,443		
South Carolina.....	18,558		
South Dakota.....	1,057,747	11,219	1.06
Tennessee.....	241,210		
Utah.....	7,453,400	76,642	1.03
Virginia.....	431,513		
Washington.....	9,900,869	207,342	2.09
West Virginia.....	132,108		
Wyoming.....	8,417,773	1,994,322	23.69
Total.....	157,236,807	8,339,948	5.30

¹ July 1, 1923. Alienated lands not included.

² Includes lands acquired under the Weeks law.

³ Donated to the United States. Donations of lands in national monument areas amount to 470 acres.

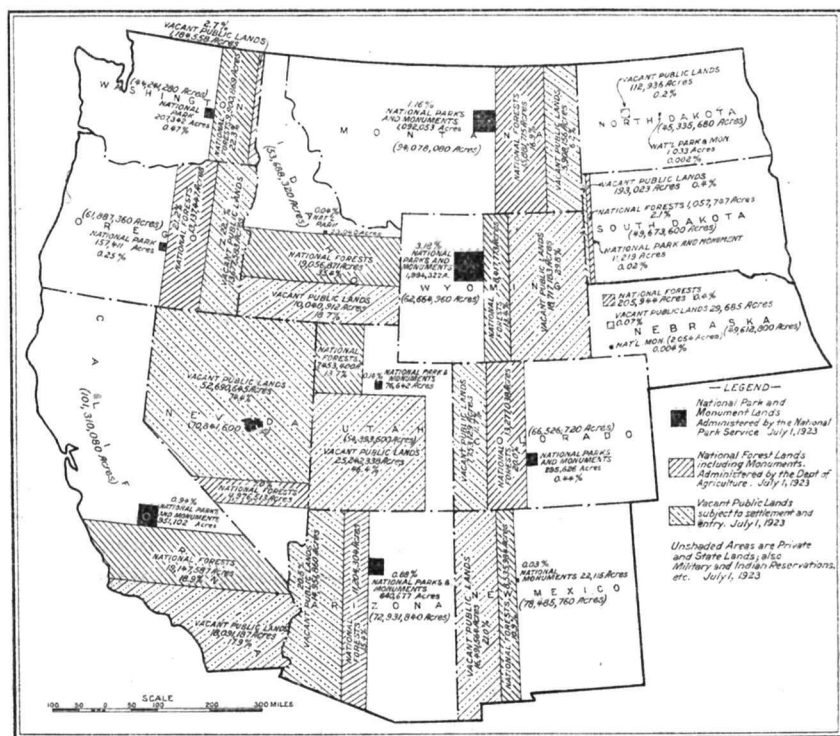


FIG. 1. Map of western portion of the United States, showing relation of the national park and monument lands, the vacant public lands, and the national forest lands to the several States.

National park and monument lands administered by the National Park Service in relation to the States and Territories in which they are located.

State or Territory.	Area.	Park and monument lands. ¹	Relation.
	<i>Acres.</i>	<i>Acres.</i>	<i>Per cent.</i>
Alaska.....	378,165,761	2,780,857	0.74
Arizona.....	72,931,840	640,677	.88
Arkansas.....	34,134,400	912	.003
California.....	101,310,080	951,102	.94
Colorado.....	66,526,720	295,626	.44
Hawaii.....	² 3,160,320	77,695	2.46
Idaho.....	53,688,320	23,040	.04
Maine.....	21,145,600	5,000	.02
Montana.....	94,078,080	1,092,053	1.16
Nebraska.....	49,612,800	2,054	.004
New Mexico.....	78,485,760	22,115	.03
North Dakota.....	45,335,680	1,033	.002
Oklahoma.....	44,836,480	848	.002
Oregon.....	61,887,360	157,411	.25
South Dakota.....	49,673,600	11,219	.02
Utah.....	54,393,600	76,642	.14
Washington.....	44,241,280	207,342	.47
Wyoming.....	62,664,960	1,994,322	3.18
Total.....	1,316,272,640	8,339,948	.63

¹ July 1, 1923. Alienated lands not included.

² Area of the Islands of Hawaii and Maui on which are located the Hawaii National Park.

National park and monument lands administered by the National Park Service in relation to the public lands.¹

State and Territory.	Public lands. ²	Park and monument lands. ²	Relation.
	<i>Acres.</i>	<i>Acres.</i>	<i>Per cent.</i>
Alabama.....	134,298		
Alaska ³		2,780,857	
Arizona.....	26,796,841	640,677	2.39
Arkansas.....	1,233,185	912	.08
California.....	38,189,876	951,102	2.49
Colorado.....	21,325,793	285,626	1.39
Florida.....	424,996		
Georgia.....	153,457		
Hawaii ⁴	1,604,395	77,695	4.84
Idaho.....	29,120,823	23,040	.08
Kansas.....	2,842		
Louisiana.....	9,084		
Maine.....	37,256	5,000	13.40
Michigan.....	221,933		
Minnesota.....	1,326,293		
Mississippi.....	19,216		
Montana.....	22,881,924	1,062,053	4.77
Nebraska.....	237,683	2,054	.86
Nevada.....	57,667,158		
New Hampshire.....	404,945		
New Mexico.....	25,049,663	22,115	.09
North Carolina.....	359,690		
North Dakota.....	113,939	1,633	.90
Oklahoma.....	99,268	848	.85
Oregon.....	26,972,441	157,411	.58
South Carolina.....	18,558		
South Dakota.....	1,261,989	11,219	.89
Tennessee.....	241,210		
Utah.....	32,772,380	76,642	.23
Virginia.....	431,513		
Washington.....	11,292,769	207,342	1.84
West Virginia.....	132,108		
Wisconsin.....	5,014		
Wyoming.....	29,129,278	1,964,322	6.85
Total.....	329,671,848	8,339,948	2.53

¹ Includes vacant public lands, unalienated national park and monument lands, and unalienated national forest lands, but does not include military and Indian reservations, reclamation and power-site withdrawals, etc.

² July 1, 1923.

³ With the exception of 23,352,406 acres within national forest, park, and monument boundaries, the area of public lands in Alaska is not obtainable.

⁴ Public lands of the Territory of Hawaii are under the Territorial land department.

APPENDIX C.

REPORTS OF OFFICERS IN CHARGE OF THE NATIONAL PARKS AND MONUMENTS.

	Page.		Page.
Casa Grande National Monument.....	178	Grand Canyon National Park—Continued.	
Civil engineering division.....	182	Public utilities and park operators.....	170
Road projects under construction.....	182	Recommendations.....	171
Surveys, estimates, and reports.....	183	Buildings.....	171
Crater Lake National Park.....	142	Lighting.....	171
Acknowledgements.....	145	Roads and trails.....	171
Administration.....	142	Roads.....	169
Buildings.....	143	Mileage.....	172
Fishing.....	144	Sewers and water supply.....	170
Forest fires.....	143	Signs.....	170
General statement.....	142	Summary of results attained by the park organization.....	168
Highways to park.....	142	Telephone system.....	170
Miscellaneous work.....	143	Mileage.....	172
Natron Cut-off begun.....	142	Trails.....	169
Nearly self-supporting.....	143	Mileage.....	172
New construction.....	144	Travel statistics.....	174
Park operators.....	143	Weather.....	173
Publicity.....	144	Wild animals, birds and fish.....	170
Recommendations.....	144	Hawaii National Park.....	165
Revenues for 1923.....	142	Forests.....	165
Roads within park.....	143	General statement.....	165
Telephone system.....	143	Haleakala section.....	165
Total season travel by entrances, 1923 and 1922.....	143	Hotel accommodations.....	166
Trails.....	143	Kilauea section.....	165
Travel in 1923.....	143	Local development.....	165
Trees and flowers.....	144	Location.....	165
Wild life in park.....	144	Mauna Loa section.....	165
El Morro National Monument.....	179	Military camp.....	166
General Grant National Park.....	136	Observatory.....	166
Statistical summary.....	137	Recommendations.....	166
Glacier National Park.....	152	Travel.....	166
Accidents.....	154	Volcanic activity.....	165
Administration.....	152	Weather conditions.....	165
Buildings.....	155	Hot Springs National Park.....	110
Fires.....	156	Administration.....	110
Fish.....	155	Construction, maintenance and repairs.....	111
General statement.....	152	General statement.....	110
Hydro-electric plant and gravity water supply at Belton headquarters.....	155	Government free bathhouse and clinic.....	111
Nature guide service.....	152	Pay bathhouses.....	110
Recommendations.....	157	Receipts and expenditures.....	113
Revenues.....	154	Recommendations.....	112
Roads.....	155	Sanitation and public health activities.....	110
Telephones.....	157	Springs.....	113
Tourist accommodations and facilities.....	152	Visitors.....	113
Trails.....	155	Lafayette National Park.....	175
Transportation.....	152	Bridle paths.....	175
Travel.....	152	Entrance roads.....	175
Violations of regulations.....	157	Footpaths.....	175
Weather.....	154	Forestry.....	176
Wild animals.....	156	Geological and other papers.....	176
Grand Canyon National Park.....	167	Motor camping.....	176
Bridge.....	167	Resort to the park.....	176
Bridle paths.....	170	Road leading to the park.....	176
Buildings.....	168	The mountain road.....	175
Cemetery.....	169	Use of the ocean.....	176
Equipment and supplies.....	168	Landscape engineering division.....	183
Fences.....	171	Mesa Verde National Park.....	148
Flowers and trees.....	171	Administration.....	148
Forest fires.....	170	Administrative headquarters.....	149
General statement.....	167	Archaeological work.....	150
Gifts.....	171	Camp fire talks and Indian dances.....	150
Hospital.....	171	Drift fence.....	151
North rim.....	170	Flowers.....	150
Organization.....	168	General statement.....	148
Paths.....	169	Gifts.....	151
Mileage.....	172	Light plant.....	150
Permits, contracts, and revenues therefrom.....	173	Museum.....	150
Predatory animals.....	170	Permits and leases.....	151
Public camp grounds.....	169	Public camp grounds.....	150
		Recommendations.....	151
		Roads.....	151
		Ruins.....	151

	Page.		Page.
Meso Verde National Park—Continued.		Rocky Mountain National Park—Contd.	
Service to the public	149	Grounds and buildings	162
Telephone system	150	Hotels and camps	160
Trails	151	Information bureau	161
Travel	148	Lawsuit	164
Water development	150	Loan of books	164
Wild animals	150	Mills, Enos A., Death of	164
Montezuma Castle National Monument	179	Mosquito control	162
Mount McKinley National Park	166	Nature study and guide service	163
Administration	166	Organization of branch of Colorado	
Destruction of game	166	Mountain Club	164
Fires	167	Placing of signs	162
General statement	166	Roads	161
Mining and prospecting	167	Road surveys	162
Recommendations	167	Special camps	163
Roads	166	Trails	162
Trails	166	Transportation	160
Transportation	167	Travel	158
Visitors	167	Visit of congressional party	164
Mount Rainier National Park	137	Weather conditions	161
Administration	138	Wild animals	163
General statement	137	Wild Basin telephone line	162
Free public camp grounds	138	Winter sports	163
Hotel and transportation service	138	Sequoia National Park	131
Camps	138	A successful year	131
Hotels	138	Administration and organization	132
Other trips	138	Construction and maintenance	134
Summit climb	138	Alder Creek headquarters	134
Transportation	138	Landscape engineering division	134
Improvement work	137	Miscellaneous notes	135
Carbon River Road	137	New water system	134
General construction	140	Sanitary engineer, United States	
Nisqually River Road	139	Public Health Service	134
Public camp grounds	140	State Highway and The Generals'	
Trail system	139	Highway	134
White River Road	139	Forest fires	132
Natural features	138	General statement	131
Flowers	138	Grazing	132
Glaciers	138	Miscellaneous service to public	134
Trees	138	Annual pageant	134
Wild life	138	Construction of Giant Forest Center	134
Nature guide service	139	Dedicating the Warren Harding	
Recommendations	140	Sequoia	134
Buildings	140	Library	134
Camp grounds	140	Museum and library building	134
Carbon River Road	140	Nature guide service	134
Nisqually Road	140	Restoration of Tharp Log Cabin	134
Road equipment	140	Park ranger force, The	132
Trails	140	Proposed park enlargement	132
West Side Road	140	Public auto camp grounds	133
White River Road	140	Public operators	133
Special events	139	Recommendations	135
Travel for 1923 season	140	Statistical summary	135
Weather conditions	138	Travel	133
Muir Woods National Monument	180	United States commissioner and court	
Papago Saguaro National Monument	181	cases	132
Needs of the coming year	181	Sullys Hill National Park	147
Roads	181	Mammals and game birds on the game	
Signs	181	preserve	148
Desert growth	181	Recommendations	148
Visitors	182	Travel	148
Petrified Forest National Monument	182	Tumacacori National Monument	182
Administration	182	Wind Cave National Park	145
Improvements	182	Administration	145
Recommendations	182	Birds	146
Travel	182	Cave, The	145
Platt National Park	146	Description	145
Animals	147	Discovery	145
Automobiles	147	Game preserve	146
Campers	147	General statement	145
General statement	146	Grazing	146
Improvements	147	Hours of entrance	146
Platt Park	147	Information service	146
Roads	147	Railroad facilities	145
Recommendations	147	Recommendations	146
Springs	147	Revenues	146
Tables	147	Roads	146
Visitors	147	Transportation	145
Rocky Mountain National Park	158	Visitors	145
Accidents	158	Water supply	146
Administration	158	Yellowstone National Park	113
Administration Building	162	Accommodations	113
Autochrome lectures	164	Administrative department	115
Camping	163	Appropriations	115
Contemplated improvements	164	Automobile camps	117
Equipment	162	Bechler River Road survey	116
Fish planting	163	Birds	119
Forest fires	163	Boat company	121
General statement	158		

Yellowstone National Park—Continued.	Page.
Buildings.....	116
Buildings at headquarters.....	115
Comfort stations.....	116, 117
Mess stations for road maintenance crews.....	116
Ranger stations.....	116
Buffalo ranch.....	118
Camps, Automobile.....	116, 117
Camps, Permanent.....	120
Cases tried before United States commissioner.....	121
Church services.....	123
Cooperation with other Government organizations.....	121
Department of Agriculture.....	122
Bureau of Animal Industry.....	122
Bureau of Entomology.....	122
Weather Bureau.....	122
Department of Commerce.....	122
Bureau of Fisheries.....	122
Coast and Geodetic Survey.....	122
Department of the Interior.....	121
Geological Survey.....	121
General Land Office.....	121
Department of Justice.....	121
Commissioner's court.....	121
Post Office Department.....	121
Treasury Department.....	122
Public Health Service.....	122
State of Montana.....	117
Fish and game department.....	117
Cultivation of land.....	118
Hay operations.....	118
Delicatessen.....	121
Electrical department.....	119
Engineering department.....	115
Extension of park.....	113, 123
Facts regarding park.....	113
Fish planting.....	117
Flowers.....	119
Forest fires.....	117
Franchises and permits.....	121
Long-term permits.....	121
Short-term permits.....	121
General statement.....	113
Geysers, Hot Springs and other similar phenomena.....	119
Gifts to the park.....	122
Harding, President Warren G.....	122
Hay and hay ranches.....	118
Howard Eaton Trail dedication.....	122
Information department.....	119
Information office.....	119
Lecture service.....	119
Guide service.....	119
Publications.....	119
Museum.....	119
Irrigation projects.....	123
Landscape engineering activities.....	117
Mechanical department.....	120
Medical service.....	122
Milk, Analyses.....	122
Mosquito control.....	117
Mountain climbing.....	115
National Park Service activities.....	115
Natural features of park.....	118
Opening of park.....	122
Opening of roads.....	115
Organization of park.....	113, 115
Painting department.....	120
Parapets and guard rails.....	116
Permanent camps.....	120
Personnel.....	115
Power plant.....	119
President's visit to park.....	122
Predatory animals.....	118
Property and transportation department.....	120
Protection department.....	117
Public utilities.....	120
Publications.....	119
Railroad service.....	114
Recommendations.....	123
Religious service.....	123

Yellowstone National Park—Continued.	Page.
Revenues.....	115
Road construction.....	116
Road maintenance.....	115
Road protection.....	116
Road surveys.....	116
Sanitation.....	116
Scientists, Visit of.....	119
Service to the public.....	113
Sewer systems.....	115
Signs.....	120
Sprinkling system.....	116
Stores.....	121
Telephone and telegraph lines.....	120
Trails.....	117
Trail trips.....	115
Train service.....	114
Transportation company.....	121
Travel of 1923 season.....	114
Trees.....	119
Violation of laws.....	121
Visit of President Harding.....	122
Visiting scientists.....	119
Vital statistics.....	122
Water analysis.....	122
Water supply.....	117
Weather.....	113
Wild animals.....	118
Antelope.....	118
Bears.....	119
Beaver.....	119
Buffalo.....	118
Tame herd.....	118
Wild herd.....	118
Coyotes, wolves.....	118
Deer.....	118
Elk.....	118
Moose.....	118
Mountain sheep.....	118
Rabbits and other small animals.....	119
Yosemite National Park.....	123
Cooperative Federal and State activities.....	127
Department of Agriculture.....	128
Department of Justice.....	128
Post Office Department.....	128
State of California.....	128
United States Public Health Service.....	128
Fish and game.....	131
General statement.....	123
Park organization.....	123
Park Service activities.....	124
Administrative department.....	124
Educational department.....	127
Electrical department.....	126
Engineering and construction department.....	125
Forests and timber department.....	127
Maintenance department.....	124
Mechanical department.....	126
Protection, ranger service.....	125
Public utilities.....	128
Franchises and permits.....	129
Recommendations.....	131
Travel.....	130
Automobiles and motorcycles.....	130
Other means of transportation.....	130
Summary.....	130
Weather conditions.....	123
Zion National Park.....	176
Administration.....	176
Animals, Wild.....	177
Buildings.....	177
Birds.....	177
Camp grounds.....	177
Cliff dwellings.....	177
General statement.....	176
Insect and plant pests.....	177
Roads within the park.....	176
Roads leading to park.....	177
Recommendations.....	177
Trails.....	177
Travel.....	177
Travel figures.....	178
Weather conditions.....	176

HOT SPRINGS NATIONAL PARK.

Dr. C. H. WARING, Superintendent, Hot Springs, Ark.

GENERAL STATEMENT.

The total receipts of the pay bathhouses were \$393,281.08, the amount for the previous year being \$386,602.17.

The net profits reported for 17 pay bathhouses aggregated \$101,171.28. Three institutions reported deficits amounting to \$2,691.86. The total profits for all (20) bathhouses last year were \$111,312.05.

The baths given were as follows: Complimentary, 4,788; paid baths, 603,618; at Government free bathhouse, 57,553; at Leo N. Levi Memorial Hospital Bathhouse, 6,041, making a grand total of 667,212 baths, as compared with a grand total of 679,864 during the previous year.

The rainfall has been heavy during the year. Figures are not available for the July 1 to December 31, 1922, period, but from January 1 to June 30, 1923, a total of 44.33 inches was recorded. Of this amount 14.22 inches fell during May. In that month a cloudburst occurred, causing heavy damage to the city and park. Rainfall for that 24-hour period was 9 inches.

On April 5 the famous Arlington Hotel was destroyed by fire, with a loss of over a million dollars. Plans are now being prepared for its reconstruction.

The widespread publicity given the fire and the exaggerated reports as to damage by the flood have materially affected the business of this resort, as shown in the following comparative tables for the fiscal years of 1922 and 1923:

	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
1922.....	53,310	61,908	42,387	34,253	32,520	29,268	46,078	65,592	86,333	59,093	54,218	44,833
1923.....	46,649	51,192	35,147	31,950	30,977	30,040	52,202	70,560	93,880	68,006	49,381	43,634
Increase....						772	6,124	4,968	7,547	8,913		
Decrease....	6,661	10,716	7,240	2,303	1,543						4,837	1,199

THE SPRINGS.

The springs, 46 in number, are located on the Central Avenue slope of Hot Springs Mountain, a part of Hot Springs National Park, set aside in 1832 by Congress as the first national reservation. They supply 1,000,000 gallons of hot water daily, which is collected and distributed to the Army and Navy General Hospital; the Government free bathhouse; the Leo N. Levi Memorial Hospital bathhouse, a charitable institution; and 20 pay bathhouses, all of which are under Government supervision. The water from the springs has an average temperature of 142° F. and is radio-active.

PARK ADMINISTRATION.

The park is in charge of the superintendent, who has supervision over all matters pertaining to the park and its management, the general sanitary control of all bathhouses receiving the hot water, and control over all employees connected with the bathhouses.

The park personnel has developed into a very effective organization and is divided into the following departments: Administrative, police and train inspection, maintenance, free bathhouse and clinic, and sanitary. The administrative department has a personnel of three, the chief clerk, a clerk-stenographer and porter. Two more clerks are badly needed. The police and train inspection department consists of the captain of police and five policemen. Two more policemen are needed. The maintenance department consists of a foreman and 12 laborers. The foreman needs two assistant foremen to assist him in his many and varied duties. The free bathhouse section of the free bathhouse and clinic department has a manager, stationary engineer, head bath attendant, and seven attendants. The clinic section has three employees paid by the Interior Department. The sanitary department has one employee.

RECEIPTS AND EXPENDITURES.

Receipts:	
Water rent.....	\$39,066.66
Ground rent.....	10,100.00
Privilege fees of registered physicians.....	5,315.00
Privilege fees of bath attendants.....	1,697.00
Privilege fees of masseurs.....	374.00
Sale of attendants' badges.....	8.80
Sale of attendants' compendiums.....	5.85
Sale of Oertel system maps.....	.85
Demolition of old free bathhouse, contract.....	101.00

Total, deposited to credit of miscellaneous receipts..... 56,669.16

Of the water and ground rents collected, \$4,340 was paid by the Arlington Hotel on April 5, 1923, a few hours before the hotel burned. Ground rents will be decreased in the future at the rate of \$9,900 per year; also water rentals amounting to \$7,360 per

year until the new Arlington is completed. The ground rent item will be a permanent loss as the Arlington when rebuilt will not be on the reservation.

Expenditures: Of the appropriation of \$63,900 for the 1923 fiscal year there was expended \$63,127.11.

Of the \$2,273.82 balance remaining on July 1, 1922, to the credit of the fund derived from the sale of Government lots, \$2,000 was allotted on June 14, 1923, for repairing damage to the park caused by the flood of May 14, 1923.

CONSTRUCTION, MAINTENANCE, AND REPAIR.

Two comfort stations on Bath House Row were constructed under contract at a cost of \$7,820.

The old free bathhouse, erected some 40 years ago, became unsafe for use, was condemned and demolished during the latter part of the year.

A 4-foot bridge and foot trail, over 2 miles in length, was constructed on a 10 per cent grade at a total cost of \$1,369.39. This trail opens up to the general public one of the most impressive and scenic parts of the park.

A 4-inch tile sewer line was laid from the top of Hot Springs Mountain connecting with the city sewer system in Fountain Street.

All roads were worked over from time to time and gravel spread wherever necessary. Much essential work was done on the shoulders, turns, retaining walls and surface of West Mountain Road. About 900 yards of gravel were distributed over the roads and trails during the year.

The greenhouse was entirely remodeled during the summer of 1922, but was destroyed on April 5, 1923, coincident with the burning of the Arlington Hotel, to which it was contiguous. The interior and exterior of the office building were painted, and all pavilions and stands in Whittington Lake Park repaired and painted, including the keeper's residence. A new roof was placed on the pump house. Several other buildings were repaired and painted. Two hundred and fifty park benches were hauled in during the spring, repaired and painted. A new iron-pipe fence was placed around the tennis courts in Whittington Lake Park.

Repairs and alterations were performed on the hot-water system with a view to conservation of the hot-water supply. Measurements and records of rate of flow of certain springs and also their temperature readings were begun and continued through the year.

For two weeks following the flood of May 14 all permanent and temporary laborers were engaged in cleaning up debris. Grass, weed and brush cutting and cleaning of grounds occupied the time of from two to six laborers the year round. A large amount of fallen timber was cut into fire wood and distributed that it might be used for the conservation of coal in the various furnaces of the park. Mountain slopes were burned for fire prevention and underbrush cleaned away.

Contracts were let for the overhauling of part of the lighting system on Bath House Row at a cost of \$750 and for the construction of a 4,000-gallon galvanized-iron water tank on Hot Springs Mountain to replace a small wooden tank. This tank will cost \$392.50 and is necessary to meet the needs of the present fountain in the observation pavilion on the top of the mountain and of the two comfort stations to be erected in this vicinity.

GOVERNMENT FREE BATHHOUSE AND CLINIC.

The average number bathed daily in the Government free bathhouse was 189, with a total of 57,553 baths for the year. The total number of persons bathing was 3,885.

The total number of patients examined and treated in the free clinic was 3,389 for the year. Of this number 1,905 were venereal and 1,484 nonvenereal cases. The total number of treatments, examinations, etc., given in the clinic during the year was 49,130. The course of instruction for physicians was continued at the clinic and, including those finishing last year, gives a total of about 36 physicians who have finished the course.

Great difficulty was experienced in heating the bathhouse during the past winter due to structural faults in the heating system. While this condition will cost about \$1,500 to correct, it is hoped same can be done before cold weather. The failure of the heating system has caused extensive damage to the building due to condensation of steam from the hot water; about \$500 will be required for repairs.

PAY BATHHOUSES.

Two new bathhouses have been completed during the year, the Lamar, on the "Row," and the Pythian Bathhouse and Sanitarium, a colored institution, off the reservation. With the completion of the Lamar the last bathhouse site on the "Magnolia Promenade" has been occupied. These are a beautiful collection of buildings representing an investment of several millions of dollars.

The following tables show the business of the pay bathhouses for the fiscal year:

Bathhouse.	Net amount received by attendants.	Paid for redeemed baths.	Total bath receipts less redemptions.	Receipts from massage, etc.	Total receipts.	Total expenditures.	Net profits.
Alhambra.....	\$5,222.20	\$2,428.00	\$13,148.85	.....	\$13,148.85	\$10,795.05	\$2,353.80
Arlington.....	5,708.20	3,856.40	21,730.30	\$1,200.00	22,930.30	13,492.95	9,437.35
Buckstaff.....	10,351.60	3,996.25	36,428.50	2,338.75	38,767.25	27,470.94	11,296.31
Eastman.....	7,069.20	3,985.05	24,506.15	1,227.75	25,733.90	15,003.90	10,730.00
Fordyce.....	9,070.82	5,238.87	33,423.78	5,045.66	38,469.44	26,536.64	11,932.80
Hale.....	6,801.20	2,004.00	20,477.90	395.00	20,872.90	15,645.89	5,227.01
Imperial.....	6,436.40	2,789.80	19,804.65	517.85	20,322.50	17,018.92	3,303.58
Lamar.....	1,878.69	966.82	7,009.53	693.20	7,702.73	4,963.04	2,739.69
Majestic.....	5,268.60	5,446.30	20,505.30	300.00	20,805.30	14,028.46	6,776.84
Maurice.....	11,021.20	4,902.80	38,699.95	4,724.65	43,424.60	33,295.81	10,128.79
Moody.....	3,777.40	1,834.80	11,403.95	308.90	11,712.85	8,034.88	3,677.97
Ozark.....	9,169.70	3,770.80	27,540.10	954.22	28,494.32	17,487.40	11,006.92
Ozark Sanatorium.....	2,810.00	1,193.91	7,807.34	76.70	7,884.04	6,698.09	1,185.95
Pythian (colored).....	1,461.40	162.85	2,885.15	20.00	2,905.15	5,318.45	1,213.30
Quapaw.....	10,065.60	4,071.70	29,843.95	1,231.35	31,075.30	31,289.99	1,414.69
Rector.....	2,835.80	1,783.45	7,820.40	84.40	7,904.80	6,033.80	1,871.00
Rockafellow.....	5,978.40	1,943.85	16,513.25	797.80	17,311.05	14,069.12	3,241.93
Superior.....	7,470.60	3,839.40	22,483.90	.....	22,483.90	18,847.34	3,636.56
St. Joseph's Infirmary.....	1,248.60	775.30	3,762.95	.....	3,762.95	3,827.82	164.87
Woodmen of Union (colored).....	2,760.30	508.55	7,568.95	.....	7,568.95	4,944.17	2,624.78
Total.....	116,435.91	55,498.90	373,364.85	19,916.23	393,281.08	294,802.66	101,171.28

¹ Reported deficit, \$2,692.86.

Bathhouse.	Total baths sold.	Baths redeemed.	Net paid baths sold.	Paid baths given.	Complimentary baths.	Total baths given.
Alhambra.....	31,995	4,856	27,139	27,434	19	27,453
Arlington.....	34,882	5,358	29,524	29,037	44	29,081
Buckstaff.....	59,269	5,709	52,579	52,945	366	53,311
Eastman.....	42,233	5,686	36,547	37,501	1,216	38,717
Fordyce.....	51,294	5,829	45,474	45,850	445	46,295
Hale.....	38,583	3,340	35,243	35,660	42	35,702
Imperial.....	37,273	4,478	32,795	33,089	607	33,696
Lamar.....	12,655	1,487	11,168	9,761	124	9,885
Majestic.....	41,117	8,642	32,475	34,985	.....	34,985
Maurice.....	64,366	7,004	56,561	56,564	320	56,884
Moody.....	22,617	3,058	19,559	19,128	189	19,317
Ozark.....	53,676	3,878	49,798	43,972	301	44,273
Ozark Sanatorium.....	16,758	2,235	14,523	14,443	42	14,485
Pythian (colored).....	7,874	342	7,532	6,758	.....	6,758
Quapaw.....	56,145	5,817	50,328	48,708	937	49,645
Rector.....	18,032	3,242	14,790	14,520	73	14,593
Rockafellow.....	34,519	3,534	30,985	29,523	.....	29,523
Superior.....	45,375	6,399	38,976	33,278	.....	33,278
St. Joseph's Infirmary.....	7,823	1,292	6,531	6,329	63	6,392
Woodmen of Union (colored).....	19,358	1,253	18,105	19,133	.....	19,133
Total.....	695,844	83,430	610,632	603,618	4,788	608,406

SANITATION AND PUBLIC HEALTH ACTIVITIES.

The individual bathhouses are thoroughly inspected at irregular intervals, each institution receiving at least one inspection each month. Conditions found are, as a usual thing, excellent, it being greatly to the advantage of these institutions that they be kept in a cleanly way.

A course of instruction was organized during the past year for bath attendants and other employees having contact with the bathing public which extended over a period of two months covering general and personal hygiene, the various operations of bathing as conducted in this resort, first aid, ethics and regulations of the department. All attendants and other employees mentioned above were required to attend this course of instruction and pass an examination at its close. I am glad to report that all passed the final examination with one exception. At the beginning of the course a complete physical examination was made of each student, and those having communicable diseases were prevented from working until further examination showed them cured or non-infectious. Physical examinations are held at stated intervals and conditions found noted on the health card of each attendant. No attendant is permitted to work without a health card, which becomes a part of his record in the office of the superintendent. Professional work, as required above, is done through the cooperation of the United States Public Health Service clinic and the local physicians who form a part of the clinic staff.

It is desired here to express our appreciation for the cooperation of the officers of the United States Public Health Service clinic and local physicians in the physical examina-

tion of the attendants and in the course of instruction given them. This work would have been impracticable without their assistance.

The water as delivered from the springs is examined at intervals as to its bacteriological content. It was found necessary to prohibit the use of the water for a period of 36 hours following the flood due to flood waters entering the reservoirs.

In the Whittington Lake Park section mosquito-control work was found necessary and is being done by drainage and oiling.

VISITORS.

The records for the travel season indicated that at least 112,000 visitors spent from one to several weeks at the resort during the past year.

Forty-five conventions were held during the year with an attendance of about 15,000. The number of auto tourists has greatly increased, the Business Men's League estimating at least 20,000 for the travel season.

A number of prominent official visitors were here during the year, among them being Secretary of the Interior Work: Chairman Cramton, of the Subcommittee on Appropriations of the House of Representatives for the Interior Department; Commissioner of Indian Affairs Burke; Director Mather, of the National Park Service; Surgeon General Cumming, of the Public Health Service; and Surgeon General Ireland, United States Army.

RECOMMENDATIONS.

It is recommended that new monthly and annual report forms be adopted for the pay bathhouses. The present form is inadequate in that it does not procure comparable data. Additional administrative personnel is needed in order that our statistical data may be properly handled. A large amount of valuable information is being lost due to our force being unable to utilize it.

A modern and presentable flower house or conservatory is badly needed in order to care for our plants, etc., and to make them available to the general public.

A new administration building is sorely needed in order to give more room for our activities and to preserve the dignity of the Government. The present building compares very unfavorably with the bathing institutions surrounding it. The park to be developed on the Arlington site would be an ideal location for construction of a new building.

YELLOWSTONE NATIONAL PARK.

HORACE M. ALBRIGHT, Superintendent, Yellowstone Park, Wyo.

GENERAL STATEMENT.

Yellowstone Park was established March 1, 1872 (secs. 2474 and 2475, R. S. or 17 Stat., 32). It was the first national park to be established in the world and is our largest park. Its area is 3,348 square miles, or 2,142,720 acres, most of which lies in Wyoming. Small areas, however, lie within the States of Montana and Idaho. It is proposed to add to the Yellowstone certain lands east and south of the park, including the Teton Mountains with total area in the neighborhood of 800,000 acres.

IMPORTANT FACTS OF 1923 OPERATIONS.

1. The late President Warren G. Harding, with a party of over 70 distinguished men and women, enroute to Alaska, visited the park June 30 and July 1.

2. A congressional party on inspection of Government activities in the West, headed by United States Senator Francis E. Warren, visited the park June 22-24, inclusive. During the summer a total of 7 United States Senators and 25 Congressmen of the Sixty-eighth Congress and 2 Senators and 4 Congressmen of previous Congresses toured the Yellowstone. The Governors of Idaho and Wyoming also made the trip.

3. Travel to the park reached unprecedented figures—138,352 visitors as compared with 98,223 last year, an increase of 40.129 or 41 per cent.

4. For the current fiscal year park revenues will reach a total of \$285,000, or about \$82,000 over the receipts of the 1923 fiscal year, while appropriations for this year exceeded those of last by only \$6,200.

5. Under excellent care of the ranger service and in a winter generally favorable to wild life, the animals of the park suffered very little and losses were negligible. A census of the animals this spring showed gratifying increases in all species.

6. Congress granted authority to dispose of surplus buffalo. (See the appropriation act of January 24, 1923, herein.)

7. Service to the public was better than ever before except in the case of the transportation line. Compliments on service were numerous and especially with regard to courtesy, kindness, and spirit of helpfulness that marked activities of the National Park Service.

8. Excellent progress was made in developing public automobile camp grounds, also considerable extension of hotel and permanent camp facilities, including erection of great central building at Mammoth Camp costing nearly \$100,000. Transportation facilities proved inadequate and many hired cars were brought in, thus greatly lowering the usual high standard of service.

9. Excellent work on road maintenance preserved roads from destruction under heavy traffic. All trails in splendid repair. Some new trails built.

10. On July 22 cloudbursts damaged the roads, particularly the Cody Road to the extent of \$27,700.

11. All records for trout egg harvest and fish hatching and planting were broken.

WEATHER.

October was warm and sunshiny, with practically no precipitation. Snow held off remarkably late in the fall, the first measurable amount occurring October 28, there being but one year of record with a later occurrence of the first measurable amount of snowfall. November was a normal month, but the fore part of December was unusually severe and stormy, while the latter part was comparatively mild, which condition con-

tinued until the closing days of January, when the coldest period of the winter began, culminating on February 14 with a severe cold wave, the lowest temperature at Mammoth Hot Springs being 22° below zero. At Riverside 42° below zero was recorded February 9. March, April, and May did not depart greatly from the average of past years, but June was consistently cool with almost unprecedented frequency of showers and thunderstorms. July was the warmest month of the past four years. On July 20 a maximum temperature of 89° was recorded at Mammoth. This, with the exception of 91° on July 10, 1919, is the highest temperature recorded in any month during the past 20 years. The period of warm weather ended August 13, with a maximum temperature of 88° at Mammoth, which equals the highest of record for August in the past 20 years. In the afternoon and evening of July 22 a severe local storm crossed the park in an easterly direction, accompanied by a heavy downpour of rain, which caused much damage to the roads at a number of places.

RAILROADS AND HIGHWAYS TO PARK GATEWAYS.

Four railroads carried passengers to park gateways during the season, as follows: Northern Pacific, two trains daily to terminal at Gardiner, Mont.; Union Pacific, two trains daily to West Yellowstone, Mont.; Chicago, Burlington & Quincy Railway, three trains daily to Cody, Wyo.; Chicago & North Western Railway, one train daily to Lander, Wyo. No new highways to the park were opened during the year.

TRAVEL IN 1923.

This year 138,352 people visited the park as compared with 98,223 last year, an increase of 40,129.

There was an increase in rail travel this year of 11,448 over last year. The western entrance shows an increase of 6,021 by rail; the northern entrance 3,256, and the eastern entrance 2,103; 167 came in via the Lander or southern gateway. All entrances showed an increase in automobile travel; 5,478 at the east; 10,404 at the north; 4,095 at the west; and 8,982 at the south.

The west entrance continues to lead in rail travel, while the Gardiner, or northern entrance, leads this year as the motorists' favorite gateway.

The largest number of park entrants registered in a single day in the history of the park was 2,859 on August 7. Compare this with the high figure of last year, 1,983 on July 23, and 1,659 on August 8, 1921. The heaviest train travel occurred on August 7, when 1,200 people were delivered at the rail gateways. The heaviest rail travel arriving at a single gateway was 574 at West Yellowstone by the Union Pacific System on August 7. It is interesting to note that during the 1923 season there were 18 days with over 2,000 visitors entering the Park.

There was an increase of 28,959 in motor travel over last year.

The heaviest motor travel at park gateways on one day was 475 automobiles carrying 1,623 tourists on July 17, compared with 337 automobiles carrying 1,181 tourists on August 7, 1922. The southern, or Snake River entrance, enjoyed the largest motor travel for a single day on July 29, when 177 cars carrying 600 people entered the park.

It is estimated that each day between July 20 and August 15 there was an average of 10,000 people in the park. Practically two-thirds of the visitors to the park were motorists in their own cars, most of whom camped out and carried their own equipment. Visitors represented every State in the Union except Delaware, Alaska, Philippine Islands, Hawaii, and the Panama Canal Zone were also represented. Among the foreign visitors were citizens of England and seven other countries belonging to the British Empire and many other foreign countries, including Belgium, China, Cuba, Denmark, France, Germany, Holland, Japan, Mexico, Norway, Poland, Sweden, and Switzerland; also several countries of South America.

Total season travel by entrances, 1923 and 1922.

Gateway.	Rail visitors.	By automobile. ¹		By motor cycle.		By walk- ing, horse- back, etc., visitors.	Pre- season visitors.	Total visitors.
		Cars.	Visitors.	Motor- cycles.	Visitors.			
1923.								
North.....	14,117	8,908	28,690	45	71	542	.....	43,420
West.....	23,115	6,401	22,531	33	44	177	.....	45,867
East.....	7,407	7,703	25,496	32	48	365	.....	33,316
South.....	167	4,347	14,507	31	44	56	.....	14,774
Pre-season visitors (north and west).....							975	975
Total.....	44,806	27,359	91,224	141	207	1,140	975	138,352
1922.								
North.....	10,861	5,448	18,154	47	76	669	.....	29,760
West.....	17,094	4,983	17,794	41	62	801	.....	35,751
East.....	5,304	5,964	20,039	35	55	337	.....	25,735
South.....	99	1,548	5,520	3	5	100	.....	5,724
Pre-season visitors (north and west).....		310					1,253	1,253
Total.....	33,358	18,253	61,507	126	198	1,907	1,253	98,223

¹ Includes 1,975 cars and 3,148 visitors entering more than once during the season of 1923 and 931 cars and 3,168 visitors entering more than once during the season of 1922.

TRAIL TRIPS.

Being particularly interested in the use of trails, I am glad to report more extensive use of Yellowstone's trails for the season just closed than the park has enjoyed heretofore. The largest parties on the trails were: The Valley Ranch parties, one of which consisted of 69 girls attending high school and college in the East, and the other including 57 boys. The Yellowstone Park Camps Co. cared for trail party which covered the principal points of interest in the park via the Howard Eaton Trail. The outfit of this party was similar to the one used by the late Howard Eaton. C. C. Moore, of Dubois, Wyo., again brought in a party of boys and covered most of the trails. The Prairie Club, of Chicago, sent nearly 40 of its members to the park. They spent the period August 7-20, inclusive, here, traveling from one center of interest to another via automobile, and from each center, with a permanent camp as a base, hiked over all radiating trails. They also covered the Grasshopper Glacier country.

From the University of Chicago, Dr. George D. Fuller brought students of botany, who with Camp Roosevelt as a base made many walking trips on the trails. Likewise, from Earlham College, Dr. A. D. Hole, of the department of geology and Dr. William S. Markel, department of botany, conducted a party of geology and botany students, and with a base near the foot of the Gallatins, covered many trails.

MOUNTAIN CLIMBING.

Of equal interest to the use of the trails is the information that the Grand Teton was climbed this year for the first time since 1898. Dr. Albert Ellingwood, of Lake Forest, Ill., and Miss Eleanor Davis, of Colorado, members of the Colorado Mountain Club, ascended the mountain on August 27. Two days before this ascent three students from the University of Montana—Quinn Blackburn, Andy de Pierro and B. F. Delap, made the ascent. The Grand Teton is 13,747 feet in altitude and was climbed the first time in 1872 by Mr. N. P. Langford, first superintendent of the Yellowstone, and Capt. James Stevenson, a geologist and member of the 1872 Hayden Survey. It was climbed again in 1898 by Rev. F. Spaulding, of Erie, Pa., and Messrs. W. O. Owen, Frank Peterson and John Shives, of Wyoming.

NATIONAL PARK SERVICE ACTIVITIES.

The activities of the National Park Service were approximately the same as those of last year except that the tremendous increase in travel involved greatly increased work of road maintenance, automobile camp ground development, and giving information service, etc.

ADMINISTRATIVE DEPARTMENT.

Headquarters office.—During the year from six to eight clerks were employed in the headquarters office on general correspondence, files, personnel, purchasing, disbursing, time-keeping, miscellaneous financial matters, information and a wide range of other duties to this and to other parks. Approximately 12,000 pieces of mail were received and 16,000 dispatched.

Appropriations.—Appropriations made available since the date of the last report are as follows:

Act.	Purpose.	Amount.
Jan. 24, 1923	Administration, protection and maintenance.....	320,000
Jan. 24, 1923	Construction of physical improvements.....	48,000
		368,000

Revenues for 1923.—Revenues collected during the 1923 fiscal year were as follows:

Automobiles and motorcycles.....	\$127,612.55
Hotels and camps.....	28,799.44
Transportation.....	36,342.97
Stores.....	6,963.96
Miscellaneous.....	3,421.10
Total.....	203,140.02

All of these funds were deposited to the credit of miscellaneous receipts in the United States Treasury.

Revenues for the 1924 fiscal year will amount to \$280,000-\$290,000.

PERSONNEL.

During the year the maximum number of employees on the pay rolls was 109 appointees and 347 temporary mechanics, skilled laborers, laborers, etc., a total of 456 on July 31. The minimum number of employees on the pay roll occurred during the month of February, when there were 66 appointees and 2 others on the rolls.

ENGINEERING DEPARTMENT.

Park engineer in charge, with one assistant. Last autumn the Bechler River survey was completed. The winter was spent by the engineers in working up notes on this survey, making maps, profiles, plans, etc. They also prepared comprehensive reports on future construction work in the park, and developed plans for the 1923 season.

Road opening and maintenance.—The spring was late in opening and in order to gain access to the Lake Hotel to continue construction of the annex, the hotel company paid

the expenses of operating the caterpillar snowplow. The plow left headquarters on April 18, reached Norris May 4, Canyon on the 8th, and the lake on the 18th. Roads to West Yellowstone and Old Faithful opened on May 8. Other roads were opened as follows: West Gallatin, June 10; Continental Divide, June 12; Sylvan Pass, June 14; Dunraven Pass, June 22; south entrance, June 24; south side Mount Washburn, June 25; north side, July 7.

During the park season 25 road camps were operated, from which each crew maintained an average of 14 miles of road. One hundred and twenty-five men and forty-seven teams were employed for a period of approximately three months. In addition to the road maintenance work 27 men and 35 teams were required to operate the sprinkling system. One hundred and seven miles of road was sprinkled twice daily during the season.

Road improvements.—A 25-man crew worked all season making general improvements to road in the vicinity of Norris Junction. At several places the roadway was widened on curves by blasting off sharp rock points; one at Beaver Lake, two between the 14 and 15 mile posts, and two between the 18 and 19 mile posts on the Mammoth-Norris Road, one at Virginia Cascades, and another on Blanding Hill on the Norris-Canyon Road. The Norris-Madison Junction Road has been fully graveled and rolled from Norris Geyser Basin to the lower end of Gibbon Meadows. This work of widening and graveled will be continued down through the Gibbon Canyon.

The road through the Gardiner Canyon was widened for a distance of about 400 feet at a place near the 2-mile post from Gardiner. Seventeen hundred cubic yards of rock was blasted from the sandstone cliffs above the roadway, then placed on the embankment with a steam shovel.

The road through Golden Gate and across Swan Lake Flat was graveled in June before the opening of the season. Altogether 2½ miles was well graveled and 2½ miles slightly graveled. After grading and shaping, the gravel was rolled with a steam roller.

Construction walls and guard rails.—The construction of masonry walls and log guard rails was confined to the canyon section this year, as there seemed to be a greater need at that place for more adequate protection. Altogether 2,636 linear feet of standard log guard rails were built, 960 feet of which were constructed on the Inspiration Point Road and 1,456 feet near the Chittenden Bridge. A masonry wall was built to replace some rotten log cribbing. The wall extends 384 feet south from the Canyon Arch Bridge; it contains 506 perch of masonry and has an average height of 10 feet. Also 456 feet of log guard rails were built between the 2 and 4 mile posts east of Mammoth toward Tower Falls.

Construction of buildings.—At the Lewis River maintenance camp there was built a log mess building 16 by 26 feet and a log stable 16 by 30 feet. At Dunraven Pass a frame barn with log trim will be built, and at Old Faithful a combined winter ranger quarters and summer mess hall will be built this autumn.

In the Mammoth automobile camp a standard comfort station building 12 feet 6 inches by 22 feet was built and all plumbing fixtures installed; a similar building and the same size as the comfort station was also built for a laundry.

At Canyon automobile camp four comfort stations 12 feet 6 inches by 22 feet were completed ready for plumbing. Here also a new water system was constructed by the engineering and sanitation departments, the former building a 24,000-gallon concrete reservoir. This project is described below with other camp development work.

The old Tower Falls ranger station will be rebuilt in October. A new barn will be built at this station.

Construction of sewer systems.—Old Faithful sewer systems were completed early in the spring and put into commission. Under a new appropriation of \$25,000, a complete sewer system and disposal plant are being built to protect Lake Yellowstone and its outlet river from pollution by sewage from the Lake Hotel, Lake permanent camp, ranger station, auto camp, store, etc. Construction of the system requires the placing of 2,972 linear feet of 8-inch pipe, 2,389 linear feet of 6-inch pipe, 18 manholes, and a reinforced concrete sedimentation tank 14 by 42 feet, with apparatus for sterilization of effluent.

New road construction.—To eliminate the necessity for through travel passing by the Lake permanent camp, a new road one-half mile in length was constructed along the lake shore. The roadway was graded 28 feet wide and surfaced 22 feet wide with gravel.

A new road 20 feet wide and 550 feet long was constructed at the Mammoth permanent camp, to connect with the Buffalo Corral road.

Miscellaneous improvements.—Rock point blasted off at Excelsior Geyser; road widened for 100 feet; 75 cubic yards excavated.

An opening 30 inches wide was cut in the dam on Glen Creek at the intake of the water system, and gate placed to provide means for flushing the diversion reservoir.

To provide a way to utilize the surplus water at the reservoir for the headquarters lawns a 9-inch hole was cut in the northwest corner of the reservoir and a gate valve placed to control the flow; 350 feet of steel pipe was laid to carry the water under the road.

A concrete spillway was built to care for overflow water at the reservoir. Wooden bridge there, replaced by a 24-inch iron culvert with a concrete head wall. Fill made over culvert.

Bechler River survey.—During September and October 1922, a preliminary survey was made for a proposed road to start at Lone Star Junction, follow the Firehole River to its source, thence over the Continental Divide and down the Bechler River to the south boundary of the park. The length of the road was found to be approximately 30 miles. The survey notes were computed in the office, from which a map and profile were made.

SANITATION DEPARTMENT.

This department, in charge of the master plumber, cooperated closely with the engineering department in construction work. It also had constant aid and advice of the United States Public Health Service officers on duty here, including Mr. H. B. Hommon, in general charge of all sanitation work in the national parks, and Mr. A. P. Miller, detailed to Yellowstone again for the third year of service here.

Public auto camp development.—At Tower Falls a new water system was completed. Water from Tower Creek is raised 130 feet through 900 feet of 2-inch pipe to a 2,000-gallon cement reservoir by a hydraulic engine. By this system 3,000 gallons of water a day is supplied to the camp by 1,000 feet of 2-inch pipe.

At Mammoth camping grounds 700 feet of 1½-inch pipe was installed to supply water to the new comfort station and laundry unit. The plumbing (eight toilets) was installed in the comfort station, and the laundry will be equipped soon. Water here will be heated by electricity. Six double laundry tubs will be installed.

At Canyon camping grounds a new water system is being installed. Three huge hydraulic engines will lift water 180 feet to a 24,000-gallon concrete reservoir, and will be distributed to the camp through 3,400 linear feet of 4-inch main line pipe and several hundred feet of 1½-inch laterals. Two of the hydraulic rams will operate at once with a capacity of 34,000 gallons a day. Water will be taken from Cascade Creek in which a dam 34 feet long and 5 feet high has been built for diversion of water. Four comfort stations have been built and will be equipped before next season.

At Old Faithful camping grounds the water system last year proved inadequate and this spring the 1½-inch water mains were removed and 6,500 feet of 4-inch G. I. pipe was installed in their place. Also the two comfort stations were completed. These contain 20 toilets and 4 wash basins.

At Madison Junction camping grounds another large area was cleared of brush and the water system extended to it by laying 1,000 feet of 1½-inch pipe. Four toilets were built there.

At the two mile post inside the park's east line, a small camp ground was developed by a dam in a little stream diverting water through 1,000 feet of 1½-inch pipe to a fair camp area. Toilets were also installed.

Miscellaneous.—Water was put in the Lake Ranger Station, and at Mammoth headquarters the water and sewer systems were kept in excellent condition. A new water system was installed to irrigate the lawns at headquarters.

Mosquito control.—At Old Faithful, Lake, Canyon, and Camp Roosevelt, mosquito control was undertaken this spring, with good results, especially at Lake, where the mosquito evil was largely eliminated. This work will be pushed vigorously in the spring of 1924.

LANDSCAPE ENGINEERING ACTIVITIES.

The landscape engineer made two trips to the park and passed on sites for new building designs for new structures of all kinds, location of telephone lines, etc. Much landscape work was accomplished. The old ranger stations at Old Faithful and Lake and their appurtenant buildings were razed and the premises cleaned up. Hotel telephone lines above Mammoth and from Firehole Cascades to West Yellowstone were rebuilt away from the river and mountain views, and out of the open spaces. Considerable cleaning up was done about the hotels, camps, stores, garbage dumps, etc.

PROTECTION DEPARTMENT.

This department is under the leadership of the chief ranger and its work was most efficiently accomplished during the year. Until June 15 the force consisted of the chief park ranger, three assistant chief rangers, and 26 park rangers. On June 15 there were added to the force 46 temporary rangers.

Winter activities.—During the winter months regular and special patrols were made for the purpose of game protection and observation. Special efforts were made to obtain accurate estimates of the number of wild animals of the various species inhabiting the park. Road patrols during the spring months to drain snow water off the surface and prevent washouts were made as usual.

Summer activities.—During the summer the work of the ranger force was greatly expanded. The work of caring for visitors increases in proportion to park travel, and the force has been busy checking traffic at park gateways, protecting hot spring and geyser formations, guiding visitors, rendering information service, lecturing, patrolling roads by motorcycle, etc. In addition to these duties the regular work of fire fighting and prevention, care of wild life, etc., was carried on.

Forest fires.—There were but three small fires in the park, and none of these caused any serious damage. The most threatening fire was in the Deep Creek region, but was quickly brought under control by rangers.

Trail maintenance and improvement.—We have at present 810 miles of trails in the Yellowstone Park. Approximately 20 miles of new trail was built. In addition to the above the remaining 790 miles was cleared of timber and repaired. Work on trails has not been as extensive as had been hoped, due to labor shortage, but some very fine trail building was accomplished, notably the construction of the new Sepulcher Mountain Trail and a connection between this trail and the Snow Pass Trail. During the coming autumn a new trail via Lava Creek, Storm Peak, etc., from Mammoth to Canyon will be built. The Howard Eaton Trail was formally dedicated on July 19, 1923.

Fish planting.—All records were broken this year for the collection of eggs of black spotted trout at Fish Lake and in the tributaries of Lake Yellowstone. Likewise, all records were broken for the number of eyed eggs and fry planted in the park and the number of fry hatched in the Lake Yellowstone hatchery. The success of this year's fish-cultural work is to be attributed largely to Mr. C. F. Culler, district supervisor of the United States Bureau of Fisheries, but we also received splendid cooperation from the Fish and Game Commission of the State of Montana. The commission gave us the fingerlings mentioned in the table below and also loaned a truck and many cans for use in fish planting.

	1921	1922	1923
Total collection of black spotted trout eggs from park waters.....	5,996,000	16,751,920	31,576,000
Number of eggs collected in park, hatched and returned to park waters or planted as eyed eggs.....	2,871,000	7,373,800	12,795,000
<i>Total number fish planted in park.</i>			
Black spotted trout collected in park and planted here.....	2,871,000	7,373,800	12,795,000
Black spotted trout received from Montana State hatchery.....	18,000	1,000,000	
Eastern brook trout from Montana State hatchery.....	2,889,000	8,373,800	12,795,000
Rainbow trout received from Montana State hatchery.....	82,000	116,000	100,000
Grayling received from Montana State hatchery.....	80,000	120,000	100,000
Total fish plants for year.....	1,000,000		
	4,050,000	8,609,800	12,995,000

BUFFALO RANCH OPERATIONS.

At the Buffalo Ranch the principal improvement to be mentioned was the completion of the clearing and plowing of 200 acres of land on the south side of the Lamar River in the Amethyst Creek watershed. Approximately 150 acres of this land was sowed with oats and this crop was harvested for hay. The tame buffalo herd which numbered 578 animals when the last report was written now numbers 672; since the last report 108 calves have been born.

On November 25, 1922, the main herd was released from behind the drift fence; feeding hay began December 17. Calves, with the exception of 8 young ones born in the fall, were taken from their mothers and fed in the corrals. There were 41 males and 68 female calves; 22 males were castrated. On February 20 calves were turned into the big herd. About this time the herd was taken to the south side of the Lamar and fed there until March 31. Two hundred and ninety-five tons of hay were fed to the buffalo during the winter. There were 7 cows and 3 bulls shipped for zoological gardens during the year and 4 bulls that were dangerous were destroyed, their hides and heads saved.

HAY RANCH OPERATIONS.

The following table shows the hay fed at the various park ranches during the past winter and the approximate amount put up this season. As the greater part of this year's hay has not been in the stack long enough to measure, it is not possible to give accurate tonnage at present.

Hay put up during the year at the Buffalo Ranch on Slough Creek, at Yanceys and at Gardiner, totaled 1,190 tons.

PREDATORY ANIMALS.

During the year 229 predatory animals were killed—221 coyotes and 8 wolves.

NATURAL FEATURES OF THE PARK.

The park naturalist and the rangers made observations of the wild-life conditions, geysers, forests, flowers, etc., and the following information regarding the natural features of the park is based on these observations:

Game conditions.—The past year can be considered as excellent from the standpoint of park game. Drought during June burned out forage on the principal winter ranges, but the winter was of such a nature that but few animals were forced down, and our loss among all animals did not run over 2 per cent.

Buffalo, tame herd.—The condition of the herd of so-called tame buffalo is covered in the paragraph relative to the Buffalo Ranch. Sixteen fine bulls of this herd were kept at Mammoth Hot Springs during the summer season.

Buffalo, wild herd.—Careful counts and observations relative to the winter range conditions of the wild buffalo were made during the winter. A total of 76 were counted on the Pelican Creek and Lamar River ranges. This is an increase of 66 per cent in the last 15 years. Estimates made of this herd the last few years have been too high.

Mountain sheep.—According to counts made by rangers last winter, we are able to account for 233 of these animals. As this represents the number actually seen, we no doubt have more than 300 in the park.

Antelope.—Two rangers were detailed to the sole duty of observing and protecting the antelope the past winter. After deducting the loss of 5 head, we had a net increase of 35, or 16 per cent. We have 253 in the herd, not counting this season's increase.

Moose.—Moose are scattered in nearly every section of the park. We have made no effort to get a special count of them. However, we shall attempt this the coming winter. The State of Wyoming again issued 50 permits to kill moose, and several more of our park animals were lost by being shot in the Upper Yellowstone as they passed out of the park.

Deer.—Only 10 white-tailed deer were seen in the park during the winter. Mule deer are increasing rapidly, and have been seen in several sections of the park where they have not been known before; 1,000 is a conservative estimate of the number now in the park.

Elk.—According to careful counts made during the year we have a total of 14,502 elk in the so-called northern herd of elk. This represents the number actually seen. Our loss from all causes did not total 1 per cent. A herd of 12 was inclosed near the buffalo corral at Mammoth for the benefit of park visitors.

Black bears.—Black and brown bears have been numerous in all parts of the park. Approximately 20 cubs have been seen during the summer just past, which indicates to some degree the rate of increase.

Grizzly bears.—The grizzlies are seldom seen except late in the evening or early in the morning, and then only near garbage dumps. As many as 16 were seen at the Canyon at one time and several at Old Faithful and Lake. At least three cubs have been seen.

Beaver.—Beaver are increasing rapidly, and extending their range to all sections of the park.

Rabbits and other small animals.—All our smaller animals are increasing rapidly. Some of the rodents, especially the Kennicott ground squirrel, are getting to be a distinct nuisance, and some measures may eventually have to be taken for their control.

Birds.—Birds were as numerous as usual and were present in the park for about the same periods in case of each specie as last year.

Trees.—The forests of the park were thoroughly inspected by Forest Entomologist J. C. Evenden, of the United States Bureau of Entomology, on three occasions. He found all of the forests in normal, healthy conditions, except the areas of spruce and Douglas fir along the lower Yellowstone and tributaries, which have been under attack by a defoliator for about three years. Doctor Evenden's investigations here and at his bureau's laboratory disclosed this defoliator to be a special spruce budworm and he has declared that our forests of spruce and fir are likely to suffer very great damage before the epidemic runs its course. Unfortunately, up to the present time no means of combating this defoliator has been discovered.

Flowers.—A late, cool and rainy spring proved to be very favorable for vegetation in general. The spring flowers were delayed until well into the earlier part of the tourist season. The rains were especially good for the grasses, insuring good pasture and abundant hay for the animals.

A useful addition to the park literature this season is a new book published by Park Photographer J. E. Haynes, "Trees and Flowers of Yellowstone National Park," written by Park Naturalist Frank E. A. Thone.

GEYSERS AND HOT SPRINGS.

At Mammoth Hot Springs the flow over the formations has been more abundant this season than usual. A slump of unconsolidated travertine occurred on the face of Jupiter Terrace on July 4, but the damaged portion is now undergoing natural up-bullding again.

At Norris Geyser Basin a certain amount of increased activity was noted in two of the pools of the Hurricane group. Semi-Centennial Geyser continues inactive.

At Lower Geyser Basin activities were normal.

At Upper Geyser Basin activities were normal. Old Faithful maintained an average interval between eruptions of 65 minutes throughout the season. The Giantess played twice. The several small new geysers continued active. A vent formerly marked "Indicator," near Grotto Geyser, had at least two eruptions.

At West Thumb activities were normal.

INFORMATION DEPARTMENT.

Information office.—Thirty-three thousand eight hundred and twenty-two people visited the information office at headquarters during the summer—2,294 in June, 14,589 in July, 14,049 in August, and 2,890 in September. Compare the total of 33,822 with 30,289 visitors to the information office in 1922 and 24,443 in 1921. During the season at the information office and at the ranger stations in the park, 110,000 free publications regarding the park were distributed and 6,792 Government publications, including 1,081 portfolios, were sold. Compare this total sale with 3,791 publications, including 947 portfolios, disposed of last year. In addition, 1,577 books of other publishers were sold.

Lecture service.—Three lectures were delivered each evening at Mammoth by Park Ranger W. J. Cribbs, before audiences totalling approximately 75,000. During the season a lecture series was initiated at Old Faithful; about 40,000 persons attended these lectures.

Guide service.—Two guides were maintained at Mammoth and two at Old Faithful, each man conducting two parties a day over the formations. Twelve thousand one hundred and thirty visitors were guided over the formation at Mammoth Hot Springs and 29,831 over the Upper Geyser Basin formations, making a total of 41,961.

Museum.—A number of notable additions were made to the museum this season. A mount of two gray wolves and one of a mountain sheep were presented by the permanent ranger force. The specimens were obtained and all expenses borne by the rangers. A mount of a whooping crane was donated by Hal G. Everts. Two additional museum cases were installed, one filled with mineralogical specimens and the other with three exhibits. A number of fine game skulls, pictures, and framed maps were obtained and hung.

Visiting scientists.—Special attention was paid to visiting scientists and students, and such facilities as were available, together with the personal services of the park naturalist and the park lecturer, were placed at their disposal. Prof. R. B. Harvey, of the University of Minnesota, worked on the algae of Mammoth Hot Springs, and Drs. J. C. Merriam and A. L. Day, of the Carnegie Institution, made preliminary surveys for proposed work. Classes in botany and geology from the University of Chicago and Earlham College spent several weeks in the park. A regular summer university session is regarded as a good possibility; the project is being actively pushed by Professor Harvey and Park Naturalist Thone.

ELECTRICAL DEPARTMENT.

Electric system.—The following table shows the total production of the power plant, disposition of current, revenues, etc., as compared with similar data for the fiscal year 1922:

The peak load for the year was 124 kilowatts.

	1922	1923
Total production in kilowatt hours.....	221,340	323,354
Sold to park utilities.....	31,023.4	39,569.41
Consumed by Government buildings for power, lighting streets and buildings, loss on lines, etc.....	183,602.2	261,597.19
Total revenue from sale of electric current during year, at 5 cents per kilowatt hour	\$1,551.17	\$1,978.47

Sixteen new street lights were installed during the year.

Telephone system.—Including new lines, 283 miles of telephone lines were maintained throughout the season. New grounded lines built were: Eight miles from Lower Slough Creek Ranch to Silvertip Ranch, at park line; 4 miles from Yanceys to Hellroaring Cabin; 14 miles from Soda Butte Snowshoe Cabin to Cooke City ranger station, at northeast corner. A phantom circuit has been added to the existing lines between Mammoth and Norris and a new metallic circuit built from Norris to Canyon. The telephone line between Gardiner and Mammoth was transferred to cedar poles of the hotel line, while cedar poles were purchased and are now being set between Fountain Station and Old Faithful.

TELEGRAPH AND TELEPHONE STATISTICS.

Telegrams.—Government sent, 1,044; Government received, 578. Commercial sent, 1,092; Commercial received, 914. Total calls on Government switchboard, 83,197.

MECHANICAL DEPARTMENT.

The mechanical department maintained 17 trucks and automobiles, a steam engine, a caterpillar engine, 1 steam roller, compressors, pumps, etc., repaired road machinery including dump wagons, graders, 3 gravel loaders, drags, road tools, fire tools, etc. It also shod between seven and eight hundred horses.

The carpenter did miscellaneous work in the quarters at Mammoth, completed a second new set of quarters in the old guardhouse at the south end of the old "Officers Row," did general repair work to quarters, built truck bodies, built toilet structures for auto camps, made sign boards, etc.

A maximum of seven and a minimum of five men were employed in the shops.

PROPERTY AND TRANSPORTATION.

Under the direction of the steward and master of transportation 1,878.5 tons of material, equipment, and supplies were moved from railroad terminals to headquarters. From headquarters 11 trucks were operated through the park, supplying road camps, construction camps, etc. The total mileage of the trucks was approximately 50,000. A maximum of 15 men were engaged in the warehouse and in transportation work.

PAINTING DEPARTMENT.

The master painter and his assistants painted most of the wooden buildings of Fort Yellowstone. The exterior walls of some of the larger buildings were painted, including the post chapel and power plant at headquarters. In the park the Lake station and several road camp buildings were stained inside and out. Many trucks and wagons, including the sprinkler wagons, were painted and varnished. About 500 wooden signs were made and painted. All big junction and ranger station signs were repainted.

IMPROVEMENTS BY PUBLIC UTILITIES AND INDIVIDUAL OPERATORS.

Yellowstone Park Hotel Co.—Mammoth Hotel: Installed lavatories in 90 rooms in the old building; added two new bathrooms; changed buffet to location in lobby; equipped dining room with entire new silver service.

Old Faithful Inn: Completed girls' dormitory; built new girls' laundry and storeroom for trunks; third boiler installed, and put in operation in engine room; installed new pressure pump and new hot-water heater; put old Lake lobby furniture in lobby Old Faithful Inn.

Lake Hotel: Completed new wing; installed new lobby furniture; built fireplace with handsome tile mantle in lobby; built addition to engine room and laundry; rewired and installed new electric light fixtures in 153 rooms of the old building; started new girls' dormitory.

Canyon: Repaired roof of lounge damaged by fire; entire new silver service installed in dining room.

Telephone line: Fifteen miles new telephone line built from Madison Junction to West Yellowstone; moved 1½ miles 4-wire telephone line from Mammoth Camp to hills back of Mammoth; 2 miles of two new wires strung on line from Firehole Cascades to Madison Junction.

Yellowstone Park Camps Co.—Mammoth Camp: Constructed a magnificent central building, more than 300 feet long and 150 feet wide. The main floor of this building is occupied by the lobbies, general offices, dining room, and kitchens. The dining room will seat 500 guests. Downstairs is a recreational hall with stage. Hall has a seating capacity of 1,000 people, and a hard wood floor for dancing. The company also constructed and furnished 40 new cottages at Mammoth.

Old Faithful Camp: Sixty new cottages constructed and furnished; also new dormitory for employees opened.

Lake and Canyon Camps: Fifty new tent units with canvas tops constructed and furnished.

Camp Roosevelt: Twenty-five new tents added.

At all the camps installation of modern appliances and equipment continued. Near the Fishing Bridge at the Lake outlet a delicatessen tent 20 feet by 40 feet was constructed in the public automobile camp ground. This delicatessen served prepared cooked foods, such as soups, roasts, stews, hot biscuits, muffins, pies, cakes; also supplied milk.

Yellowstone Park Transportation Co.—Purchased twenty new 11-passenger cars; two new 25-passenger cars; one 2-ton truck; six 11-passenger cars, and 9 touring cars from Yosemite National Park Co.; two Ford roadsters for use of inspectors.

Mammoth: Completed 32-room addition to bunkhouse, including wash-sinks, shower baths, etc.; completed addition to mess house.

West Yellowstone: Completed remodeling of old Yellowstone Western Stage Co. buildings, including installation of plumbing, electric light system, and water.

Old Faithful: Built new 12-room bunk house.

Lake: Completed new 12-room bunk house, new mess house, and new wash house.

Canyon: Completed remodeling of old transportation building for drivers' bunk house. Work will be started shortly on new repair shop and storage garage.

Yellowstone Park Boat Co.—This company made no improvements. Its franchise expired February 6, 1923, and a one-year permit was granted for this year. Its franchise should not be renewed until it financially reorganizes and obtains equipment for general boating business.

J. E. Haynes, official photographer.—This operator conducted 10 sales establishments throughout the Yellowstone. The 42-foot addition to the Mammoth shop was completed before the season opened, as was the complete refinishing and remodeling of the shop at Upper Basin. A closed-body automobile dark room was added to his equipment. Nearly 500 negatives, including many wild-flower studies, were added to his collection, and several thousand feet of motion pictures were taken by him. The book on trees and flowers by Frank E. A. Thone, park naturalist, was published in advance of the opening of the season, as were new editions of Langford's "Discovery of Yellowstone Park, 1870," and the "Haynes Guide," two printings of the latter being necessary. He is beginning the construction of a new picture shop and finishing plant at Grand Canyon, and will open a shop in Lake Hotel next year, making 12 shops in the chain.

George Whittaker, merchant.—Installed refrigerators and modern fresh-meat display counters in Mammoth store; also installed flush toilets in comfort station at Canyon store.

C. A. Hamilton, merchant.—Completed furnishing of Lake store and erected small grocery store in the Old Faithful auto camp. Is now beginning construction of new wing on Old Faithful store and planning new West Thumb store.

Henry P. Brothers.—Erected log residence near his bathhouse at Old Faithful and expects to enlarge swimming pool this autumn.

FRANCHISES AND PERMITS.

In consideration of heavy investments in improvements made in the park at the direction of the department, the Yellowstone Park Hotel Co., Yellowstone Park Camps Co., and the Yellowstone Park Transportation Co. were all granted new franchises running for a term of 20 years from January 1, 1923. All franchise contracts were approved by the secretary early this year. Franchises granted to George Whittaker to operate stores and gasoline stations at Mammoth Hot Springs and Grand Canyon having expired, a new franchise covering all Mr. Whittaker's operations and running for 10 years from January 1, 1923, was granted to him by contract executed March 31, 1923.

As it was desirable to put all of the stores on the same basis, and as C. A. Hamilton, operator of stores and gasoline stations at Upper Basin, Yellowstone Lake, and West Thumb, made extensive and expensive improvements to his properties, a new 10-year franchise from January 1, 1921, was granted to him by contract executed February 19, 1923.

Other long-term franchises outstanding are: J. E. Haynes, official photographer, 15 years, from January 1, 1921, to December 31, 1936; Pryor & Trischman, curio shop, 10 years, January 1, 1917, to December 31, 1926; and Henry P. Brothers, swimming-pool baths, 10 years, July 1, 1914, to June 30, 1924.

Short-term permits.—In addition to the above long-term permits, the following short-term permits were granted: Thirteen permits to conduct camping parties through the park, using saddle and pack outfits; 4 permits to operate freight, express, and mail service between Gardiner and Cooke City; 5 permits to operate moving-picture cameras in the park; 1 year permit to the Yellowstone Park Boat Co.; 1 two-year permit to Dr. J. M. Wolfe, to practice medicine.

DEPARTMENT OF JUSTICE—UNITED STATES COMMISSIONER'S COURT.

Hon. John W. Meldrum, commissioner since 1894, held court whenever there were cases to be tried. During the year 17 cases were tried by the commissioner. There were 15 convictions and 2 acquittals. A total of \$725 in fines was imposed on defendants found guilty. This amount is exclusive of costs. There were 12 cases of violation of the regulation against speed, 1 case of disorderly conduct, 1 case of felony, 1 violation of prohibition (with five defendants), and 1 case of petit larceny.

POST OFFICE.

The business of the post office showed an increase in proportion to the increased travel to the park. After the unofficial visit of First Assistant Postmaster General John H. Bartlett and Third Assistant Postmaster General W. I. Glover, July 10-12, Mr. Bartlett authorized the establishment of carrier service from the post office at headquarters to points in the upper park. This service was established chiefly for the benefit of campers.

DEPARTMENT OF THE INTERIOR.

General Land Office.—Cancelled applications for reservoir easements on Emma Matilda and Two Ocean Lakes in the proposed extension. Cooperated in matters relating to town site of West Yellowstone.

Geological Survey.—Water Resources Branch. Continued its observation and inspection of gauging stations on park streams. No new gauges installed this year.

DEPARTMENT OF COMMERCE.

Coast and Geodetic Survey.—In cooperation with the United States Geological Survey and the National Park Service, this bureau ran precise level lines from Livingston to the park, thence around the loop road system, thence to Cody, thence to Moran, thence to West Yellowstone, and on to Idaho Falls. Thus, for the first time, the altitudes of park features have been accurately determined. Capt. Edward P. Morton, of the United States Coast and Geodetic Survey, was in charge of the survey.

Bureau of Fisheries.—In cooperation with the National Park Service broke all records for trout egg collection in the park. Collected 13,570,000 eggs, of which 6,548,000 were planted as eyed eggs and 6,247,000 as fry. Shipped to Glacier Park and elsewhere 10,305,000 eggs. Commissioner Henry O'Malley, head of the bureau, visited the park June 11–20. District Supervisor C. F. Culler personally directed fish-cultural work here this year, and the splendid results are to be credited to Mr. Culler's ability, efficiency, and enthusiasm.

DEPARTMENT OF AGRICULTURE.

Weather Bureau.—The work of the bureau was continued under Observer E. H. Fletcher. The office was inspected by the Secretary of Agriculture on June 30, and by Dr. H. J. Cox, of the Chicago headquarters, on July 15.

Bureau of Animal Industry.—This bureau supplied vaccine and instruments for vaccinating buffalo against hemorrhagic septicemia, but fortunately they were not needed this year.

Bureau of Entomology.—Detailed Dr. J. C. Evenden, forest entomologist, to study forest conditions. Doctor Evenden made three trips to the park and gave special attention to the spruce budworm infestation near the north boundary in the Hellroaring region.

TREASURY DEPARTMENT.

Public Health Service.—Continued its cooperative work, Mr. H. B. Hommon in general charge. Surveyed lines for Lake sewer system, designed system, and ordered materials; also directed mosquito control work; analyzed water and milk; inspected kitchens, auto camps, etc. A. P. Miller in direct charge here. Dr. J. M. Wolfe appointed acting assistant surgeon in December, 1922, and is charged with work of inspecting hotels, camps, etc., analyzing waters and milk, and general care of health of community. Asst. Surg. Gen. W. F. Draper was here in July.

OPENING OF THE PARK.

On June 20, 1923, the park was formally opened by appropriate ceremonies at the north entrance arch at Gardiner. Dr. John Wesley Hill, chancellor of Lincoln Memorial University, representing President Harding, and the Secretary of the Interior, Hon. Hubert Work, delivered the principal address. In this speech Doctor Hill pleaded for complete and perpetual preservation of the national parks from all forms of commercial exploitation. His address will remain for all time a powerful protective agency against destruction or modification of national park ideals.

VISIT OF THE PRESIDENT OF THE UNITED STATES.

Enroute to Alaska, President Harding, Mrs. Harding; the Secretary of the Interior, Hon. Hubert Work; the Secretary of Agriculture, Hon. Henry C. Wallace; the Speaker of the House of Representatives, Hon. Frederick H. Gillett; Admiral Hugh Rodman, United States Navy, and about 70 other officials and newspaper correspondents visited the park, spending two days here. The President's special train arrived at Gardiner at 6 a. m. Saturday, June 30, and left July 1 at 7 p. m.

The distinguished party covered the main loop road system in the two days at their disposal. In addition to viewing the scenery and natural phenomena along the route the party saw buffalo, elk, antelope, deer, bear, and many smaller animals. The weather was clear and beautiful and nothing occurred to delay the party or mar the comfort and enjoyment of the trip.

HOWARD EATON TRAIL DEDICATION.

On the afternoon of July 19 the Howard Eaton Trail was dedicated by appropriate ceremonies held at Sheepsteers Cliffs on the Gardiner River, 7 miles south of Mammoth Hot Springs, where Howard Eaton made his first camps in the park each year. Addresses were made by Col. Henry Hall, Director Stephen T. Mather, Congressman Charles E. Winter, of Wyoming, and two members of the Brooklyn Teachers' Association party, Dr. Alexander Lyon, and Dr. William Elbert. A tree was planted in the midst of Howard Eaton's camp by his brothers, Alden and Willis, assisted by Ted Rinehart, son of Mrs. Mary Roberts Rinehart.

GIFTS TO THE PARK.

Director Mather contributed \$250 for purchase of equipment for the chapel and to aid in securing visiting clergymen for services in the chapel. Mr. C. W. Farnham, of St. Paul, gave a first edition of Lord Dunraven's book, "The Great Divide," to the library and several fine geological specimens to the museum. Mr. Hal G. Evarts gave to the museum a very valuable mounted specimen of whooping crane. The permanent ranger force gave the museum fine mounted specimens of timber wolves and a bighorn ram.

VITAL STATISTICS.

There were three births and three deaths in the park during the year.

MEDICAL SERVICE.

Dr. J. Meek Wolfe conducted the medical services in the park during the year and reports that he cared for 366 cases during the year and made 349 calls.

SCHOOL.

School opened September 11, 1922, and closed May 18, 1923. There was an average enrollment of 19 pupils—11 boys and 8 girls; number of classes, 4; teacher, Mrs. Laurie K. Marriott. The school was maintained by contributions of parents and park employees.

RELIGIOUS SERVICES.

Services were held in the chapel at least twice and sometimes three or four times every Sunday during the tourist season, and every second Sunday during the balance of the year. They were usually conducted by Episcopal or English Lutheran ministers from Livingston, Mont., or by Roman Catholic priests traveling through the park, but other denominations were represented occasionally, when their ministers were available.

RECOMMENDATIONS.

1. That the park be extended to include the Teton Mountains, headwaters of the Yellowstone, and other country naturally belonging to the park.
2. That all irrigation and other projects that would result in exploitation of the park be condemned and killed as they are proposed.
3. That more and larger funds be provided to widen, improve the drainage, and surface on improved but heavily traveled roads; also to finish the Firehole Cutoff, and build the Great Fountain Geyser Road and the Bechler River Road, and rebuild the Lake Shore Road between Arnica Creek and Bridge Bay.
4. That funds be granted to continue sanitation work, to build a sewer system at Grand Canyon, and do more extensive mosquito-control work.
5. That the hospital be reconditioned and better equipped, making possible more complete and effective medical and surgical service.
6. That more funds be provided for upkeep of roads, trails, telephone lines, and other improvements; for the ranger service; for the buffalo and other ranches; and for public camp grounds.

YOSEMITE NATIONAL PARK.

W. B. LEWIS, Superintendent, Yosemite, Calif.

GENERAL STATEMENT.

The Yosemite National Park, when created by the act of October 1, 1890 (26 Stat., 650), was situated in Tuolumne, Mariposa, Madera, and Mono Counties, Calif., and covered an area of about 1,512 square miles, being 36 miles wide by about 40 miles long. Under the act approved February 7, 1905, entitled "An act to exclude from the Yosemite National Park, Calif., certain lands therein described and to attach and include the said lands in the Sierra Forest Reserve," 542.88 square miles were excluded and 113.62 square miles were added to the park, making a net reduction in area of 429.26 square miles, so that the area after the passage of the above act was 1,082.74 square miles, the park being situated in Tuolumne, Mariposa, and Madera Counties. By act of June 11, 1906, entitled "Joint resolution accepting the recession by the State of California of the Yosemite Valley grant and the Mariposa Big Tree Grove, and including the same, together with the fractional sections 5 and 6, township 5 south, range 22 east, Mount Diablo meridian, California, within the metes and bounds of the Yosemite National Park, and changing the boundaries thereof," there were added to the park the Yosemite Valley, 48.60 square miles; Mariposa Big Tree Grove, 4 square miles; and a strip lying between the latter and the park proper, 2.13 square miles; and deducted by the change in the southwestern boundary, 13.06 square miles, making a net addition to the area of 41.67 square miles. The present area of the park is 1,124.41 square miles.

PARK ORGANIZATION.

The park is administered by the superintendent, who supervises and controls all governmental activities in the park except the post offices and the United States commissioner's court. He also supervises the activities connected with the operation of the various public utilities, such as transportation, hotels, stores, studios, etc., operated under franchise or permit from the Department of the Interior. He is assisted in this work of administration, supervision, and control by an organization divided into eight departments, each with its supervisory head, as follows: Administrative, maintenance, engineering, protection, electrical, mechanical, forests and timber, educational.

Park headquarters is maintained in Yosemite village in Yosemite Valley. During the summer months approximately 200 employees of all classes, including 30 rangers, are engaged in park work. The force diminishes to approximately 75 during the winter months.

With the expansion of governmental activities that has of necessity accompanied the heavy increase in travel and use of the park that has been experienced from year to year for several years in the past, it has been difficult to develop an organization and to so coordinate the activities of the various departments rapidly enough to keep pace. However, I am glad to state that during the past year greater progress along this line has been made than in any previous year and the organization has functioned far more smoothly and efficiently than at any time in the past. Almost without exception there has been a fine spirit of loyalty to the service and conscientiousness displayed in the performance of duties and a close cooperation shown between the various departments whose functions must of necessity, because of the wide scope of park activities, be somewhat overlapping, which has been highly satisfying. I am certain that during the year the problems and tasks confronting the organization have been solved and performed with far greater efficiency than in the past.

WEATHER CONDITIONS.

Weather conditions throughout the year could scarcely be considered as normal. Rains fell in both July and August, 1922, an unusual occurrence in Yosemite. In spite of these, however, practically all streams in the park reached a very low level by

November, with indications of a serious water shortage later on. Early November, however, brought a heavy snowfall in the high country, closing all mountain roads at a date considerably earlier than usual. Some 6 inches of snow, together with a considerable amount of rain, fell on the floor of the valley at this time. This storm was sufficient to replenish the streams and assure a satisfactory water supply during the winter months. During the winter months the snowfall was relatively light, but what did fall laid well, having the well-packed foundation of the early storm on which to settle. March, 1923, brought almost summer weather during the greater part of the month, with the result that the snow, particularly in the lower elevations, melted rapidly and there was every indication of an unusually early spring. In fact, by the 15th of March nearly all roads on the floor of the valley were entirely free from snow and plans were completed for the starting of sprinkling the roads on the floor of the valley on April 1. At that time the season was fully four or five weeks ahead of normal.

Rain, however, began to fall in Yosemite Valley on April 1, bringing snow in the higher elevations. Rain fell in Yosemite Valley and snow in the higher country almost continuously for the first nine days of April and storm conditions prevailed, not only throughout the entire month, but during the greater part of May and to some extent even into June, a foot of fresh snow falling at Glacier Point on June 20.

One result of these unusual weather conditions was that instead of a summer of low water, better water conditions prevailed throughout the summer than during any summer for many years past.

Another result was that the cooler weather accompanying these storm conditions kept travel more uniform throughout the season and extended the heavy travel into a later part of the season than usual. While travel all through the season was heavier than ever before, nevertheless the unusually cool weather of May and June had a deterrent effect on the length of stay, with the result that even during June when we usually get a peak load almost impossible to handle, stays were short and the turnover rapid and high. Better water conditions in July and August attracted a steady flow of travel which continued in considerable volume even into September.

All in all, weather conditions throughout the year were conducive to travel and had something at least to do with the great gain shown in travel records for the year as compared with the previous year.

PARK SERVICE ACTIVITIES.

ADMINISTRATIVE DEPARTMENT.

Headquarters office.—From eight to nine clerks were employed during the year in the office at headquarters in the work of general correspondence, purchasing, time keeping, preparation of pay rolls, disbursing, distributing information, and other related functions of park work. Approximately 13,100 pieces of mail were received and 18,300 dispatched.

Appropriations.—The park operated under an appropriation of \$280,000, of which \$225,000 was devoted to general administration, operation, and maintenance purposes and \$55,000 to new construction work.

Revenues.—Revenues were collected during the year ending June 30, 1923, and deposited in the general fund of the Treasury as follows:

License fees and rentals:	
Fixed charges	\$17,330.00
Percentage of gross revenues or net profits	4,894.13
Motor-vehicle permits:	
Automobiles	86,250.00
Motorcycles	254.00
Miscellaneous:	
Electric current	28,455.00
Telephone and telegraph	14,334.48
Water service	3,510.35
Unclassified revenue	6,317.07
Total	161,345.09
Less—	
Remittance fees	\$273.64
621 highway certificates at \$5	3,105.00
	3,378.64
Net total	157,966.45

MAINTENANCE DEPARTMENT.

There are 138 miles of roads in the park, of which only about 30 miles have been improved, the remainder being mountain roads constructed prior to the creation of the park by private capital, reverting to the Government in later years. There are approximately 625 miles of improved trails by which every part of the park may be reached on horseback or on foot. In addition to this, the Government maintains 13 miles of approach roads to the park. The work of repair and improvement of these lines of communication forms the principal function of the maintenance department with the park supervisor in charge. Most of Yosemite's roads are mere mountain trails not in the least adapted to motor travel, and the keeping of them in a state of even passable repair under the heavy traffic to which they are subjected is no small task. During the year covered by this report they have, nevertheless, in spite of unfavorable labor conditions been kept in rather better shape than in any previous year. A helping factor in this has been the cold weather that has prevailed, this allowing a greater retention of moisture in the soil than is usually the case. With the deplorable road situation existing in Yosemite, the best that can be hoped for within a reasonable maintenance expenditure is to keep the roads reasonably passable during the season with possibly a slight improvement from year to year through the elimination of particularly dangerous curves and the modification of occasional particularly steep grades and installing from time to time added drainage facilities. No real improvement of the road situation in Yosemite can be expected or hoped for until sufficient funds are made available to com-

pletely rebuild the mountain roads. The time has passed when much, if anything, can be gained by piece-meal tactics.

In addition to handling the work of maintaining the roads and trails, the maintenance department has also supervised, and satisfactorily so, the operation of the transportation division, the operation of labor camps, the disposition of garbage and waste from the public camping grounds, the general care and improvement of grounds around Government buildings, the production of hay and wood, and the hiring and distribution of labor.

ENGINEERING AND CONSTRUCTION DEPARTMENT.

This department, with a resident engineer in charge, has had charge of the bulk of work done under the park construction appropriation, and also the maintenance of buildings and fences and the maintenance and operation of the water and sewer systems.

Construction work.—During the year the following construction jobs were completed:

(1) The installation of 6,000 feet of 8-inch water main as an addition to the existing water system.

(2) The installation of additions to the existing sewer system, consisting of 3,450 feet of sewer mains and laterals and electrically operated pumping station and 10 comfort stations in the public camping grounds. This is the first unit of a system of flush systems it is contemplated to install throughout the public camping grounds which, when finished, will eliminate the very unsatisfactory and insanitary conditions that have existed in the camping grounds in the past.

(3) Construction of four cottages for use as employees' quarters.

Maintenance.—The following gives an outline of the activities of this department in connection with the maintenance of buildings and structures and the water and sewer systems:

Buildings and structures.—There are some 330 Government-owned buildings in the park of various sizes, but with one exception, namely, the power house, they are all of wood construction. All are in need of more or less repair from time to time. This is particularly true of a number of buildings which were built from 25 to 40 years ago of flimsy construction but still being utilized. A force of from two to four carpenters and from one to two painters is employed throughout the year on this work. Necessary improvements are carried on in conjunction with the maintenance work, with the result that at the present time all Government-owned buildings are in a far better state of repair than has been the case at any time in the past.

Water system.—The source of the water supply for Yosemite Valley as developed some 10 years ago consists of two concrete reservoirs in which is collected water from the talus slopes directly beneath Glacier Point and Happy Isles. Due to the fact that this supply is not sufficient to carry over the midsummer period, an auxiliary supply is secured from the main Merced River just above Happy Isles. The distributing system consists of approximately 2½ miles of 8-inch cast-iron mains with as many miles or more of 4 and 6 inch laterals, together with a network of smaller supply lines. Water is supplied for all purposes to the hotel and camp operations, all units of Government operation, the public camp grounds, and for road-sprinkling purposes. From one to three men are engaged throughout the year in the maintenance of this system. With the development of Millerton Creek as a new source of domestic supply, which is contemplated another year, Yosemite will have a first-class water-supply system. All water-supply installations now being made are being so made as to be protected from freezing, and from time to time during the past few years all old installations put in for summer use only have been overhauled and protected, with the result that now fully 85 per cent of the system is protected from freezing, with the natural decrease in cost and inconvenience of maintenance.

Sewer system.—The sewage-disposal system, a modern plant in every way, consists of approximately 3 miles of main distributing lines from 8 to 16 inches in diameter with about the same amount of smaller laterals, 3 electrically operated pumping stations, a large concrete disposal tank, and 9 acres of filter beds. All hotel and camp units and Government buildings on the floor of Yosemite Valley are connected to the system, as are also all of the flush toilet installations as far as installed in the public camp grounds. These latter installations are being extended to all of the public camp grounds, and within the next two years it is hoped that the entire camping area in Yosemite Valley will be supplied with modern sanitary facilities connected to the main sewage-disposal system. From one to three men are engaged throughout the year in the maintenance and operation of the system, which has given entire satisfaction during the second year of its operation, in contrast to the many difficulties experienced when first installed.

PROTECTION DEPARTMENT—RANGER SERVICE.

The protection department, with a chief ranger in charge, represents the police force of the park. The ranger service is directly responsible for the enforcement of park regulations, the protection of its natural features, and its fish and game. It is also responsible for the taking of forest-fire prevention measures, the fighting of forest fires, the dispensing of park information through its information bureau, the registering of campers and assigning of same to the public camp grounds, and the policing of the camp grounds. Considering the large area patrolled, the heavy travel, and particularly the large number of people handled in Yosemite Valley, it is to me surprising that the functions of this department have been carried on as well as they have. Aside from assignments to the nature guide service, fixed assignments on automobile-checking stations, and fixed patrol assignments of the maximum of 30 men employed during the year, only 10 men are available as a mobile force to police Yosemite Valley, where there is concentrated a population varying during the summer months from 3,500 to 11,000. Considering that service must be rendered for from 16 to 18 hours a day, it is evident that the force is insufficient.

Although we have been getting by with the establishment of only three fixed patrolling stations in the interior of the park, we should have several more—at least five. Likewise there should be available at least four or five additional men for constant patrol of the mountain roads. The police force of the valley should be augmented by at least five additional men, and the registration of campers should be attended to at registration booths within the public camps, where closer attention could be given to the individual camper. Likewise each public camp should have a patrolling ranger policing that partic-

ular camp. Out of fairness to the ranger service and the public, the service should be increased by at least 30 men during the summer months. It would not be necessary to increase the permanent force for year-round service.

ELECTRICAL DEPARTMENT.

The electrical department, with a chief electrician in charge, is responsible for the maintenance and operation of the electrical, telephone, and telegraph systems. All electrical, telephone, and telegraph service in the park is furnished by the Government at fixed tariffs.

Electrical system.—The electrical system consists of a diversion dam across the Merced River about 1 mile below the lower end of Yosemite Valley, from where the water is carried in a 54-inch wood stave pipe, 6,000 feet in length, to a powerhouse containing two electrical units of 1,000 kilowatt capacity each, each driven by a turbine operating under a head of 350 feet. Electrical energy developed is carried to various points of distribution in Yosemite Valley and to Glacier Point on some 25 miles of transmission lines, of which 7 miles carry 11,000 volts and the remainder 2,200 volts. During the year ending June 30, 1923, the plant operating 24 hours daily developed a total output of 4,542,585 kilowatt hours, the distribution and utilization of which, as well as a comparison with the preceding year, is shown in the following table:

Power report.

	Kilowatt hours, 1922.	Kilowatt hours, 1923.	Increase, 1923.
			<i>Per cent.</i>
Sold for lighting purposes.....	178,039	189,461	63
Sold for heating purposes.....	1,083,325	1,510,215	39.4
Sold for cooking purposes.....	360,178	641,998	78.2
Sold for power purposes.....	87,969	115,632	31.4
Sold for domestic use.....	None.	89,206	.....
Total sold.....	1,709,511	2,546,532	48.9
Used by service, including line losses.....	1,641,264	1,996,053	21.6
Total output of plant.....	3,350,775	4,542,585	35.6

Telephone system.—The telephone system consists of one 150-line switchboard and one 50-line switchboard to which there are attached 81 circuits, all of which are local battery operated. Two of these circuits are long-distance lines connected to the lines of the Pacific Telephone & Telegraph Co. at El Portal. Continuous 24-hour service is maintained throughout the year.

Telegraph system.—The telegraph system consists of two simplex telegraph circuits connecting direct with the San Francisco offices of the Western Union and the Pacific Telephone & Telegraph Co., respectively. The following table gives an analysis of the business handled through both telephone and telegraph systems, together with comparison with the business of the preceding year.

Telephone and telegraph report.

	1922	1923	Increase.
			<i>Per cent.</i>
Local telephone calls.....	296,643	347,332	13.7
Long distance calls.....	6,389	7,761	21.4
Telegrams through telephone exchange.....	1,447	762	47.3
Telegrams by Morse key.....	15,849	18,752	18.3
Total messages, all classes.....	320,326	374,607	16.9

MECHANICAL DEPARTMENT.

The mechanical department, with a master mechanic in charge, is responsible for the upkeep and maintenance of all motor-propelled equipment in the park. The park owns, maintains, and uses, in connection with park operation, 18 heavy trucks varying from 1 to 5-ton capacity, 7 light trucks of less than a ton capacity, 3 touring cars, and 5 motorcycles. This equipment was maintained in good condition throughout the year, from four to six men being engaged on mechanical repair work.

In addition to the distribution of supplies from headquarters to outlying camps and the hauling of graders, in connection with road maintenance work, 1,232½ tons of freight were hauled from El Portal to headquarters by the park motor-driven equipment.

This department also assisted the maintenance department in the repair of road building and maintenance equipment consisting of a steam roller, 7 graders, 2 air compressors, 3 motor-driven sprinklers, 6 horse-drawn sprinklers, numerous dump wagons, road drags, and small tools, and also assisted the electrical department in repair and maintenance of all electrical-driven machinery, including pumps, motors, and generators.

FORESTS AND TIMBER DEPARTMENT.

This department, with a park forester in charge, is responsible for the supervision of all timber cutting in the park and the work of the city and county of San Francisco in connection with their development of the Hetch Hetchy water supply.

Yosemite Lumber Co.—The Yosemite Lumber Co., in operations involving the logging of their own timber lands in the park, employed an average of approximately 450 men during the logging season, operating 11 donkey engines, hauling to 8 landings, and 4 Shay locomotives moving their trains. They cut and shipped to their mill 54,155,464 feet b. m. of logs on 9,197 cars, an average of 5,888 feet b. m. per car. They cut over about 1,467 acres of land, of which about 1,282 acres are within the boundaries of the Yosemite National Park, and located in sections 13, 14, and 24, township 3 south, range 20 east, and 26, 27, 34, and 35, township 3 south, range 21 east, and 1, 2, 3, and 11, township 4 south, range 21 east.

By the end of the 1923 season the Yosemite Lumber Co. will have completed their logging operations in the park on the south side of the Merced River and will transfer their operations to their timber lands on the north side of the Merced River, where they have an operation on lands both inside and outside of the park that will take from 25 to 30 years to complete. A railroad is also under construction over which to haul this timber. This railroad connects with the Yosemite Valley Railroad about 4 miles below El Portal from which the logs will be hauled over the Yosemite Valley Railroad to Merced Falls, the location of the company's mill.

During the year the tract of privately owned land owned by the Yosemite Stage & Turnpike Co., in Little Yosemite Valley, amounting to 160 acres, more or less, was acquired by the Government through an exchange agreement with the Yosemite Lumber Co. by which the Government transferred title to \$25,000 worth of Government-owned timber in the western portion of the park. For administrative purposes the Little Yosemite Valley property is of the utmost importance to the Government, and the timber that was transferred in exchange is located in an isolated portion of the park adjacent to privately-owned timber already slated for cutting, so that no scenic feature of the park was in any way impaired.

City and county of San Francisco.—On June 20, 1923, the city and county of San Francisco completed the construction of the Hetch Hetchy Dam. This work was started on September 1, 1919, and required approximately 1,170 working days to complete. The completed dam required 398,964 cubic yards of concrete, is 341 feet high, and the reservoir impounded back of it is approximately 7 miles long, with an average width of one-half mile and maximum depth on the upper face of the dam of 218 feet.

With the completion of the dam the city has no further use for the railroad from Mather Station to Hetch Hetchy, and it is presumed that in accordance with their contract the rails will be taken up and the right of way converted into a highway. If this is done heavy motor travel into Hetch Hetchy Valley can be expected next year.

During the year the city and county of San Francisco operated their sawmill at Mather Station, employing an average of 73 men and sawing 5,970,490 feet b. m. of lumber. In this operation they cut over about 150 acres of land, all of which are within the boundaries of the Stanislaus National Forest and located in Sections 1 and 12, Township 1 south, Range 19 east, M. D. M.

EDUCATIONAL DEPARTMENT.

This department, with the park naturalist in charge, operates the park museum, conducts the nature guide service, and supervises all educational activities.

As was to be expected with the growing popularity of educational work in the park and the increase in travel, the demands on this department increased materially during the year; not only was a greater number of lectures given at the various resorts and the number of regular and special field trips increased, but all of these were attended by greater numbers than ever before. That the public appreciates such a service is proven by the great numbers who now seek information about the geology, trees, birds, flowers, history, and a host of kindred subjects. During the month of July the nature guide service reached 21,563 people through its nature study field trips and campfire lectures. In the same period 20,504 persons visited the museum. During June and July the attendance on special trips, such as are conducted for such organizations as Boy Scout groups and the Sierra Club, exceeded 600. The California State Fish and Game Commission continued their cooperation during the year by loaning the services of Dr. H. C. Bryant, who personally supervised the nature guide work.

Exhibits in the museum have been materially increased through the year by donations and loans until their value now exceeds \$30,000. These exhibits exemplify what may be found in the park—geological specimens, birds, trees, flowers, mammals, insects, etc., as well as a number of historical Indian relics.

Plans have been perfected for the development of an organization by which it is hoped to raise money by private subscriptions sufficient to build a fireproof museum for the protection of the valuable exhibits already on display and for future collections. So far \$6,550 has been contributed for this purpose.

Closely allied to the educational work of the service is that of the University of California. The Le Conte Memorial Lectures, some 12 in number, were continued during June and July of the year of this report. The subjects are always closely related to Yosemite and statewide publicity brings many persons into the valley especially to hear them. Under a cooperative arrangement with the University of California, students are enrolled at the Yosemite Museum in correspondence courses, and free bulletins on hundreds of subjects are available for free distribution.

COOPERATIVE FEDERAL AND STATE ACTIVITIES.

The varied activities connected with the operation of the park necessitate the carrying on continuously of certain operations by other Government departments, and from time to time the calling in for special assistance other departments of the Federal and State Governments, thus avoiding the inauguration and maintenance of special divisions in the service and at the same time securing by the service for the park, the best advice and assistance available in the solution of special problems.

DEPARTMENT OF JUSTICE.

A United States commissioner is assigned to the park for the handling of court and the trying of cases of violations of the park regulations and penal Federal and State laws operative in the park. Since the creating of Federal jurisdiction to the park in 1920 until August 31, 1922, this position was filled by C. A. Degnan. Upon his resignation, on the above date, H. H. Hoss was appointed to the position and it is still held by him.

During the year 82 cases were tried by the commissioner, resulting in 71 convictions and 11 acquittals.

A total of \$669 in fines, and jail sentences to the amount of 11 months, were imposed on defendants found guilty during the year.

The 82 cases tried by the commissioner were tried on the following charges: Parking car in "no parking" space, 3; driving while intoxicated, 1; reckless driving, 2; speeding, 42; defrauding innkeeper, 1; petit larceny, 12; violating Volstead Act, 3; possessing firearms, 11; hunting, 3; disorderly conduct, 3; criminal syndicalism, 1; picking snow plants, 2; bringing dogs or cats into park, 4; causing forest fire, 1.

POST OFFICE DEPARTMENT.

A post office of the second class is maintained throughout the year in Yosemite village. In addition to this, branch offices are maintained at Camp Curry and Yosemite Lodge during the operating season of those resorts. A Government operated star route is maintained between these offices and El Portal.

The combined business of the three offices showed an increase of approximately 30 per cent over that of the previous year, an increase almost exactly proportionate to the increase of travel to the park.

DEPARTMENT OF AGRICULTURE.

The Bureau of Entomology of the Department of Agriculture has continued during the year its effective cooperation in the control of forest insects. While the work of controlling the forest insects has been entirely successful so far as the protection of the sugar, yellow, and Jeffery pine stands are concerned, the conditions in the lodge pole forests, particularly in the Tenaya and Cathedral Basins and Tuolumne Meadows, are very discouraging. After several years of continued infestation practically all of the lodge pole stand in Tenaya Lake and Cathedral Creek Basins is completely dead, while gradually the same condition is taking place in the Tuolumne Meadows stand. It is only a question of four or five years until that wonderful stand will have been entirely killed. However, the loss of the lodge pole pine stands in parts of these areas is attended by one compensating feature—the replacement of these former lodge pole pine stands by mountain hemlock, red fir, and mountain pine, species that are more immune to insect attacks and more desirable in every way for park purposes. It will take many years, however, for this replacement to be complete, and in the meantime all that can be done is to hope that infestation will not extend into other areas.

The Forest Service of the Department of Agriculture has been extremely helpful in the locating and reporting of fires in the park.

UNITED STATES PUBLIC HEALTH SERVICE.

This bureau continued its support through the year in assisting and supervising mosquito-control work in which we have been extremely successful. While in past years this work has been confined to Yosemite Valley, it was during the year extended to Tuolumne Meadows, where, although the work was initiated on a small scale, considerable success resulted. Sufficient was done in this latter locality during the past year to indicate conclusively that at a relatively small expense the mosquito nuisance can be controlled there by proper oiling and draining.

The United States Public Health Service has also cooperated closely in the supervision of our sanitary problems, inspection of food supplies, milk, water, etc., the operation of sewer system, and the formulation and application of various sanitary measures.

Toward the end of the year an inspection of the health and sanitary problems of the park was made by the Assistant Surgeon General and it is to be hoped that as a result of this the Public Health Service will eventually take over the operation of the hospital and the complete supervision of the park medical service.

STATE OF CALIFORNIA.

The California State Fish and Game Commission furnished some 400,000 trout fry for planting in the lakes and streams of the park. Efforts were made to have the commission carry out their agreement for the construction of a fish hatchery in Yosemite Valley, but so far without success.

The commission also extended its help in connection with the operation of our Nature Guide Service in loaning the park the services of Dr. H. C. Bryant, an expert of the commission in work of this kind. This represents the fourth year that the California State Fish and Game Commission have extended this assistance to the park with most gratifying results in the extension and popularizing of the Nature Guide work, the success of which is due almost entirely to Doctor Bryant's fine work.

PUBLIC UTILITIES—FRANCHISES AND PERMITS.

The following franchises and permits were in effect and operative during the season of 1923:

Name.	For what granted.	Expiration.	Annual rent.
E. N. Baxter.....	Sale of curios, photos, etc.....	Dec. 31, 1923	\$75
Mrs. John Degnan.....	Delicatessen store.....	do.	1 250
H. C. Best.....	Curios, photos, etc.....	do.	1 250
A. C. Pillsbury.....	do.....	do.	1 250
J. T. Boysen.....	do.....	do.	1 250
D. J. Foley.....	do.....	do.	1 250
Dr. F. L. Stein.....	Hospital.....	Aug. 15, 1923	None.
Yosemite Stage & Turnpike Co.....	Automobile stage line.....	Dec. 31, 1931	100
Trustees of Yosemite school district.....	Lease of site for schoolhouse.....	Dec. 31, 1933	None.
Curry Camping Co.....	Hotel camp.....	Dec. 31, 1939	(?)
Yosemite National Park Co.....	Hotels, chalets, inns, camps transportation services, store and dairy.....	Dec. 31, 1938	(?)
Dr. Austin F. Roberts.....	Dentist.....	Dec. 31, 1923	2 25
Louis B. Patterson.....	Tenaya Lake Girls' Camp.....	Dec. 31, 1923	10

¹ Permit fee fixed at 4 per cent of gross revenue: \$250 minimum.

² 22½ per cent of operating profits after deduction of 6 per cent on physical investment.

³ Permit fee fixed at 3 per cent of gross revenue: \$25 minimum.

Lease, special-use, and water - power permits under act of February 7, 1905, segregating lands from Yosemite National Park and placing same in Sierra and Stanislaus National Forests.

Period.	Name and privilege granted.	Compensation exacted.
Intermediate period.....	Yosemite Valley R. R. Co. Lease dated Sept. 5, 1905, to construct and operate electric railway along Merced River to park boundary.	1 \$1,000
Do.....	Yosemite Valley R. R. Co. Special-use permit by Forest Service February, 7, 1908, for diverting dam, pipe line and water tank.	.....
Do.....	Yosemite Lumber Co. Special-use permit by Forest Service, June 27, 1911, to construct logging railroad.	1, 2 1,200
Do.....	Yosemite Lumber Co. Special-use permit by Forest Service, November, 1911, for construction telephone line.	(?)
Do.....	Yosemite Lumber Co. Special-use permit by Forest Service, construction pipe line.	3 10
Perpetual.....	City and county of San Francisco. Congressional grant, December 13, 1913, rights of way for Hetch Hetchy water supply.	Variable.

¹ Per annum, on demand of Secretary of Interior.

² Value of all timber cut and paid for on right of way (payment of \$406.56 made May 3, 1912, and \$334.56 made Oct. 3, 1912), \$741.12.

³ Per annum, in advance.

From every standpoint the season of 1923 has been a successful one to the park operators and permittees. The increased travel has brought each a greater business than in any previous year. Close cooperation between the operators of hotels and camps in the handling of reservations, combined with the tendency toward shorter stays than usual on the part of visitors to the park as a result of unfavorable weather conditions during May and June, prevented anything in the way of congestion during the peak of the season. Another fact that contributed to this lack of congestion which has been suffered during the high tide of travel during previous years has been the addition of over 600 beds and the providing of additional feeding facilities through extended cafeteria operations both by the Yosemite National Park Co. and the Curry Camping Co. At no time during the season were all sleeping accommodations provided utilized, and only for short periods were the feeding facilities heavily taxed.

The Curry Camping Co. during the year built a new store building and oil station for the operation of their store and gasoline privileges granted them during the winter of 1922-23.

The Yosemite National Park Co. added two buildings to their garage plant. Other improvements were confined to minor additions and extensions to their existing plant. However, plans were practically completed for the installation of a new camp unit to be constructed in the vicinity of Kenneyville. The construction of this installation will undoubtedly be under way next year and may even be sufficiently far along to give service during the season of 1924.

With the final approval of plans for the new village unit, as suggested by Mr. Myron Hunt, architect of Los Angeles, on the north side of the valley, plans are now under way for the erection of a new administration building and a new post-office building. The completion of this project will mean virtually the elimination of the present village, and all operators and permittees are making plans for the erection of new buildings to replace present inadequate ones in the old village on the new approved site. By the end of another year this unit should be well along toward completion.

The Yosemite medical service was operated more satisfactorily and successfully than in any previous year in spite of the very serious handicap of inadequate space. Congestion in the hospital during the months of June and July became very serious, it being necessary to accommodate numbers of patients on the open porch and in tents outside of the hospital, hastily erected to meet emergencies. Even in spite of this it was often necessary to refuse applications for admission to the hospital because of lack of room. The situation is truly serious and one that can be corrected only by the construction of a building suitable for hospital purposes. An item has been included in the estimates for the fiscal year 1925 for this purpose, and it is to be hoped, in the interest of the

public visiting the park, as well as the employees of the Government and the public operators who are wholly dependent upon the facilities made available by the Government for hospital and medical treatment, that funds will be available for this purpose.

During the year a total of 2,238 cases were treated by the medical service, of which 121 were hospital cases. In connection with this, 4,230 office calls were attended to; 1,362 house calls were made; 483 accidents were reported, 2 resulting in deaths; 323 operations were performed, of which 12 were performed under general anæsthetic; and 9 deaths and 10 births were reported during the year.

Dental services were furnished during June, July, and August by Dr. H. E. Capps, of Pasadena, working under the supervision of Dr. Austin F. Roberts, of Los Angeles, who is under contract with the Government for furnishing dental services in the park.

TRAVEL.

All previous travel records were shattered during the year ending September 30, 1923, when approximately 130,000 people entered the park, as compared with 100,506 during the previous year. While there was a decided increase in travel to the park by all means of conveyance, as usual motor travel showed the greatest gain, approximating an increase of 37 per cent.

The following table gives an analysis of the travel and also a comparison with the figures recorded for the previous year:

Automobiles and motorcycles.

Entrance.	Road.	Number of automobiles.	Number of people.	Number of motorcycles.	Number of people.
<i>Season 1922.</i>					
Alder Creek.....	Wawona.....	11,428	38,758	82	118
Crane Flat.....	Big Oak Flat.....	1,983	6,898	26	40
Merced Grove.....	Coulterville.....	240	801	2	4
Aspen Valley.....	Tioga.....	332	974	3	7
Tioga Pass.....	do.....	2,297	7,043	7	13
Yosemite.....	Various.....	138	361	4	6
Returns through Aspen Valley from Crane Flat.....		1,334	4,189		
Returns through Crane Flat from Aspen Valley.....		1,831	5,713		
Total.....		19,583	64,737	124	188
<i>Season 1923.</i>					
Alder Creek.....	Wawona.....	13,831	45,315	101	134
Crane Flat.....	Big Oak Flat.....	4,560	14,998	30	42
Merced Grove.....	Coulterville.....	118	381		
Aspen Valley.....	Tioga.....	541	1,595	2	4
Tioga Pass.....	do.....	3,426	10,496	7	8
Yosemite.....	Various.....	155	386	2	2
Returns through Aspen Valley from Crane Flat.....		2,781	8,654		
Returns through Crane Flat from Aspen Valley.....		1,821	6,045		
Total.....		27,233	87,870	142	190

Other means of transportation.

	1922	1923
Travel by auto stages other than via El Portal Road.....	4,311	4,908
Travel via Yosemite Valley R. R. and El Portal Road.....	23,552	26,607
Travel via Hetch Hetchy R. R.....	5,788	7,188
Travel by wagon, horseback, and on foot.....	1,930	3,283
Total travel other than by private cars and motorcycles.....	35,581	41,986

SUMMARY.

	1922	1923
Travel by private automobiles.....	64,737	87,870
Travel by motorcycles.....	188	190
Travel by auto stages other than El Portal.....	4,311	4,908
Travel by wagons, foot, horse, etc.....	1,930	3,283
Travel by Yosemite Valley R. R.....	23,552	26,607
Travel by Hetch Hetchy R. R.....	5,788	7,188
Total.....	100,506	130,046

FISH AND GAME.

The fishing situation in the park is not good. With the tremendous increase in travel and the accompanying demand for fishing, it has been impossible with the means at the command of the park to keep the streams and lakes sufficiently stocked. During the year the California State Fish and Game Commission furnished approximately 400,000 trout fry, which were planted in the lakes and streams that are principally fished. To meet the demand for fishing, restocking ought to be carried on at the rate of three or four million fry per year instead of a few thousand, as is only possible at present. The park is sadly in need of a fish hatchery. For years the State has failed to carry out the provisions of its contract authorizing the establishment of a State fish hatchery in Yosemite Valley, with the result that practically no progress is being made in the restocking of the park streams, which are rapidly becoming depopulated of fish life through the extremely heavy fishing of the thousands of visitors to the park interested in that sport.

During the year Mr. A. H. Dinsmore, a representative of the United States Bureau of Fisheries, made a study of the fish situation in the park and will submit recommendations for the improvement of the situation. It is to be hoped that this will lead to the building of a Government hatchery in the near future.

Deer and bear are becoming more and more plentiful, largely through the additional protection given during the past two years through the absolute prohibition of dogs. Not only are these fine animals becoming more plentiful, but they are becoming less timid and through their increasing friendliness are becoming more and more of an attraction to the visitors to the park. The park visitor now who fails to observe at least one or more deer and bears is an exception to the rule.

A novelty which has met with the greatest approval was instituted by the Yosemite National Park Co. through the building of a special feeding place for the bears near the river bank a mile below Yosemite village. The platform on which the food is placed is electrically lighted, and hundreds of people journey to this point every night to watch the bears eat and play. The trip is always rewarded by from one to half a dozen or more of the animals being present.

RECOMMENDATIONS.

1. Improvement of the park road system, including paving of the El Portal Road and the roads on the floor of Yosemite Valley, the construction of a road from Happy Isles to Tuolumne Meadows via Vernal and Nevada Falls, the construction of a road from the top of Nevada Falls to Glacier Point, and the improvement of the existing mountain roads.
2. Erection of a new hospital.
3. Continuation of the Waterwheel Falls Trail down the Grand Canyon of the Tuolumne River to Pate Valley.
4. Completion of improvement of the water-supply system by the development of a new source of supply from Illilouette Creek.
5. Continuation of the development of the new sewer system to provide flush toilets throughout the public camp grounds.
6. Increase in ranger force to insure better police and fire control and better supervision of the public camping grounds.
7. Establishment of a small administrative unit in the Tuolumne Meadows and the erection of new ranger quarters and comfort stations at the more important ranger stations.
8. Installation of a Federal fish hatchery.
9. Early completion of the new village unit and the razing of the old village.
10. Modification of park boundary lines, thereby eliminating certain areas on the western side of the park and adding to the park other areas on the east side of the Sierra Nevada, including the Devil's Post Pile, Thousand Island Lake, and Rush Creek areas and the Leevining Canyon section.

SEQUOIA NATIONAL PARK.

JOHN R. WHITE, Superintendent, Giant Forest, Calif.

GENERAL STATEMENT.

This park of 252 square miles was created by act of Congress October 1, 1890, with the Yosemite and General Grant National Parks. The preservation of the largest forest of Big Trees (*Sequoia gigantea*), with the other scenic attractions and the ample camp sites 6,000 feet above the San Joaquin Valley, was due to a few farseeing and public-spirited men of Tulare County, of whom only Col. George W. Stewart, of Visalia, is now living. The interest shown in creating the park has been maintained, so that the relations between the park administration and the people of adjacent county and State lands have always been of harmonious nature. The growth of the park has resulted in national and world-wide travel, which has increased from 1,251 visitors in 1908 to 30,158 in 1923.

A SUCCESSFUL YEAR.

Measured by any standards, the past year has been in every way successful, especially when it is considered that for all park purposes, except new construction, we have had no greater appropriation than that granted in the fiscal year 1920, when the demands for public service were but half those now pressing upon us.

Nine thousand seven hundred and ninety-six automobiles and 30,158 visitors were handled smoothly and without untoward incident. A new water system with 5-inch main from Wolverton Dam, 3½ miles to Giant Forest, was constructed within the appropriation of \$18,320. An extension of 40 public auto camp grounds was made at Paradise Camp, Giant Forest, from funds squeezed out of maintenance allotments. A new garbage-disposal system was installed and incinerator built, also without specific appropriation.

Roads, trails, and telephone lines have of course suffered from neglect enforced by diversion of funds to urgent sanitary and other needs; yet they have all been kept in usable condition.

A mammoth sequoia was dedicated to our late President, Warren Gamaliel Harding, with appropriate ceremonies. A forest play, "Ersa of the Red Trees," was presented twice at Giant Forest. Camp entertainments and lectures were organized by the service and campers with entire success, advantage being taken by Park Service officers to discuss the policies and regulations, while Judge Fry gave camp-fire talks on the sequoias and nature subjects.

The tri-weekly dances were for the first season conducted by the public operators, thus relieving the service of many details of entertainment to which the hotel should attend.

In short, it is felt that the park has fulfilled its purpose as one of the great breathing places of the Nation and that we have contributed to the mental and physical refreshment, as well as the enjoyment, of many thousands of American citizens from every State and every walk in life. Pierce Arrow and Ford have jostled hubs, while around the camp fires their occupants have shared the spirit of democracy, as well as that great peace which pervades the mightiest forest in the world.

PROPOSED PARK ENLARGEMENT.

There seems reason to hope that the present park may soon expand in greater usefulness to the Nation as the Roosevelt-Sequoia National Park, embracing the mighty canyons of the Kings and Kern Rivers, Mount Whitney, with a chain of other peaks, with countless fishing streams, upland meadows, and camping places. The bill sponsored by the Hon. H. E. Barbour, of the seventh California district, which failed of passage during last Congress will, it is understood, be reintroduced with satisfactory boundary adjustments. Meanwhile the Forest Service has improved trails in the Kings-Kern regions and has cooperated in every way with this office in the many mutual problems involved.

Fortunately Congressman Barbour was able to visit the southern section of the present park, three townships of which (108 square miles) were excised from the park by the previous bill. His observations will be valuable in redrafting legislation; and as he had no representatives of the Park Service with him, his opinions were formed from an entirely unbiased standpoint. Dr. D. D. Nice, of Three Rivers, showed the usual fine spirit of local residents by accompanying Mr. Barbour on the trip.

ADMINISTRATION AND ORGANIZATION.

It is again a pleasure to report progress despite lack of funds. The storehouse and property systems were entirely reorganized and a storekeeper-cost clerk employed provisionally until funds are available for a permanent man in this key position. Administrative offices at Giant Forest were enlarged at the sacrifice of space for public reception.

When Giant Forest closes about mid-October we shall move to our new Alder Creek headquarters, thus assembling for the first time during the seven winter months all park personnel and property. When it is considered that we have only had \$18,670 to build a complete park headquarters—offices, quarters for all employees, mess house, storehouse, garage, and machine shops, etc.—we fairly may feel that we have lived up to the injunctions of the late President and the Director of the Budget; indeed, only the most vigorous economy with the unstinted efforts of all concerned have made possible this important concentration of all park activities.

It is, perhaps, sometimes thought that the park personnel is most active during the summer months and tourist influx; but such is not entirely the case, for the preparations during the winter months make possible a successful season, and we have hitherto been handicapped by such separation of men and material that even our small funds have not been used to best advantage.

When all have done so well it is impossible to allot individual praise. I feel indebted to all permanent and temporary employees for the fine spirit of loyalty they have shown and for results obtained.

THE PARK RANGER FORCE.

Again we have no record of complaint against any rangers engaged in checking travel, patrolling the forests, fighting forest fires, and enforcing regulations. Owing to shortage of funds much legitimate ranger activity has been neglected, the men being employed on every kind of repair and maintenance work.

For four years I have urged the acquisition of additional stock and pack equipment, of which none has been purchased despite the fact that animals and packs are worn out. Fortunately, we have friends—and good rangers—who loan us animals and equipment or we could not patrol the mountains and fight forest fires.

FOREST FIRES.

At date of writing this report, mid-August, we are able to report no serious fire and but three minor fires. This improvement over past years may be attributed to increased vigilance of rangers, to the warning signs we have freely distributed, to the fire permits now necessary on adjacent forest reserves, and to the hearty cooperation of the California press in the education of the public. These factors, working together, have saved the Federal Government many thousands of dollars this year.

GRAZING.

Nine hundred and ninety-six cattle were grazed by 11 permittees—this being a reduction of 125 from the number in 1922—following the general policy of decreasing the number of cattle whenever that is possible without injustice to cattlemen and necessary for the preservation of tourist pasture.

UNITED STATES COMMISSIONER AND COURT CASES.

Nine complaints for violation of regulations were filed; four dismissed and five convictions were obtained. A general improvement in respect for regulations is noted, largely owing to the patient and sympathetic attitude of Judge Fry.

TRAVEL.

Detailed statistics are given in attached summary. Nine thousand seven hundred and ninety-six autos and 30,158 visitors entered between October 1, 1922, and September 30, 1923. This compares with past years of auto travel as follows:

	1923		1922	
	Auto-mobiles.	People.	Auto-mobiles.	People.
Passengers carried by Sequoia National Park Stage Co.....	297	1,087	237	833
Private automobiles.....	9,499	28,567	7,649	25,264
Other transportation, wagon, horse, foot.....		610		1,417
Total.....	9,796	30,158	7,886	27,514
Travel by entrances:				
Giant Forest Road, Cedar Creek station.....	5,944	19,026	4,644	15,460
Middle Fork Road, Alder Creek station.....	1,501	4,812	1,314	4,420
Mineral King Road, East Fork entrance.....	2,351	5,710	1,928	6,693
South Fork Trail, Clough's Cave entrance.....		386		493
Trails, all sources.....		224		448
Total.....	9,796	30,158	7,886	27,514

No serious accident occurred and minor accidents were few. The road control was remodeled to give three-way travel daily up and down and has proved in every way safe, comfortable, and satisfactory to motorists. The additional travel hours have meant extra work and less sleep for checking rangers, who, however, have cheerfully responded to the call for service.

Ranger and Mrs. Magly have made Cedar Creek station one of the attractive spots of the park and have put into their welcome and farewells a spirit which has made visitors, whom they treat as guests, glad to arrive and sorry to depart.

During the winter of 1922-23, 437 people visited Giant Forest by the incomplete Generals' Highway and the snowshoe trail, an increase of 127 over the previous winter. As it is almost certain that the new road will be linked to the Smith Grade before the snow flies this year and that it will be possible to use it for motor travel during the greater part of this winter, we may anticipate a large increase of travel to the Big Trees and the winter sports, with corresponding tax on our appropriations.

PUBLIC AUTO-CAMP GROUNDS.

The 303 public auto-camp sites at Giant Forest center were supplemented by 40 additional at the new Paradise Camp. With partially prepared sites available on the Marble Fork at Bridge and Lodge Pole Camps and at other outlying camp grounds near Giant Forest, this gives us 343 public auto-camp sites. Present travel fills these sites; during the summer months there are from 1,500 to 3,000 campers present at Giant Forest; and with the opening of The Generals' Highway and new State road during the 1924 season we shall have insufficient camping accommodations unless estimated funds are made available in early spring of 1924.

PUBLIC OPERATORS.

Kings River Parks Co.—Despite the efforts of Park Service officers and the directors of the company, it was found impracticable to reorganize and refinance it to meet the public needs. At the time when success seemed in sight the financial situation in the San Joaquin Valley was complicated by the raisin drive and our plans fell through.

There is general realization of the urgent need of reorganization to meet actual and prospective travel demands. Perhaps no more important measure than this confronts the park.

Minor improvements in accommodations were made at Giant Forest Lodge and house-keeping camps enlarged so that a total of 260 persons may now be accommodated.

Sequoia National Park Stage Co.—The transportation company reports a successful season and its operations were admirably conducted; 1,087 passengers were carried as compared with 883 in 1922, and this despite the fact that last year the Sierra Club brought 250 in one day. The company is now branching out in stage service to Mineral King, passing through the central part of the park. The application to extend its route from Lemon Cove to Visalia was denied by the State Railroad Commission.

Photographers.—Messrs. Eddy and Belden report good patronage and have continued to assist the service by taking special views and furnishing photographs.

Meat market.—Byron Allen again conducted this operation, with satisfaction to all.

Fruit and vegetable market.—J. A. Mehrten, of Three Rivers, gave this service and kept campers well supplied.

Dairy.—For the third season, Mr. and Mrs. Floyd Carter conducted the dairy at Log Meadow and at the height of the season furnished as much as 140 quarts of milk daily.

Medical and hospital services.—Dr. Morton W. Fraser again gave faithful and satisfactory service under discouraging conditions of returns and accommodations, which have been the subject of special report. It is hoped that the visit of Asst. Surg. Gen. W. F. Draper may result in improvement of the difficult conditions under which Doctor Fraser works.

Additional public operators needed.—Improved hotel accommodations, with a bakery and delicatessen are the urgent needs; the latter two which may readily be installed, will prove immediately profitable and a great convenience to campers and residents.

MISCELLANEOUS SERVICE TO PUBLIC.

Nature guide service.—So far as has been possible, without funds or personnel, Judge Fry has conducted this service, has lectured to hundreds around campfires, conducted a wild-flower show, prepared museum specimens, and has answered innumerable questions besides issuing several bulletins on wild life.

No service to the public is more appreciated than this or is more in line with park ideals and policies, so that it is hoped that we may next year be provided with funds for construction of a museum building.

Museum and library building.—We have annually requested an appropriation for this building, which is needed to relieve the congested administration building of museum specimens and as a rallying place for visitors interested in the natural features of the park. A suitable site has been chosen from which it is hoped that trails may radiate so that all scenic attractions may be reached afoot or on horseback without passing over dusty roads.

Library.—The Tulare County Library, under direction of Miss Gretchen Flower, again loaned a collection of 1,550 books for use of summer campers, the circulation of which filled the needs especially for nature study.

Construction of Giant Forest center.—Through the good offices of the Rev. Lee A. Wood, of Porterville, who conducted church services at Giant Forest, a number of public-spirited campers assisted in the construction of an auditorium beneath the Big Trees which will seat several hundred people, and which has been successfully used for religious services as well as entertainments. This structure fills a long-felt need and relieves congestion in the dance pavilion.

Annual pageant.—The annual presentation of "Ersa of the Red Trees" was given on August 11 and 12 at a new site in the heart of Giant Forest. Twice as many people attended as last year, and so encouraging was the reception that we are assured of an annual event which will compare favorably with the Passion Play at Oberammergau and with many pageants staged in California. Mr. Garnet Holme, who directed the play, deserves the thanks of the Park Service for his work so well in line with park policies and which he has put forward despite lack of financial support.

Restoration of Tharp log cabin.—Few matters have attracted more attention and interest than the work of restoring the sequoia log house occupied by Hale Tharp, of Three Rivers, for many years—from 1858 until his death. John Muir spent several nights in the log and wrote glowingly of its forest and meadow setting. The Three Rivers Woman's Club is lending financial and other assistance and will stage an official opening on September 15, when, at an open-air garden party, funds will be raised for the cabin and for the Giant Forest museum.

Dedicating the Warren Harding Sequoia.—On August 10 several hundred people paid their respects to the memory of our late President when the Park Service officially named and dedicated a mammoth tree, fortunately situated near the McKinley and Lincoln Trees. The event occasioned great public interest and all park employees were glad to take part in thus remembering one who did so much to instill a spirit of unity, cooperation, and economy in the Federal service.

CONSTRUCTION AND MAINTENANCE.

Despite shortage of funds, all roads, trails, telephone lines, buildings, etc., have been kept in usable condition; the camp grounds have been policed and garbage burned in new incinerator. Pending the flush system, which it is hoped Congress will authorize next fiscal year, additional pit toilets were dug.

New water system.—With the \$18,600 made available this year we have installed a 5-inch main from Wolverton Creek, constructing a dam 8 feet high and 100 feet wide on the works abandoned by Mount Whitney Power Co. This impounds a small lake and will give us an ample water supply for many years to come. If funds are provided for the extension of camp sites the difficult situation of past years will be remedied, and it will be possible to plan development instead of let it run haphazard through the sequoia groves.

Alder Creek headquarters.—During the past winter three sets of quarters, a mess-house, commissary, machine shop, garage, and administration building were built at this new site, 1,600 feet altitude and 1 mile inside the park boundary on the main Kaweah River. This headquarters will be about 10 miles nearer Giant Forest than our old temporary headquarters outside the park at Three Rivers. We shall construct two additional quarters this fall and move in about mid-October, thus centralizing park activities during the 7 winter months for the first time in the 33 years of the park's existence.

State highway and The Generals' Highway.—The new State highway to the park boundary is practically finished and will be used for access to our new headquarters and to the incomplete park road from Alder Creek to Giant Forest, which, as it is the first link in the interpark road between the General Grant Tree and the General Sherman Tree, it is proposed to name "The Generals' Highway."

Under the direction of the chief civil engineer of the Service excellent and economical progress has been made on that portion of the new park road between Hospital Rock and Giant Forest. About 5 miles are finished except for final grading and ditching and less than 3 miles remain before connection with the old Smith Grade, near Giant Forest, is effected. This should be done before snowfall, so that we shall have at least partial use of the road for the Giant Forest winter season and sports, so well begun during winters of 1921 and 1922.

It is no exaggeration to say that only the intelligent work of General Foreman Small has made it possible to build this mountain road within appropriations. There still remains the bad 7-mile section between park boundary and Hospital Rock and this must be rebuilt in part before any real service may be had from The Generals' Highway.

Landscape engineering division.—The plans furnished by Landscape Engineer D. R. Hull have proved suitable for such limited construction as we have done, and his spirit of cordial cooperation with appreciation of local difficulties has made economical work possible.

Sanitary engineer, United States Public Health Service.—We consider ourselves more than fortunate to have had the advice of Mr. H. B. Hommon in the installing of our water system and in the general sanitation of the park. Mr. Hommon's assistance, no less than his professional skill, has largely contributed to the success of our work.

Miscellaneous notes.—Owing to imposed limits of this report, much important work and projected development must fall of notice here; but I can sincerely state that if all employees had not delivered more than a dollar's worth of work for each dollar expended it would have been impracticable to maintain the credit of the Park Service and the Federal Government.

The instructions of the President and Director of the Budget have been studied by all employees, who have been encouraged to submit for monthly reports a statement of all economies effected.

RECOMMENDATIONS.

I have no recommendations to make other than that our carefully prepared estimates for the fiscal year 1925 be given every consideration. But this does not mean that, as the park grows and as Americans learn more of the opportunities for spiritual and physical refreshment under the Big Trees, we shall not need additional appropriations.

Statistical summary.

	1923		1922	
	Auto-mobiles.	Visitors.	Auto-mobiles.	Visitors.
Travel:				
By private automobiles.....	9,499	28,946	7,649	25,264
By stage.....	297	602	237	833
By other means of conveyance.....		610		1,417
Totals.....	9,796	30,158	7,886	27,514
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South Fork Trail, Clough's Cave station.....		386		493
Trails, all sources.....		224		448
Total.....	9,796	30,158	7,886	27,514
Hikers to forest during winter season.....		437		310

	1923	1922		1923	1922
Revenues (net)—all sources.....	\$23,425.62	\$20,086.27	Miscellaneous:		
Automobile fees, travel season.....	\$10,842.35	\$7,737.50	Roads—general, miles.....	56.5	56
Appropriations:			Trails.....miles.....	268.3	263.3
General.....	\$32,000.00	\$36,000.00	Telephone lines, miles.....	146	146
New construction.....	\$46,000.00	\$50,000.00	Flush toilets.....	14	8
Telephone service:			Pit toilets.....	76	56
Total calls during season—			Number public camp sites.....	343	303
Long distance.....	1,325	1,293	Buildings—		
Local.....	9,986		Giant Forest.....	10	10
Total collections (commercial).....	\$343.12	\$536.04	Outside (ranger stations).....	10	10
Cases before United States commissioner:			Alder Creek.....	6	
Total number cases.....	9	15	Water system, miles.....	11	7
Convictions.....	5	13	Personnel classification:		
Total fines imposed.....	\$40.00	\$330.00	Administration—		
Nature guide service:			Permanent (12 months).....	4	4
Press bulletins issued.....	7	10	Temporary (4-6 months).....	5	4
Museum specimens prepared.....	25	150	Protection—		
Talks on subject.....	40	20	Permanent (ranger, 12 months).....	3	3
Forest fires:			Temporary (ranger, 4-6 months).....	9	8
Minor.....	9	3	Maintenance and construction—		
Serious.....	1	2	Permanent (12 months).....	1	1
Burned - over area, acres.....	31	900	Temporary (4-6 months).....	25	15
Cost to extinguish.....	\$565.75	\$2,155.97	Engineering—Middle Fork Road (12 months).....	20	15
Grazing:					
Number cattle.....	996	1,121			
Number permittees.....	11	12			
Area occupied.....acres..	45,500	52,540			
Fish planted.....	385,000	200,000			
Private holdings in park:					
Number.....	9	9			
Number of acres.....	1,400	1,400			

Public operators.

	1923		1922	
	House-keeping.	Lodge.	House-keeping.	Lodge.
Kings River Parks Co.: Accommodations for guests.....	175	85	150	85
Guests during season—				
June.....	557	820	642	690
July.....	3,479	1,882	3,009	1,428
August.....	4,084	1,865	3,134	1,237
September.....	938	628	454	502
Total.....	9,133	5,280	7,389	3,942

	1923	1922
Sequoia Stage & Transportation Co.: Passengers carried.....		1,087
Freight carried.....	269 tons 685 pounds.	140 tons.

GENERAL GRANT NATIONAL PARK.

JOHN R. WHITE, Acting Superintendent.

The General Grant National Park of 4 square miles was created in 1890. Although small in area, its magnificent grove of sequoias and its accessibility by a fine 6 per cent grade State highway makes it one of the most popular of our parks. Furthermore, as Franklin K. Lane, former Secretary of the Interior, stated in his policy letter of May 13, 1918, "the size of a national park is of no importance as long as the park is susceptible of effective management and control." The General Grant Grove of 262 mammoth sequoias is a major scenic attraction, and the park is favorably located on the direct route to the Kings River Canyon.

In 1922 the number of visitors was 50,466, and in 1923, 46,230. Fortunately Congress, in the fiscal year 1924 appropriations, recognized the need of caring for this travel, and during the past summer an excellent water and sanitation system has been installed at a cost of \$38,878.

Increased appropriations have enabled many improvements in addition to the water and sanitation installation; a garbage collection and disposal system was begun; a ranger was stationed in the Big Tree Grove, and additional protection was given the trees by warning signs and posts; the roads were graded and improved; public auto camp sites were extended; changes were made in the administration building and post office; office equipment was purchased and a clerk-stenographer and telephone girl relieved the chief ranger of much detail and enabled him to devote his time to general supervision.

Further improvements are urgently needed, such as a dignified entrance to replace the present shack, adequate quarters for park personnel, a new administration building with rooms for reception of visitors, a grader for roads, and other equipment. A suitable hospital, laboratory, and provision for medical service are also needed at this park as at Giant Forest in Sequoia Park.

Although the park is small, there are many problems incident to the fact that it is surrounded by resorts conducted on commercial lines by the Y. M. C. A. Camp, by Hume Logging Co. operations, and other activities; while within the park lies the private holding of "Wilsonia," 160 acres, on which over 100 substantial cabins have been built. Fortunately this enterprise, which so vitally affects the park, is in the hands of Mr. Andrew Ferguson, of Fresno, himself a lover of the mountains and insistent that all Wilsonia development shall harmonize as far as is possible with park policies and regulations. Mr. Ferguson has fostered a fine spirit of cooperation with the park, and we have conferred frequently on mutual problems.

In view of the fact that the private holding of Wilsonia is squarely in the middle of the park as at present constituted, that there is no major scenic attraction within the park, except the grove of Big Trees, and that the whole of the park area, except the grove, should be and must be used for public auto camp sites and other accommodations, serious consideration should be given to readjustments of the park boundary which will permit the sale of the greater part of the area outside the grove. This would be in line with Government economies and would result in reimbursement of the Federal Government for money spent on the park and its improvement, while it would satisfy the demand for summer homes adjacent to the valley.

The hotel and camp accommodations provided by the Kings River Parks Co. have been inadequate to meet the needs of visitors, and with the installation of Government water and sanitation systems the time has arrived when substantial improvement in accommodations and service should be given.

With the continuance of appropriations on the scale of 1924 allotments it is clear that General Grant Park will come into its own; and with the completion of The Generals' Highway, joining it with Sequoia, it will become an even more important link in that chain of scenic spots which will eventually bind Giant Forest, Grant Park, the Kings, and Kern Canyons as one attraction—California's High Sierra.

Statistical summary.

Travel.	1923		1922	
	Auto-mob-iles.	Visitors.	Auto-mob-iles.	Visitors.
By private automobiles.....	12,136	44,117	12,010	47,130
By stage.....		489		647
By other means of conveyance.....		1,624		2,670
Total.....	12,136	46,230	12,010	50,447

	1923	1922		1923	1922
Revenues (net—all sources).....	\$4,107.37	\$3,480	Cases before United States commissioner:		
Automobile fees, travel season.....	\$4,116.49	\$3,027.77	Total number cases.....	3	3
Appropriations:			Convictions.....	3	3
General.....	\$10,000.00	\$6,500.00	Violations of regulations.....	5	7
New construction.....	40,000.00		Total fines imposed.....	\$30.00	\$32.50
Telephone service:			Fish planted.....	50,000	20,000
Calls over Forest Service line, from park.....	112	1,429	Approximate number of wild animals in park:		
Calls over Giant-Forest-Grant Park line.....	35	125	Deer.....	400	300
Total collections (commercial).....	\$5.70	\$31.67	Bear.....	2	3
			Lion—periodically.....	4	5
			numerous other small animals.		

General figures of interest.

Roads.....miles..	13.5	Number of park buildings.....	3
Trails.....do.....	13	Prepared public campsites.....	400
Telephone lines.....do.....	5.5	Pit toilets.....	45
Water pipe line installed, 1923.....feet..	32,488		

Public operators.

	1923		1922	
	House-keeping.	Lodge.	House-keeping.	Lodge.
Kings River Parks Co.: Accommodations for guests.....	115	40	115	40
Guests during season:				
June.....	446	155	236	96
July.....	2,627	413	1,941	253
August.....	2,641	260	1,282	143
September.....	534	145	290	140
Total.....	6,248	1,013	3,749	632

MOUNT RAINIER NATIONAL PARK.

O. A. TOMLINSON, Superintendent, Longmire, Wash.

GENERAL STATEMENT.

Mount Rainier National Park was created by act of Congress approved March 2, 1899, and exclusive jurisdiction of the territory so set aside was ceded to the United States by act of legislation of the State of Washington approved March 16, 1901. Exclusive jurisdiction of the reservation was accepted by act of Congress approved June 30, 1916.

The park is roughly a square, about 18 miles on a side and contains 324 square miles. It is located in the western part of the State of Washington, immediately west of the summit of the Cascade Mountains and about 40 miles southeasterly from the southern end of Puget Sound.

Longmire Springs, distant 6½ miles by automobile road from the Nisqually entrance, is the headquarters within the park of the superintendent and of the Rainier National Park Co.

ADMINISTRATION.

Mount Rainier National Park is in charge of a superintendent, who is assisted throughout the year by an assistant superintendent, clerk accountant, chief ranger, and five permanent rangers. During the travel season the permanent force was increased by 17 temporary rangers, 1 stenographer, 1 clerk, 2 telephone operators, and a construction and repair force. Punishment for offenses committed within the park is administered under the Federal law by a United States commissioner, Hon. Edward S. Hall. During the year three convictions have been obtained for infraction of park rules.

HOTEL AND TRANSPORTATION SERVICE.

All hotel and transportation services are conducted by the Rainier National Park Co., a corporation controlled and directed by prominent business men at Seattle and Tacoma. From a small beginning in 1913 the company has expanded to meet the growing tourist travel and has invested now approximately \$550,000 in hotel and transportation equipment. The company operates two hotels and two camps having total accommodations for 1,500 people; guide service, both foot and horse; automobile transportation service; three stores with lunch counters; its own hydroelectric power plant, and other miscellaneous services.

Hotels.—Paradise Inn, situated in Paradise Valley within easy walking distance of perpetual snow, is the principal hotel. Accommodations may be had in the hotel or in bungalow tents. The inn is but four hours' drive from Tacoma. Very reasonable weekly rates have been made at the National Park Inn at Longmire.

Camps.—Two camps are operated by the company, Paradise Camp in Paradise Valley and White River Camp near the White River entrance on the east side of the park. Retail stores carrying groceries and campers' supplies, and with lunch-counter service, are maintained at both camps and at Longmire. Many new improvements have been made at Paradise Camp. Thirty new tents were added and a new bathhouse with hot and cold water showers was erected. The improvements also include a community kitchen and laundry room.

Transportation.—The company operates stages and touring cars daily from Tacoma and Seattle to Paradise, the round trip from both cities being made in one day. Fifty-five organized touring parties, one numbering 97 persons, made the trip this year.

Summit climb.—Conducted by experienced Swiss guides employed by the company, 320 persons climbed to the summit this year. About 50 others made the trip independently. Climbers find sleeping and cooking accommodations at the rock shelter cabin erected by the Government at Camp Muir.

Other trips.—Every day large parties conducted by guides make the various glacier trips. The horseback trip over the Skyline Trail has proved the most popular trip this season.

WEATHER CONDITIONS.

Weather was unusually favorable for tourist travel this year. With the exception of one week in the middle of August, nearly every day was clear with the mountain in full view. Late spring rains kept the atmosphere clear, and there was no smoke the entire season. The snow did not entirely leave Paradise Valley in the vicinity of the inn until July 24.

FREE PUBLIC CAMP GROUNDS.

The thousands of visitors who came to the park this season with camping equipment found convenient and attractive places to pitch their tents in the public camp grounds provided. Beautiful Paradise Valley affords the most popular camping ground. Here on an average day may be found as many as 500 persons camping, and the number is many times that on a week end. Free wood and water are furnished the campers. Additional tables, grills, and a shower bath were provided this year, but the accommodations are still far short of the needs.

Those who desire to camp several weeks frequently choose the camp ground at Longmire, where the facilities are more adequate. The camp is electrically lighted and provided with tables, grills, running water, and comfort stations.

Eleven hundred dollars has been spent this season on a public camp ground on the White River side. The camp is located about 6.7 miles from the entrance and is proving very popular. Water has been piped, temporary comfort stations built, and 18 camp stoves and 12 camp tables put up.

On the west side campers usually choose their own sites, no particular camping ground being designated. Mowich and Mystic Lakes, with their beautiful surroundings and natural advantages of bathing, fishing, and boating have proven most popular in this district.

NATURAL FEATURES OF THE PARK.

Glaciers.—Second only to Mount Rainier itself, the great volcanic peak which rises to an altitude of 14,408 feet, the glaciers which radiate from the mountain are perhaps the principal attraction for our park visitors.

Twenty-eight of these ice rivers, six of them originating at the summit, descend the mountain. Trips to Paradise, Stevens, and Nisqually Glaciers are made every day by large parties. The Nisqually Glacier has receded 44 feet this year.

Flowers.—Before the snow had melted in the valleys and mountain parks this year the flowers for which Rainier is famed made their appearance. First to come were the avalanche lilies, which grow in great profusion. Four hundred and seventeen varieties of wild flowers, most of them brilliantly colored, are found in the park.

Trees.—Climatic conditions unusually favorable to tree growth have resulted in a remarkable development of forests about the base of Mount Rainier. The forest growth varies from the huge firs in the lower elevations to the sparse growth of the Alpine varieties in the mountain meadows and the distorted, windswept trees along the edges of the glacial valleys.

Wild life.—This year has shown a marked increase in the wild life of the park, and Rainier bids fair to become a park noted for its game. Heretofore the deer and other animals have been forced out by the heavy snows to lower levels outside the park boundaries, with consequent loss through hunting. Through the cooperation of the

Rainier National Forest and the Lewis County Game Commission, two and one-half townships along the southern boundary of the park were set aside this year as a game preserve. This is the favorite winter range of park deer. Due no doubt to a strict enforcement of the "no dogs" regulation, the small wild life of the park has shown a decided increase. The public camp grounds are alive with chipmunks, squirrels, and rabbits. Bear and mountain goats are the most interesting animals found here. As many as nine bears have been seen at one time at the public camp grounds at Paradise coming in search of food. A herd of 25 mountain goat can be seen nearly any day in Van Trump Park. Deer frequently browse around Longmire.

Fish.—Although in the past Rainier has not been primarily a fishing park, fishing conditions were better this year, and many of our visitors availed themselves of the sport. The 157,000 fish planted this year in various streams and lakes of the park give promise of good fishing to come.

Lake George has proved the most popular fishing ground, nearly everyone catching the limit of 10 fish a day. Lake Louise, stocked three years ago, was opened this season and has provided good fishing.

All of the fish planted were obtained without charge from the State of Washington Fish and Game Commission and the Pierce County Game Commission and were delivered to the park. Sixty thousand trout fry were planted in Mowich and Golden Lakes on the west side of the park, 52,000 in the Ohanapcosh district, 30,000 in the White River district, and 15,000 in the vicinity of Longmire.

NATURE GUIDE SERVICE.

Although only established a year ago, the nature guide service in Rainier has passed the experimental stage and has become one of the features of the park. Educational in nature, the work is carried out by means of field trips conducted by park naturalists, illustrated lectures on the natural features of the park, exhibits and reference libraries.

An attractive naturalist's office with displays of fresh wild flowers, geological, botanical, and zoological exhibits was arranged this year at Paradise Valley. Here the park naturalist answered questions and distributed literature and from here regularly scheduled field trips were arranged for those who were interested in the bird, animal, and plant life of the park. Parties of from 20 to 100 persons were taken on these trips.

The illustrated lectures were given in the auditorium of the company guide house four and five nights a week to capacity crowds. It is estimated that some 15,000 persons have been reached by these lectures. Almost double this number would have attended the lectures had there been available room.

A similar service with headquarters at the superintendent's office is offered at Longmire. Illustrated lectures were given in the Sylvan Theater on the public camp grounds.

SPECIAL EVENTS.

Mount Rainier National Park officially opened on June 15 this year and there was public recognition of the event both in Tacoma and Seattle. Floral parades were held in both cities. Following the Seattle parade a dinner was given by the chamber of commerce at which addresses by men interested in the park were made.

On June 17 a large congressional party, headed by Senator F. E. Warren, visited the park. Congressmen Cramton, Barbour, and Lea visited the north and west side entrances of the park and obtained a good general idea of park needs.

The ski tournament, an annual event which attracts thousands of visitors, was held this year on Alta Vista, in Paradise Valley, on July 4. The record jump of 240 feet was made by Nels Nelson, amateur ski champion of the world. The road was open only to Narada, and over a thousand visitors hiked over the snow to Paradise to see the tournament. On the night of July 3 the annual ski ball was held in Paradise Inn.

Under the auspices of the Tacoma Motorcycle Club a hill-climbing contest was held in Paradise August 5. Drivers from all sections of the coast took part in the contest. In addition to the usual Sunday travel the contest brought approximately 300 motorcycles to the park.

The Naval Affairs Committee of Congress, headed by Representative George P. Darrow, of Pennsylvania, visited the park on the 24th and 25th of August. A banquet was tendered them at National Park Inn by the Tacoma Chamber of Commerce.

IMPROVEMENT WORK.

Nisqually River Road.—From Paradise Inn down to the junction with the new road, which eliminates the switchbacks above Narada, the widening work was completed. The mile and a half of new road opened last year was shaped, ditched, culverts put in, and surfaced with crushed rock for one-way travel. By directing all up traffic over the old road or switchbacks and all down travel over the new road this section will be opened for two-way travel next season. With the exception of about 1,500 feet of rock work above the Nisqually River and near the Glacier checking station, which will be completed by mid-season next year if funds are available, the road can be used for free movement of traffic up and down the mountain. However, much will remain to be done in the way of surfacing and the placing of permanent bridges and culverts. This year's accomplishment in widening of three miles of mountain road heavy with rock work during a period of less than three months is most satisfactory considering that all the blasting and steam-shovel work had to be done at night in order not to interfere with traffic.

Carbon River Road.—Opening of this road was continued and will be completed to near the Carbon Glacier late this fall or early next spring. The two miles of State approach road remaining unfinished will be completed by about July 1 next year, shortening the distance to the park from Tacoma by 14 miles and from Seattle by about 20 miles.

White River Road.—The only improvement we were able to accomplish with the funds available was to repair the damage done by the high water overflowing from the river and to make passable four miles from the entrance to White River Camp.

Trail system.—Trails were repaired and improved and in some places relocated as far as the available funds would permit. Trails leading out from Paradise were especially

popular, and the demand for horses for visiting the various points of interest was unprecedented. Signs for marking trails were ordered and will be placed as far as possible with the funds provided. It is hoped that a simple trail map without the detail shown on the topographic map, to be used in connection with the written trail description we are now supplying, will be available next season.

General construction.—Four small cottages for the use of the assistant superintendent and other permanent employees stationed in the park during the winter were constructed at Longmire.

Public camp grounds.—Funds are available for the construction of a bridge across the Nisqually River and an approach road and other improvements for the new public camp grounds at Longmire. Owing to the lateness in securing acceptable bids for the construction of the bridge the road work and other improvements for the camp had to be postponed until late this fall. With favorable weather this fall and early next spring the camp can be opened for use at the beginning of next year's travel.

RECOMMENDATIONS.

Items considered urgently necessary for the protection of the park and its development for the accommodation and comfort of the great number of visitors are as follows:

Nisqually Road.—Widening and reduction of sharp curves and surfacing with crushed rock from Longmire to Paradise Valley. Concrete paving from Nisqually entrance to Longmire.

White River Road.—Widening, grading, and surfacing of 6 miles of road. Investigation and survey of a road to Yakima Park or Summerland and the investigation of a possible route across the north side of the park to connect with the proposed west side road at the Carbon River.

Carbon River Road.—Surface entire road with gravel or crushed rock.

West Side Road.—Begin the construction of this proposed road at the earliest practicable date.

Camp grounds.—Extend the Paradise public camp ground further down the shoulder of the mountain by constructing a new road to the site. Construct a large comfort station, a community building with comfort facilities that will provide shelter during stormy weather; provide sufficient water for the needs and a larger number of tables and camp stoves.

Road equipment.—Purchase of a 10-ton caterpillar for snow removal and other heavy duty, rock crusher, a heavy road grader and scarifier, three light dump-body trucks, two large truck road sprinklers, and four dump bodies for the four F. W. D. trucks purchased this year.

Trails.—Placing of more signs and markers. Surfacing and timbering of muddy places, new bridges, and relocating of some of the badly eroded sections.

Buildings.—Three new shelter cabins along the east side of the mountain for use as winter patrol stations and for visitors making the Wonderland Trail trip; garage and small machine shop for maintenance of trucks and other expensive equipment; a new administration building large enough to provide sufficient space for the various Government activities; two small cottages at Longmire for employees.

TRAVEL FOR THE 1923 SEASON.

The travel to the Rainier National Park for the 1923 season totaled 123,708 people and 27,655 private cars, which is an increase of 76 per cent over the highest previous record in 1922, which was 17,149 cars and 70,376 people. These figures showing such an enormous increase in travel are a sure indication of what the American people want when on a vacation.

It is interesting to note that 90 per cent, or 111,894 visitors, came in their own cars. Every State in the Union, except Delaware, was represented, and 1,506 people came from foreign countries and 106 from United States Territorial Possessions. With the general prosperity of the country increasing and the great transcontinental highways being rapidly improved, travel figures of the future can not be predicted.

Labor-Day travel was, as usual, the heaviest of the season, and this year's figures show the greatest on record. The following tabulation shows the travel in detail:

September 1-----	592 cars	2,313 people.
September 2-----	1,324 "	5,416 "
September 3-----	318 "	1,327 "
Total-----	2,234	9,056

September 3, with a total of 5,416 visitors, was the largest travel day in the history of the park.

Distribution of private automobiles entering Mount Rainier National Park by States, and of total tourist travel from Seattle, Tacoma, and the various States and countries, for the travel year 1923.

State or country.	Nisqually entrance.		White River entrance.		Carbon River and Ohanapecosh entrances.	Total.	
	Cars.	People.	Cars.	People.	People.	Cars.	People.
Washington.....	15,599	65,157	6,664	25,328	¹ 1,698	22,353	92,183
Seattle ²		13,091		14,739	228		28,058
Tacoma ²		21,386		4,000	425		25,811
Alabama.....	15	140		2		15	142
Arkansas.....	6	88		2		6	90
Arizona.....	22	158		4		22	162
California.....	1,853	8,072	65	314	8	1,918	8,394
Colorado.....	50	295	3	22	1	53	318
Connecticut.....	29	287	1	6		30	293
District of Columbia.....	37	339		8		37	347
Florida.....	18	154	3	5		21	159
Georgia.....	9	116		2		9	118
Idaho.....	154	842	5	21	1	159	864
Illinois.....	127	1,347	14	100	3	141	1,450
Indiana.....	30	228	6	11		36	239
Iowa.....	42	407	7	49		49	456
Kansas.....	61	412	5	25		66	437
Kentucky.....	14	157		5		14	162
Louisiana.....	30	289		3		30	292
Maine.....	6	92		3		6	95
Maryland.....	12	135		2		12	137
Massachusetts.....	36	390	4	22		40	412
Michigan.....	65	545	8	38		73	583
Minnesota.....	86	656	17	109		103	765
Mississippi.....	13	124				13	124
Missouri.....	31	285	16	40		47	325
Montana.....	118	708	7	31	6	125	745
Nebraska.....	63	488	8	40	2	71	530
Nevada.....	21	151				21	151
New Mexico.....	9	77				9	77
New York.....	102	2,598	12	76		114	2,674
New Jersey.....	12	219	9	11		21	230
North Carolina.....	15	114		3		15	117
North Dakota.....	27	197	4	19		31	216
New Hampshire.....	2	93		2		2	95
Ohio.....	94	741	9	72		103	813
Oklahoma.....	52	299	3	14		55	313
Oregon.....	1,183	4,572	42	199	19	1,225	4,790
Pennsylvania.....	73	740	6	38		79	778
Rhode Island.....	16	161		1		16	162
South Carolina.....	8	72	1	7		9	73
South Dakota.....	20	154		7		20	161
Tennessee.....	16	123				16	123
Texas.....	51	312	3	26	1	54	339
Utah.....	32	182	2	9		34	191
Vermont.....	6	51				6	51
Virginia.....	18	190		2		18	192
West Virginia.....	2	15		2		2	17
Wisconsin.....	54	539	5	37		59	576
Wyoming.....	20	132		3		20	135
Alaska.....		18		5	1		24
Asia.....		3					3
Canada.....	247	1,256	20	92		267	1,348
China.....		25		1			26
Cuba.....		2					2
Denmark.....		12		1			13
England.....		54		11			65
France.....				7			7
Hawaii.....	10	76		6		10	82
Italy.....		9					9
India.....		4		7			11
South America.....		7		4			11
Sweden.....		1					
Japan.....		3		7			11
Total.....	20,616	95,113	6,949	26,855	1,740	27,655	³ 123,708

¹ 90 cars from Washington came in the Carbon River entrance.

² Included in totals for State of Washington.

³ Includes motorcycles.

SUMMARY.

Methods of transportation.	Nisqually entrance.		White River entrance.		Carbon River.	Ohanapecosh.	Total.	
	Cars.	People.	Cars.	People.	People.	People.	Cars.	People.
Private autos.....	20,331	84,347	6,927	26,829	4253		27,348	111,429
Ashford stage.....	150	1,260					150	1,260
Seattle and Tacoma stages.....	1,073	8,868					1,073	8,868
Motorcycles.....	285	439	22	26			307	465
Horse-drawn vehicles.....		22			22			44
Horseback.....					154	144		298
On bicycle.....		2			1			3
On foot.....		175			408	758		1,341
Total.....	21,839	95,113	6,949	26,855	838	902	28,878	123,708

* 90 cars.

Travel from Seattle.....	28,058
Travel from Tacoma.....	25,811
Travel from other points in Washington.....	38,314
Travel from States east of the Mississippi River.....	10,754
Travel from States west of the Mississippi, exclusive of Washington.....	19,159
Travel from United States territorial possessions.....	106
Travel from foreign countries.....	1,506

Total travel for year..... 123,708

CRATER LAKE NATIONAL PARK.

CHARLES GOFF THOMSON, Superintendent, Medford, Oreg.

GENERAL STATEMENT.

Crater Lake National Park was created by act of Congress approved May 22, 1902 (32 Stat. 202). It comprises an area of 249 square miles located on the crest of the Cascade Mountains in southern Oregon. It is still encumbered by private timber holdings along the southeast boundary. The altitude ranges from 5,000 to nearly 9,000 feet.

ADMINISTRATION.

The superintendent is the park executive. A clerk and a chief ranger assist him throughout the year, and during the travel season 6 additional rangers and about 50 men are employed. The superintendent directs all park activities except the United States commissioner's court and the post office; he also supervises public utilities.

NATRON CUTOFF BEGUN.

Preliminary work on the Natron Cutoff is already under way. This development will advance the rail head to within about 20 miles of our east entrance and will radically alter train travel and supply. As this entrance clears of snow a month earlier than the other entrances, the completion of the cutoff will bring new conditions toward which our policy and construction must in the meantime be shaped.

HIGHWAYS TO PARK.

The 69-mile Crater Lake Highway from Medford to the west entrance has been widened throughout and relocated in difficult areas and should be completely surfaced by July 1. With the exception of one 8-mile stretch it has been well maintained all summer.

The highway from Klamath Falls will be completed before next season. It has been well maintained this year, the distance of 52 miles being covered regularly within three hours.

The Dalles-California Highway is well under way. Its completion, anticipated within two years, will make our east entrance a highly important gateway.

The Diamond Lake entrance is becoming increasingly important, making it necessary to periodically station a ranger there to check cars.

ROADS WITHIN PARK.

The unprecedented travel over our 57-mile road system made maintenance very difficult, especially as a succession of nearly 100 rainless days, while ideal for campers, was a detriment to water-bound roads.

The entrance roads to the Lake were cleared of snow June 28, and the Rim Road completely cleared by July 25. Our road equipment was immediately put into use and grading and rolling continued as indicated throughout the season. The entire road system was thoroughly conditioned after the close of the season to prepare for next spring.

TRAILS.

Of our 34-mile system the trail from the lodge to the boat-landing is the most heavily used, 75 per cent of our allotment being devoted to its maintenance. Ample attention was given other trails all season.

TELEPHONE SYSTEM.

Our 48-mile telephone system was completely overhauled and rebuilt in part. Service with the outside was satisfactory.

BUILDINGS.

All park buildings came through the winter without disaster, but considerable miscellaneous repair work was necessary. All of the permanent buildings at Anna Spring were painted tobacco brown with dark green roofs. Several dilapidated structures were razed and the material salvaged.

NEW CONSTRUCTION.

A standard combination mess hall and bunk house was erected at Lost Creek, and firewood stored in it at the close of the season for the use of pre-season visitors next year. Two new toilets complete with lavatories were erected at the Rim auto camp ground, and two oil-burning water heaters installed in the new comfort station, so that hot shower baths were available all season. A large septic tank was also constructed at this camp ground. Two similar toilets were constructed at Anna Spring auto camp ground. A large barn was constructed at Anna Spring, a highly satisfactory type of building provided with kicking bars and hinged mangers, an arrangement permitting of its conversion in 15 minutes into a warehouse for winter storage of trucks and other large equipment. Two 20,000-gallon water tanks were installed at the Rim auto camp. A 70-foot log boat landing was constructed at Wizard Island. A rustic screen was erected to eliminate clotheslines from the Rim landscape. Over a thousand feet of pipe was laid in various camp grounds. Sixty new signs were painted and distributed. A new bear-proof meat house was constructed at Government Camp. A large latrine was built at Government Camp.

MISCELLANEOUS WORK.

A large amount of miscellaneous work was accomplished. Disused corral fences were taken down; all living areas thoroughly policed; equipment gone over and renovated; accumulations of manure and trash disposed of; new cesspools made; rub logs placed at certain critical points; additional latrines put up at three entrances and two camp grounds; sanitary drinking fountains installed at Anna Spring and at the west entrance. By felling 4 large and 11 small trees a lovely canyon was opened on the main road.

The public camp grounds were so popular that it was necessary to extend them; two men maintained them immaculately throughout the season.

FOREST FIRES.

Eleven small fires developed within the park, but were promptly extinguished. Our rangers also handled three small fires in the national forest near our boundary, the Forest Service, with similar spirit, assisting us without regard to boundary.

PUBLICITY.

Considerable attention has been devoted to publicity. The Southern Pacific Railway led the way in this regard, and the park operators have accomplished considerable. Articles prepared by the superintendent have appeared in four magazines and various newspapers.

TRAVEL IN 1923.

Partly due to increased publicity but principally because of the accumulative effect of previous endeavor Crater Lake had the largest increase in its history. The western gate continued to lead in popularity, making a new record for the largest single day. 235 cars bearing 884 visitors entering that gateway September 2.

Total season travel, by entrances, 1923 and 1922.

Gateway.	By automobile.		Motorcycles.		By stage.	Other means.	Total visitors.
	Cars.	Visitors.	Machines.	Visitors.			
1923.							
East.....	1,114	3,729	2	3	.....	30	3,762
South.....	4,761	15,700	24	33	255	329	16,317
West.....	9,363	30,363	38	53	751	297	31,464
North.....	139	472	1	2	.....	.....	474
Total.....	15,377	50,264	65	91	1,006	656	52,017
1922.							
East.....	779	2,526	4	5	.....	24	2,555
South.....	2,938	9,645	17	24	350	521	10,540
West.....	5,659	18,871	32	48	645	352	19,916
Total.....	9,376	31,042	53	77	995	897	33,011

REVENUES FOR 1923.

Revenues collected during 1923 fiscal year are as follows:

Sales of automobile and motorcycle permits-----	\$29,735.00
Collected from concessionaires-----	150.85
Rental of equipment-----	114.25
Other revenues-----	45.70
Total revenues-----	30,045.80

APPROPRIATIONS.

Act of January, 1924: 1924 fiscal year—administration, maintenance, protection, \$35,000.

NEARLY SELF-SUPPORTING.

As will be seen by the above statements of revenue and appropriation, Crater Lake came within less than \$5,000 of being self-supporting.

PARK OPERATORS.

The addition to the lodge will be ready for use next season, making available 85 new rooms, a majority with baths. This swells the total capacity to 147 rooms, in addition to the tent houses. The company, despite this heavy investment, is not neglecting other developments, but is building up a nicely balanced layout designed to take care of increased travel. Operation has been highly satisfactory, especially in view of the difficulties in servicing a large enterprise removed 80 miles from a railroad. Mr. R. W. Price, vice president and general manager, has devoted his summer here and has promptly met every suggestion made by this office; he and his associates regard their engagements here as an obligation as well as a privilege and have more than justified the faith of the Director.

Mr. Fred Kiser, president of Scenic America (Inc.), has taken a new series of pictures and is generously providing a generating set, cinematograph equipment, and scenic films for the entertainment of visitors next year.

The representatives of the Standard Oil Co. operating the station at Anna Spring rendered excellent service to the public.

FISHING.

Fishing was exceptionally good in the lake. The silversides planted last year have attained to a thrifty 10 or 12 inches. Thirty thousand rainbow fingerlings were planted in the lake this year. Stream fishing was less popular.

WILD LIFE IN PARK.

Ten bears were identified at the garbage dump this year, four being particularly friendly and a source of great pleasure to visitors. Deer were present in large numbers and were quite tame until shooting started in the forest about the park. A band of four elk was occasionally seen along the southern boundary. Foxes and coyotes were in evidence, and one cougar was reported. Whistling marmots were present in great numbers, as well as the smaller animal life. Birds were abundant in great number and variety.

TREES AND FLOWERS.

Outside of the lake itself our great cover of coniferous trees gave greatest pleasure to visitors. Unfortunately the thousands of trees killed by beetles during recent years present a sad aspect, projecting a definite problem that must soon be met.

Wild flowers are on the increase, miles of our roadway being fairly banked with colorful blossoms and the forest glens carpeted with literally hundreds of acres of wild flowers.

RECOMMENDATIONS.

1. The pressing problem of this park is better roads, particularly at the entrances. This grave need has been made the subject of special reports and can not be further postponed if we are to go forward. It is a definite obligation to the public and to the operators who have made large investments on the assumption that this obligation would be met.

2. All of the trees originally felled in cutting rights of way for our roads still lie along the highways. The reaction of visitors is not to the solemn splendor of the forest but to these miles of continuous litter. A special appropriation of \$3,000 should be made available to correct this condition.

3. The location of the office at Anna Spring is unfortunate, Anna Spring being 3½ miles off the east entrance road and the Rim Road and 5 miles from the lake, the apex of our endeavor. It is recommended that administration and living units be centered at Government Camp.

4. In order to encourage visitors to mingle together after sundown it is recommended that a shake community house, designed in imitation of a wigwam and containing a large central circular fireplace, be constructed at the Rim auto camp ground.

5. That energetic steps be taken to establish a 10 to 20-mile game preserve about the park.

6. That a larger appropriation be made available to better maintain and protect the park, to advance sanitation and construction to a level with rapidly increasing use, and to replace worn and antiquated equipment.

7. The annual expenditure of approximately \$3,000 a year to shovel a roadway through the snow at the opening of the season becomes absurd in this mechanical age. It is recommended that one of our steam shovels be equipped for this work.

8. That a small warehouse be constructed at Medford in which to store supplies and equipment purchasable to better advantage during the winter, and in which to condition motor and other equipment, so that we can enter the park ready to function instead of carrying on repair work during the period of peak load in travel and construction.

9. The location of the Standard Oil Co. service station at Anna Spring (3½ miles off the east road) was the subject of many complaints. It should be removed to Government Camp before next season.

ACKNOWLEDGMENTS.

This report would be a poor document without brief review of splendid cooperation encountered. To the various organizations, business men, operators, and my associates here I am much indebted for competent advice and loyal assistance. To my predecessor, Mr. Alex Sparrow, I am particularly indebted; his time and his counsel have been always available, and the prestige of our service built up by his unabating energy and rare personality has been an incalculable asset to a newcomer.

Within the service, too, unstinted contributions have been the rule. For all this support, as well as for the cherished opportunity to serve thus, I am very grateful.

WIND CAVE NATIONAL PARK.

ROY BRAZELL, Superintendent, Hot Springs, S. Dak.

GENERAL STATEMENT.

Created by act of Congress January 9, 1903, Wind Cave National Park is comprised of 10,899.22 acres situated in the southern Black Hills in southwestern South Dakota. It is approximately 4 miles square and is about evenly divided between rolling prairie country and a semimountainous area covered with a good growth of yellow pine timber. The altitude ranges from 3,800 to 5,000 feet. In the approximate center of the park is the entrance to Wind Cave.

ADMINISTRATION.

The park is administered by a superintendent with headquarters in the park. He is assisted by one permanent park ranger and a limited number of temporary rangers who act as guides in the cave during the busy season.

THE CAVE.

Wind Cave is one of the biggest natural caves known and contains all of the geological formations of limestone composition and disintegration, many of which are astonishingly beautiful. Trails are provided within the cave permitting of easy travel by visitors, and three routes are open to the public, viz: The Garden of Eden; the Fair Grounds and the Pearly Gates, being a short, medium, and long route, respectively. It requires from two to three hours to make a trip through the cave. Stairs, ladders, guardrails, and bridges are provided where necessary.

DISCOVERY.

The cave was discovered in February, 1881, by a deer hunter named Tom Bingham. The original opening, about 8 or 10 inches in diameter, was later enlarged and now constitutes the only known entrance and exit of the cave.

DESCRIPTION.

Wind Cave is comparable to a gigantic sponge, measured in miles instead of inches. Old guides and explorers claim to have traversed over 100 miles of passageways without finding the end or bottom of the cave. Passages extend in all directions and at all angles, and one can only guess at their dimensions. The regular routes comprise only a small fraction of the explored but unsurveyed part.

The cave is outlined in a stratum of Pahasapa limestone and was apparently made by erosion caused by water running through cracks and crevices resulting from earth convulsions of long ago. There are signs of both hot and cold water formations.

The appellation "Wind Cave" is warranted because of the fact that intermittently, irregularly, and sometimes violently the wind blows in or out of the cave entrance.

RAILROAD FACILITIES.

Hot Springs, the post office and most accessible railroad point, is about 11 miles distant on the Chicago, Burlington & Quincy and the Chicago & North Western Railroads, being but an overnight ride from Omaha, Denver, or Billings. Pringle, Custer, and Buffalo Gap are other near-by railroad towns.

TRANSPORTATION.

The firm of Larson & Dean, of Hot Springs, S. Dak., have handled the transportation business at the park this year. They have provided new and up-to-date equipment and have rendered excellent service to their patrons.

VISITORS.

There was a phenomenal increase in the number of visitors to the park this year, and again all previous records were eclipsed. Of the total number of 41,505 persons, 40,714 came in 13,570 private autos and 791 with the authorized operator. Eleven thousand and sixty-eight persons made the trip through the cave.

Now, as heretofore, South Dakota and Nebraska furnish the bulk of our visitors, but it is gratifying to note that the more distant States are more and more being represented. Records show that visitors came from every State in the Union and from many foreign countries. The following percentages show from which States the majority of

our visitors come: South Dakota, 45 per cent; Nebraska, 21 per cent; Iowa, 12 per cent; Minnesota, 4 per cent; North Dakota, 3 per cent; Illinois, 3 per cent; Wyoming, 2 per cent; Wisconsin, 2 per cent; Kansas, 1 per cent; and all other States, 1 per cent or less.

A very much larger proportion of visitors with their own conveyances and a reciprocal decrease in number coming by rail and auto-bus is apparent. Over 92 per cent of our cave visitors came to the park in private automobiles, and we have had more campers this year than ever before.

HOURS OF ENTRANCE.

Visitors are only admitted to the cave at 9 a. m. and 2 p. m. daily, the winter months being excepted, when but one trip each day is made at 2 p. m. No one is permitted to enter the cave without a duly authorized guide.

ROADS.

A most imperative need of the park is a good, permanent road extending clear across it from north to south to connect with the good roads maintained by the State and county. Lack of funds has prevented the proper maintenance of the 6 miles of road, now in use, though during the season just finished this road has been in better shape than ever before. Practically all old wooden bridges have been replaced by culverts and fills, though because of lack of funds these fills are too narrow and are not up to grade nor are they properly finished to withstand rainy weather conditions.

INFORMATION SERVICE.

An information bureau is maintained at park headquarters and is kept steadily busy dispensing information such as visitors require. This is a very important feature of our work and is a very essential part of our service to the public.

WATER SUPPLY.

The park business has outgrown our excellent water system. Allotment has been made for doubling its present storage capacity, and the addition will be completed and in operation for next season's needs.

The water supply comes from a mountain spring and is conducted by gravity to a cement storage reservoir on a hill near headquarters. The water is excellently pure, and with proper storage facilities and careful conservation can be made to meet our needs for the next 8 or 10 years.

BIRDS.

More than 50 kinds of birds are with us during the summer and many of them stay all year. Grouse and prairie chickens have increased appreciably and quail appear to be more numerous, but the ducks seem to have other nesting grounds though many of them visit us in the spring and fall. The magpie, formerly a nuisance, is being rapidly exterminated or driven from South Dakota, owing to a law which provides a bounty for each one killed.

GAME PRESERVE.

About 4,000 acres of the park lands are inclosed with a woven wire fence and maintained as a game preserve by the Agriculture Department, in which buffalo, elk, antelope, and a few deer are kept. All of the animals are doing well.

GRAZING.

Permits are issued to neighboring ranchers authorizing them to graze certain numbers of cattle on the park lands. On account of climatic conditions early in the year it was thought best to reduce the number grazed on the range this season, and permits are in force for only 585 head as compared with 811 last year. An abundance of rainfall during the latter part of the season has assured plenty of feed, and the cattle are in fine condition. Next season the number should be again increased to at least 800 head.

REVENUES.

The revenues of the park from all sources during the fiscal year 1923 were \$4,109.25.

RECOMMENDATIONS.

The park is sadly in need of equipment, some new buildings, a clerk and stenographer, and an automobile, in addition to a proper maintenance fund.

PLATT NATIONAL PARK.

ROBERT G. MORRIS, Superintendent, Sulphur, Okla.

GENERAL STATEMENT.

Platt National Park was created by acts of Congress July 1, 1902, and April 21, 1904, and contains a total of 848.31 acres, lying just south of the city of Sulphur, Okla. Platt National Park was formerly called Sulphur Springs Reservation, but under the administration of McKinley and Roosevelt was changed to Platt National Park in honor of the late Hon. Orville H. Platt, United States Senator from Connecticut, in recognition of his distinguished services to the Indians and to the country. This park was set aside to be forever free to the people of the United States because of the great value of the curative waters of the many medicinal springs found here, which have been famous for their curative value as far back as we have any records of them. With its woods and trees, its streams and springs, its flowing wells and swimming pools, its cliffs and boulders, Platt National Park is appreciated not only for its health-giving waters but for its scenic beauty as well.

SPRINGS.

The principal springs are the Bromide, Sodium Chloride, and Medicine Springs, in the eastern part of the park; the Black Sulphur, White Sulphur, and Bromide Sulphur, in the central part and the Antelope and Buffalo Springs in the extreme eastern part of the park, these last nonmineral in character, being wonderfully pure and flowing from an elevation of 1,080 feet above sea level. The Bromide Spring is considered the most valuable, its waters being used for rheumatism, stomach trouble, and nervousness. Many are the cures claimed for it by its use. Perhaps next in value come the Black Sulphur Springs. Their waters are fast becoming famous as a blood purifier, being especially beneficent in all kinds of skin diseases, chronic sores, eczema, etc.

VISITORS TO PLATT NATIONAL PARK.

During the year just past the number of visitors has increased by leaps and bounds, till the registration this year shows 100 per cent increase over last year. The following tables give a good idea of how Platt National Park is growing in the estimation of the people:

Visitors for past 5 years:

1919-----	107, 918
1920-----	173, 310
1921-----	216, 022
1922-----	246, 998
1923-----	470, 841

Campers for past 5 years:

1919-----	689
1920-----	2, 981
1921-----	10, 526
1922-----	23, 170
1923-----	74, 589

It will readily be seen that Platt National Park is fast coming to the front if visitors and campers count in estimating the park's popularity with the people. Our records are not perfect as many of the visitors coming to Platt were not counted as they did not go to Bromide, where visitors are checked. We were forced to keep the Bromide water again for the sick and ailing during the crowded months, as there was not enough for visitors to carry it away.

CAMPERS.

During the year past our camp grounds, although widened and extended, have been crowded to capacity at times, yet all campers seemed to take it as part of their outing and were satisfied with our efforts to make them comfortable.

The National Platt Park Club held its annual meeting at Cold Spring Camp Ground and elected Hon. F. D. Pittman, of McAlester, Okla., as its national president, and Mr. J. E. Mountford, of Sulphur, Okla., as secretary.

Campers coming to Platt National Park during the year past used 18,840 automobiles and 219 wagons. It is hard to say how many cars were used by the visitors here, but we feel sure that there were not less than 50,000 automobiles used by the visitors to the park.

ANIMALS.

Our animals are a source of great pleasure and admiration to many, especially are they popular with the young and the very old. During the year five fawns were added to the herd of deer and a fine baby elk was born and is doing fine. Many squirrels frisk about and are another source of pleasure to all. The eagles that nest in the park attract much attention.

ROADS.

All our roads need to be widened and resurfaced, and to do this \$50,000 is needed. Our roads are a constant advertisement to the public, and unless they are properly worked they will be impassable before long. The park roads have been badly worn by heavy automobile traffic, and because there was no money to properly repair them they have fallen into a bad state of disrepair. The park roads were originally made for horse-drawn vehicles, and to-day they are unfit for automobile traffic. This is especially noticeable after leaving the Bankhead Highway, the Ozark Trail, or the Cotton Belt Highway, all of which either run to Sulphur or near it.

IMPROVEMENTS.

During the year past our entire time has been expended in trying to extend our camp grounds, repair our roads, and keep our park in as good condition as possible, with no funds for improvement. We need money for everything that goes to make a successful park, and without it there is little to encourage us in our efforts to make this a great health and pleasure resort.

RECOMMENDATIONS.

Platt Park needs are: Buildings repaired and painted; a new pavilion over the Black Sulphur Springs; one over Wilson Spring, and one over the Sulphur Bromide Spring; more men to do the work; more teams, harness, and wagons, and more equipment; larger camp grounds; more comfort stations; more water and electric light; more roads, trails, and drives. All roads need widening and resurfacing. There is need for a driveway on both sides of the creek to avoid accidents. An automobile, for the use of the superintendent, is also needed.

SULLYS HILL NATIONAL PARK.

W. R. BEYER, Acting Superintendent, Fort Totten, N. Dak.

Many improvements in the park have been made during the past year, all of which give additional comforts to the visiting tourists. The Hostess House is now completed. This is a three-room house, well equipped as a rest room. Several ladies' clubs and

societies in this locality are very much interested in this new Hostess House and are making plans to furnish the various rooms.

Mammals and game birds on the game preserve.

Kind.	Number in 1922.	Increase.	Loss.	Total number now on preserve.
Buffalo.....	10	4	1	13
Elk.....	25	5	25	5
Deer.....	5	0	0	5
Pheasants.....	10	Not known.	0	10
Ducks.....	10	0	10	0
Canada goose.....	1	0	0	1

The 10 grown buffalo and 3 calves are in excellent condition. They have increased from 6 head in 1918 to 13 head in 1923. One calf died last year with the blackleg. The buffalo roam over the 700-acre pasture, staying in the timber on hot days and coming out to feed in the evening. They get their water from three large springs that are inside the preserve inclosure. They were fed hay twice every day last winter that they were up for feed by the barn.

The loss of so many elk is regretted very much, but it could not be helped under the circumstances. It seems the loss was due to warm weather in January, when ticks developed very rapidly, and though they shed some, they weakened the animals so they could not withstand the severe storms and deep snow that followed in February and March. Dr. C. P. Brady, of the Bureau of Animal Industry, stated that some of the elk possibly died of hemorrhagic septicemia. The elk and buffalo will be fed daily together near the corral next winter to accustom them to the corral. The elk stay in the timber and are seen but little and can not be counted until the leaves fall off the trees.

As far as is known, the white-tail deer are not increasing. The deer stay in the timber and are seen but little in the summertime. A doe and buck were fed grain near the game warden's quarters last winter. Some hardier deer will possibly be planted at this preserve in the future.

More mallards will be put on the Sweet Water Lake with geese. Sweet Water Lake has an abundance of snails in it, and ducks in great flocks rest on this lake, where they are not molested in the fall. Four flocks of geese stopped on the lake last fall. Owls caught all of the clipped-wing ducks last fall.

The game preserve is under the jurisdiction of the Biological Survey of the Department of Agriculture, Wesley D. Parker, game warden, in charge.

Visiting tourists up to September 30, 1923, were counted as follows:

October to April.....	170	August.....	1,792
May.....	500	September.....	1,157
June.....	1,313		
July.....	3,546	Total.....	8,478

The most urgent need of Sullys Hill Park at present is a good road leading to the park. I tried to emphasize this in my last year's report, and I regret that thus far our attempts in getting road improvements leading to the park have been unsuccessful. With good roads to the park its popularity can be more than doubled in a short time. Let me again most respectfully urge and recommend that your office make every effort to secure an appropriation for road improvements leading to this splendid Sullys Hill Park.

MESA VERDE NATIONAL PARK.

JESSE L. NUSBAUM, Superintendent, Mancos, Colo.

GENERAL STATEMENT.

Mesa Verde National Park was created by act of Congress approved June 29, 1906 (34 Stat., 616), embracing an area of 66.2 square miles. By act of Congress approved June 30, 1913, the boundaries of the park were so changed as to include an aggregate area of 76.51 square miles, or 49,966.4 acres. The park is situated in the extreme southwestern part of Colorado in Montezuma County.

ADMINISTRATION.

The park is administered by a superintendent, with headquarters in the park and office at Mancos, Colo., the nearest railroad, who is assisted by a clerk at the Mancos office and a very limited number of rangers at the park, who conduct visitors to and through the ruins, patrol the park, and protect the game. Only a few minor infringements of the rules and regulations have been reported during the year.

TRAVEL.

Mesa Verde can never compete with the other national parks in the matter of travel, because it is nearly 500 miles from Denver, reached only by a narrow-gauge railroad, and the automobile trip or rail trip requires at least two days each way to the park, besides the negotiation of several high mountain passes. The automobile passes are blocked with snow for some time after the park opens.

Registration of visitors at the park during the earlier part of the season was 50 to 70 per cent above last year's record. The water supply failed rapidly, and all construction work was halted and forces sent from the park on the 3d of July that visitors'

conservative needs might be cared for. Rangers alone of Government forces were retained at camp. August brought relief, and also grief, both for the park and visitors. Six cloudbursts in seven days literally closed the park. Rains continued for the balance of the month. Precipitation was reported as heaviest in 47 years. Adjacent States of Arizona, Utah, and New Mexico were likewise deluged. Attendance dropped from 103 to 1 in course of two days. Roads were difficult to keep open, and since they are of clayey soil and unsurfaced, cars will not attempt trip in bad weather, knowing the extreme grades, quick switchbacks, sharp turns, and narrowness of roadway.

Visitors entering Mesa Verde National Park, season 1923.

	Passengers.		Passengers.
Transportation company's cars.....	280	Hiking.....	10
Private cars.....	4,325	Motorcycles.....	6
Private cars (second trips).....	496		
Wagon.....	20	Total.....	5,236
Horseback.....	99		

Private cars and passengers, by States, season of 1923.

State.	Number of cars.	Number of visitors.	State.	Number of cars.	Number of visitors.
Arizona.....	17	54	Nebraska.....	22	68
Arkansas.....	1	4	Nevada.....	1	2
California.....	61	220	New Mexico.....	49	173
Colorado.....	772	2,637	New York.....	14	48
Delaware.....	1	4	New Jersey.....	5	12
District of Columbia.....	1	3	North Dakota.....	4	11
Florida.....	1	2	Ohio.....	9	46
Idaho.....	3	12	Oklahoma.....	41	141
Illinois.....	23	86	Oregon.....	8	22
Indiana.....	5	13	Pennsylvania.....	3	11
Iowa.....	18	67	South Dakota.....	3	8
Kansas.....	27	99	Tennessee.....	2	8
Kentucky.....	3	11	Texas.....	49	172
Louisiana.....	4	11	Utah.....	22	91
Maine.....	1	2	Vermont.....	1	3
Maryland.....	3	9	Wisconsin.....	9	27
Massachusetts.....	6	19	Wyoming.....	10	25
Michigan.....	10	29	Washington.....	17	55
Minnesota.....	3	15	Australia.....	1	3
Missouri.....	21	95			
Montana.....	4	8	Total.....	1,255	4,325

SERVICE TO THE PUBLIC.

The Spruce Tree Camp Hotel, together with all tents, cottages, service buildings, etc., were moved to a most admirable location overlooking Spruce Tree and Navajo Canyons. Accommodations for the public could not be enlarged on the old site, and enlargement and improvement was imperative. Roads were constructed to the new location. The operation of this utility has been much more satisfactory this season.

The Mesa Verde Transportation Co., of Mancos, Colo., transports pay passengers by automobile from Mancos to the park. They rendered excellent service.

The Mesa Verde Pack & Saddle Co. was granted a permit for saddle and pack animal transportation within the park. Although a new venture and a financial failure this season, the operator is established now and indications point to a success next season.

The Gallup-Mesa Verde Stage Line, Morris & Evans, proprietors, are likewise new operators, carrying pay passengers to the park from the Santa Fe lines at Gallup, an auto stage journey of nearly 400 miles across the Navajo and Ute Indian Reservations. Unfavorable weather and lack of roads after the cloudbursts of August made it necessary that they discourage traffic during the rainy season. The Santa Fe Railroad is backing this venture and advertising it widely.

ADMINISTRATIVE HEADQUARTERS.

Administrative headquarters were again maintained at Spruce Tree Camp, where Mrs. Nusbaum, Deric, and myself, together with one ranger, "snowed in" for the winter. Due to the death of the clerk at the Mancos office, for two months I was back and forth over the long winter trail to Mancos, caring for the office work there in addition to the work here. For this reason much less work was accomplished at headquarters during the winter.

Plans and sketches for the new museum building were drawn by Mrs. Nusbaum and later approved by you and the landscape engineer. This building composes the third unit of the administrative group. Because of lack of storeroom the checking station had to be used for that purpose during the winter and for housing purposes in the early spring. For that reason it was not furnished or completed during the winter, but will be this fall.

The relocation and rearrangement of Spruce Tree Camp Hotel and associated housing and service buildings required considerable study to meet both demands of the operator and ideals of the park. This work was accomplished to the satisfaction of both parties.

Furniture making occupied a considerable portion of the balance of our time, although miscellaneous duties and office matters and installation of new operators demanded much time. Many substantial improvements have been accomplished at the park headquarters.

MUSEUM.

Mrs. Nusbaum has again taken charge of the old temporary museum, cleaning and reinstalling all the collections therein. Considerable new material has been added to the collections this season, partly as a result of the heavy rains which exposed it to view.

The new museum, the gift of Mrs. Leviston, of San Francisco, is undergoing rapid construction after long delay—first, because the site selected was occupied by the hotel operator, and, secondly, because of the water shortage, and then the deluge. It is hoped to complete this fine unit by the time snow flies.

PUBLIC CAMP GROUNDS.

Additional future space has been added to the public camp grounds in laying out service roads to the new hotel location. Sixty per cent of the visitors made use of the facilities provided there. Larger water lines were laid to the grounds. The grounds have been maintained in most sanitary manner and are the subject of much satisfying comment by visitors establishing themselves thereon.

TELEPHONE SYSTEM.

Much work has been necessary in the maintenance and repair of the telephone system this season. The park must construct its own pole line from the park entrance to Mancos (6 miles), to eliminate the constant "trouble sector," where park lines are attached to the poles of local companies. This line is the sole method of daily intercourse with the outside world in winter, and all administrative matters coming to the Mancos office are handled over it to me, hence the necessity of a trouble-proof line.

WATER DEVELOPMENT.

Again this season the lack of an adequate and unfailing source of water supply has nearly resulted in the closing of this park at the beginning of the "rush" season. On July 3 construction work was stopped, labor forces and teams sent from the park, and only rangers retained in an effort to supply the conservative needs of visitors. A spring drought made the situation desperate. The discovery of nearly 200 ancient cliff-dweller dams in a small canyon near headquarters led to a plan of procedure. Two quick showers furnished enough water to commence the construction of two dams on the rim rock at the head of Spruce Tree Canyon. One and a half miles of gathering drainage ditches were constructed to convey flood waters to the reservoirs. Two cloudbursts in August filled all three reservoirs. Additional reservoirs must be built to saturate the sandstone further back from the seam where we regain the water. An emergency concrete storage tank of at least 100,000-gallons capacity must be constructed above headquarters to carry the park through protracted periods of drought. This can be filled in early spring, when water is plentiful.

One new storage cistern of 4,500-gallons capacity was constructed in the head of the canyon. A 6,000-gallon storage and distributing tank was erected above headquarters in a masonry tower of the "cliff dweller watch tower" type, and larger supply and distribution water lines run to various parts of the hotel and camp grounds. Water must be had in sufficient quantities to supply the park needs even in periods of drought.

LIGHT PLANT.

The small three-fourths kilowatt Delco light plant is worn out after seven years of usage and must be replaced with a larger plant adequate to the park's needs.

ARCHAEOLOGICAL WORK.

No excavation work in the ruins was contemplated this season. The cumulative damage of visitors hob-nailed boots and the elements must be cared for first, and when weather conditions improve, this work will be started and completed to the extent of the funds in the spring.

CAMP FIRE TALKS AND INDIAN DANCES.

Evening camp-fire talks form one of the most enjoyable and educational activities of the park service at Spruce Tree headquarters; I calling particular attention to the Basket Maker and Slab House cultures which preceded that of the Cliff House people in this section of the Southwest, and noting the principal differences in the various cultures; Rangers Branch, Cumming, Rife, or Monroe are then introduced to take up the Cliff House culture of the Mesa Verde, and give something of the geology, topography, history, and development of the Mesa Verde. Noted visitors, educators, scientists, and archaeologists have all gladly taken part in the meetings, giving most instructive talks on their branches of activity or their impressions of the park. Navajo Indians working here select six of their best dancers and singers to give four parts of the "Yebachai ceremony" at the conclusion of the talk.

FLOWERS.

Flowers have never bloomed in such profusion before, penstamens, Mariposa lilies, Indian paint brush, and members of the aster family being particularly abundant. Over 100 different varieties have been collected and identified. The wild flowers of Mesa Verde are a joy and an unexpected pleasure to park visitors.

WILD ANIMALS.

As a result of protective measures that have been adopted deer are returning to their old stamping grounds on the park. As many as 13 have been seen in one group, and during the spring before they leave for the higher mountains they were seen regularly along the roads, and even near headquarters in small groups. This is most encouraging.

DRIFT FENCE.

The drift fence completed last fall has been a most successful protective measure for the park roads and the ruins of Chapin Mesa. An extension will be completed this fall.

TRAILS.

The Rock Springs Trail (new construction) from Spring House to Rock Springs and thence to the wonderful ruins of Mug House, Jug House, Kodak House, Long House, Double House, Ruin Sixteen, Step House, and Pinnacle Tower has been completed, including foot trails over the cliffs to the ruins. This long-awaited development opens up the greatest group of ruins on the park outside of the Chapin Mesa group and makes it possible to patrol this heretofore nearly inaccessible portion of the park.

The Soda Canyon Winter Trail has been much widened and improved, the Navajo Canyon Trail, from which 28 ruins can be seen, has been brushed out, and all the other trails have been widened and improved. August cloudbursts did tremendous damage to trails, in some parts washing them away entirely.

The Knife Edge Entrance Road has been completed and in use for over two months. The contractors failed and their contract was completed by the bonding company. Visitors who know the world and its scenic highways are unanimous in their opinion that the Knife Edge Road provides the most spectacular drive in America. It commands tremendous expanses of diversified terrain in the four adjacent States of Colorado, Utah, Arizona, and New Mexico as viewed from an airplane at an altitude of 2,000 feet.

More substantial improvements have been accomplished on park roads this season than ever before with limited funds, largely through the employment of Navajo Indian laborers at \$2.50 per diem.

The necessity of widening the north rim road, correcting grades and alignment, and installing more drainage became imperative this season because of the great increase in traffic and several narrow escapes from serious accidents. At present the minimum width from Box 3 to Park Point is 13 feet. The east side of Soda Canyon constitutes our worst section at present. Grades to 18 per cent occur, and a relocation lower down is necessary to reduce this sharp gradient. Few Fords can make this grade without unloading, pushing, or being towed over one pitch at least.

Cloudbursts without number occurred in August, doing tremendous damage to our roads just when the rush season of visitors commenced. Although the roads are most excellent dry-weather roads, during cloudbursts or long rainy spells they are next to impassable. Not a car entered or left the park for over a week as a result of a three-day storm. The roads can not be traveled until sunshine dries them out. Mesa Verde roads must be hard surfaced.

RUINS.

The Rock Springs and Wetherill Mesa Trail constructed this year has made accessible to the visitor many of the finest ruins on the Mesa Verde. Among the larger ruins on this trail that compare favorably with the well-known ruins of Chapin Mesa may be mentioned Spring House, Long House, Double House, Step House, Jug House, Kodak House, Ruin Sixteen, and Pinnacle Tower House. The Navajo Canyon Trail passes 28 other ruins of great interest.

Nearly 200 ancient cliff-dweller dams for the storage of flood waters have been found in one small canyon just below Cedar Tree Tower, within a mile of headquarters. Forty feet is the extreme length of a single dam and 5 feet the maximum height. I am preparing an illustrated monograph on this most interesting discovery. Our water problem has been most acute at headquarters and we have adopted the methods of the early inhabitants with success.

Exceptionally heavy cloudbursts in August did considerable damage to exposed ruins. One beautiful tower standing 20 feet high, in an unnamed ruin near Spring House apparently never damaged by water before, was destroyed by a waterfall from the cliff above.

GIFTS.

The museum building, the gift of Mrs. Stella M. Leviston of San Francisco, is now nearly ceiling high. This forms the third unit of the administrative group and is by far the largest structure in the park with the exception of the cliff dwellings.

Miss Martha White of New York City, gave Mrs. Nusbaum \$125 for the purpose of purchasing hospital supplies for the park and paying doctors' bills in case of accidents to employees.

The Public Health Service presented the park with 25 first-aid kits, a stretcher, and a large supply of iodine swabs.

Mrs. Mary T. Sedgwick, of Berkeley, Calif., has generously offered to finance the excavation of some ruin at a cost not to exceed \$500, the collections made to be placed in the new museum. This work will be undertaken next September when she returns.

Many additional offers of collections, made long ago on the park, have been received by the superintendent and will be accepted on completion of the museum.

PERMITS AND LEASES.

One restricted cattle-grazing permit was issued on lands remote from the roads and ruins. Permits were also issued to the Mesa Verde Pack & Saddle Co. for pack and saddle-animal transportation, and to Morris and Evans for the operation of passenger-stage line from Gallup, N. Mex. to the park and return.

RECOMMENDATIONS.

Mesa Verde is becoming well known, leading all national parks in percentage of increase in attendance last season. Exceptionally heavy rains, which practically closed the roads at the beginning of the rush season, alone prevented a duplication of this record. Buildings, equipment, and improvements are drastically needed to meet with this increase in visitors and to administer and maintain this area in an economical and efficient manner. Our most urgent needs are:

1. Further development of water supply to prevent "water famine" during the park season.
2. Surfacing on main park roads, so that rains will not close the park in the middle of the season.
3. Ranger station for park rangers, with modern conveniences.
4. Mess house and dormitory for park employees (equipped).
5. Additional funds for the repair and preservation of ruins.
6. Additional temporary ranger force during rush season.
7. The return of the collection made on the park through expenditure of park funds, now deposited largely in storage in the Smithsonian Institution.
8. Additional road equipment, including a 5-ton caterpillar tractor.
9. Relocation of the Soda Canyon section of park road so as to eliminate grades of 14 to 18 per cent.
10. Construction of telephone line, park entrance to Mancos.

GLACIER NATIONAL PARK.

J. R. EAKIN, Superintendent, Belton, Mont.

GENERAL STATEMENT.

Glacier National Park, created by act of Congress approved May 11, 1910 (36 Stat., 364), contains 1,534 square miles of the most rugged mountains in North America. This area includes the most northern 50 miles of the main Rocky Mountain range in the United States proper, and lies between the international boundary on the north and the Great Northern Railway on the south, and between the North Fork of the Flathead River on the west and the Blackfeet Indian Reservation on the east. Of all the national parks in the continental United States, Glacier National Park is second only to Yellowstone in area and is the northernmost of all national parks in the United States proper.

ADMINISTRATION.

The park is administered by a superintendent, two assistant superintendents, the clerical and the ranger force, the latter consisting of a chief ranger, 2 first assistant chief rangers, 2 assistant chief rangers, and 12 to 15 rangers. Jurisdiction of the park has been ceded by the State of Montana to the United States, and it is administered under the Federal laws and regulations promulgated by the Secretary of the Interior.

TOURIST ACCOMMODATIONS AND FACILITIES.

For the accommodation of tourists there are a number of excellent hotels and chalets. Those on the east side of the park are operated by the Glacier Park Hotel Co. and include two large hotels—the Glacier Park Hotel, located at Glacier Park station, and Many Glaciers Hotel, located at Many Glaciers, 55 miles from the railroad. The chalets are situated at points of vantage, accessible for the most part one from the other in a day by horseback or walking. Glacier Hotel and its numerous cottages, situated on Lake McDonald, on the west side of the park, operated by Mr. John E. Lewis, is a popular tourist hotel. At the head of Lake McDonald is the Park Cabin Resort (Geduhn's), and at the foot of Lake McDonald, Apgar, and at both of these places there are a number of cottages for tourist use. The Lake McDonald Camp is at the foot of Lake McDonald and Skyland Camps at Bowman Lake.

All the hotels and chalets of the park were opened at the beginning of the tourist season, with the exception of Granite Park and Sperry Chalets, which were opened June 28.

All hotels, chalets, and camps gave excellent service to visitors, but several of them, noticeably the Glacier Park Hotel, Many Glaciers Hotel, Going-to-the-Sun Chalets, Granite Park Chalets, and Lewis Glacier Hotel were overcrowded part of the season.

It is reasonable to suppose that the marked increase in travel the past year will continue, in which event the present hotels and chalets must be enlarged to care for the public.

TRANSPORTATION.

In addition to the established transportation, the Glacier Park Transportation Co. served Skyland Camps at Bowman Lake from June 28. Due to heavy rains it was impossible to travel the road from Bowman Junction to Bowman Lake before this date. Excellent service was rendered by the automobile, boat, and saddle horse transportation companies. The Glacier Park Transportation Co. added additional equipment to handle the increased travel as did the Park Saddle Horse Co. The boats proved adequate without any additions.

NATURE GUIDE SERVICE.

Doctor Elrod, of the University of Montana, was unable to report to the park until July 18, due to illness in his family, and the work did not start on scheduled time. We have met with several disappointments in trying to organize this service, but believe the difficulties have been ironed out and that the desired service will be furnished next year. The importance of lecture halls, where evening talks on the flora and fauna of the park can be given, has been emphasized. It has been proved conclusively that the lobbies of the hotels are not suited for that purpose. A nature information desk was maintained at Many Glaciers Hotel and proved very popular with visitors. The writing up of tourist trails has been continued, and we hope at some future date to have these descriptions printed in pocket form for ready reference.

TRAVEL.

The number of visitors to the park during the past tourist season (June 15 to September 15) was 32,290, as compared with 25,935 for the same period last year, making an increase over last year's tourist season travel of 8.355, or 35.36 per cent. The number of pre-season visitors to Glacier was 1,598, which makes a total of 33,988

visitors during the past year. Owing to the fact that the park has not a through automobile road, a large proportion of automobile tourists who visit other parks do not come to Glacier, but upon completion of our Transmountain Road the number of visitors to Glacier will compare favorably with the most popular parks.

The following travel statistics are given showing the method and amount of tourist travel at the various entrances to Glacier National Park:

Travel by entrances.

Entrance.	Private auto- mobile.		Private motor- cycle.		Saddle horse, team, and foot.	Stages.	Boats.	Total.
	Cars.	People.	Cars.	People.				
Belton	2,092	6,653	3	6	83	3,519	.....	10,261
North Fork	250	801	.....	.....	207	55	.....	1,063
Glacier Park .....	.....	.....	.....	.....	703	.....	.....	703
Waterton Lake .....	.....	.....	.....	.....	14	.....	1,675	1,689
Belly River .....	.....	.....	.....	.....	288	.....	.....	288
St. Mary	1,298	3,979	3	6	125	8,501	.....	12,611
Two Medicine	1,060	3,515	2	4	263	564	.....	4,346
Sherburne Lake	382	1,288	.....	.....	41	.....	.....	1,329
Total	5,082	16,236	8	16	1,724	12,639	1,675	32,290
Pre-season visitors .....	.....	.....	.....	.....	.....	.....	.....	1,598
Total visitors for past year .....	.....	.....	.....	.....	.....	.....	.....	33,988

Automobile travel.

Entrance.	Number of permits issued.	Compli- mentary.	Total.
Belton	1,791	4	1,795
North Fork	74	1	75
Two Medicine	657	4	661
St. Mary	1,192	23	1,215
Sherburne Lake	369	10	379
Total	4,083	42	4,125
Number of cars entering second time .....	.....	.....	957
Total number of cars entering during past season .....	.....	.....	5,082
Pre-season visitors, for which no automobile entrance fees were charged .....	.....	.....	517
Total automobile travel during past year .....	.....	.....	5,599
Visitors, past season .....	.....	.....	32,290
Visitors, last year .....	.....	.....	23,935
Increase (34.9 per cent.) .....	.....	.....	8,355
Automobiles past season .....	.....	.....	5,082
Automobiles last year .....	.....	.....	2,988
Increase (70.11 per cent.) .....	.....	.....	2,094
Visitors by automobile past season .....	.....	.....	16,236
Visitors by automobile last year .....	.....	.....	10,348
Increase (47.23 per cent.) .....	.....	.....	5,888

The division of the above visitors by States and foreign countries is indicated below:

State.	East side entrances.		West side entrances.		Totals.	
	Cars.	People.	Cars.	People.	Cars.	People.
Alabama.....	3	7			3	7
Arizona.....	4	12	3	7	7	19
Arkansas.....	3	8	3	11	6	19
California.....	272	766	96	274	368	1,040
Colorado.....	28	96	9	35	37	131
Connecticut.....	5	10	2	2	7	12
Delaware.....						
District of Columbia.....	3	9	2	4	5	13
Florida.....	5	9	1	2	6	11
Georgia.....	2	5	2	7	4	12
Idaho.....	17	86	20	56	37	142
Illinois.....	64	199	21	75	85	274
Indiana.....	14	47	9	27	23	74
Iowa.....	33	114	8	28	41	142
Kansas.....	30	61	5	22	35	83
Kentucky.....	6	19	1	3	7	22
Louisiana.....	5	21	1	3	6	24
Maine.....						
Maryland.....	3	8			3	8
Massachusetts.....	13	37	7	25	20	62
Michigan.....	21	68	5	21	26	89
Minnesota.....	79	257	5	30	84	287
Mississippi.....	1	2			1	2
Missouri.....	23	78	6	25	29	103
Montana.....	1,354	4,494	1,908	5,900	3,262	10,394
Nebraska.....	18	54	7	27	25	81
Nevada.....	5	11			5	11
New Hampshire.....						
New Jersey.....	19	55	1	3	20	58
New Mexico.....	2	4	2	6	4	10
New York.....	28	89	11	43	39	132
North Carolina.....	1	4			1	4
North Dakota.....	67	214	14	72	81	286
Ohio.....	37	95	13	53	50	148
Oklahoma.....	23	60	3	19	26	79
Oregon.....	48	149	17	62	65	211
Pennsylvania.....	22	76	9	32	31	108
Rhode Island.....	2	12	1	6	3	18
South Carolina.....						
South Dakota.....	30	98	3	16	33	114
Tennessee.....	2	12	1	3	3	15
Texas.....	21	86	7	25	28	111
Utah.....	26	110	11	40	37	150
Vermont.....			2	8	2	8
Virginia.....	5	10	2	7	7	17
Washington.....	119	321	106	401	225	722
West Virginia.....	4	15			4	15
Wisconsin.....	26	83	9	39	35	122
Wyoming.....	34	85	6	18	40	103
Hawaii.....						
Canada.....	213	726	3	17	216	743
Total.....	2,740	8,782	2,342	7,454	5,082	16,236

ACCIDENTS.

Several minor accidents occurred during the past season, but neither the transportation companies nor the park service were in any way responsible for them. Two visitors, who were caught in a storm while in a canoe on Lake McDonald, were drowned. This emphasized the danger of renting canoes to those unaccustomed to their use, especially on the larger bodies of water in the park.

REVENUES.

The revenues collected and transmitted to the service during the fiscal year ended June 30, 1923, together with the principal sources, are as follows:

Motor-vehicle permits.....	\$3,431.52
Transportation franchises, hotels, residences, etc.....	6,168.25
Grazing and hay-cutting permits.....	179.26
Timber sales.....	22.79
Miscellaneous, including telephone rental.....	216.98
Total revenues.....	10,018.80

WEATHER.

An average amount of rainfall occurred in all sections of the park. Part of the summer was exceedingly hot, but there was no intensely dry weather. The average maximum temperature for the month of June at Belton headquarters was 74.8°, and the average minimum was 40.2°; for July the average maximum was 87° and the average minimum

48°; for August the average maximum temperature was 83°, and the average minimum was 43.6°.

ROADS.

The east side roads over which there is the largest volume of traffic consist of the Blackfeet Highway, 55 miles; also spur roads to Two Medicine Lake and Cut Bank Chalets, distances of 10 and 8 miles, respectively. The Blackfeet Highway has many sharp curves and steep gradients, and many sections remain ungraveled. The unusually wet spring demonstrated that all ungraveled portions of the road must be graveled and the road widened for two-way traffic throughout. Sharp curves should be eliminated and the gradients eased.

The Two Medicine Road was at times barely passable. When the waters are impounded in Lower Two Medicine Lake it will be impossible to reach Two Medicine Chalets except by making part of the journey in a boat. The bridge on the lower portion of the road is in very bad shape and must be rebuilt soon.

About 20 miles of the east side roads were scarified and rolled; several soft places, totaling about 1 mile, were graveled; several bridges were redecked; broken culverts were replaced; the ungraveled sections were graded, side ditches cleaned out, etc. Insufficient maintenance funds prevented the road being kept in the condition that should be expected of a national park road.

On the west side of the Continental Divide the macadam road from Belton to Lake McDonald, a distance of 3 miles, is breaking up badly, and needs scarifying and rerolling. It is hoped that funds will be found to use an asphaltum binder, as it has been thoroughly demonstrated that water-bound macadam will not stand motor travel.

The first link of the Transmountain Road, from the foot of Lake McDonald to Lewis Hotel, required a great amount of work due to a wet spring. Many dirt slides had to be removed, and some of the softest portions were graveled. This road will not stand up in wet weather until all ungraveled portions of the road are graveled. The North Fork Road, from Lake McDonald to Bowman Junction, was impassable for automobiles until about August 15. Even then it was a very poor road, and consequently travel to Skyland Camps was routed over the North Fork Road in the Blackfeet National Forest by way of Columbia Falls. The greater portion of this road is not graded nor ditched, and none of it is surfaced. In the wet season it is impossible to keep it open, as it must be worked after each rain to make it passable. Ordinary maintenance only was done on the road from Bowman Junction to Bowman Lake. The first automobile over it made the trip on June 28, and we were able to keep it open the rest of the season. However, it is a very poor road, and only those who are accustomed to rough mountain trails are advised to travel it.

The State highway commission made a reconnaissance for a road from Babb, Mont., to the international boundary line, which will connect our east side road system with the Canadian parks highways. It is believed they will recommend this project to the Bureau of Public Roads and that the latter organization will approve its construction.

The State highway commission has also made a reconnaissance for the relocation of the Divide Creek Hill on the Blackfeet Highway. This project is to be submitted by the State to the Bureau of Public Roads and it is hoped it will be approved. The new location, in addition to being safer, eliminating dangerous curves, corners, and gradients, and being free from snow a greater period of the year, is also far more scenic than the road now being used.

TRAILS.

Our maintenance funds for trails proved totally inadequate. We were able to keep the most-traveled trails in fairly good shape, but in order to do so had to neglect hundreds of miles of trails in the remoter sections of the park, traveled by camping parties and hikers only. All of them were cleared of windfalls, but, due to high winds and soft ground, trees were continually falling across the trails, and funds did not permit us to send crews over them to clear them again.

No new trails were authorized in our 1924 appropriation.

BUILDINGS.

The following buildings were authorized in our 1923 appropriation: Superintendent's residence, administration building, and carpenter shop at Belton headquarters; combination bunk and mess house and warehouse at St. Mary Lake; garage at Glacier Park station; ranger cabin at Lubec; ranger cabin at Sherburne Lake; and six patrol cabins in the remoter sections of the park. Satisfactory progress has been made on all buildings with the exception of the Sherburne Lake ranger cabin. After materials were on the site selected, a prospector notified us that this site was part of his mineral claim. Upon representation by the National Park Service, a mineral inspector of the General Land Office examined this claim and reported the claim to be invalid but stated it would be unwise to start construction of the ranger cabin until the matter is settled. Suit has been brought for the cancellation of this claim but final action in the matter has not been taken.

HYDROELECTRIC PLANT AND GRAVITY WATER SUPPLY AT BELTON HEADQUARTERS.

The hydroelectric plant and gravity water supply has furnished all the water needed for administrative purposes and irrigation, given ample fire protection, and ample electrical current, with the exception of about two months during the coldest part of the winter.

FISH.

Fishing has been unusually good the past season. All barren lakes have been stocked with the exception of some inaccessible lakes that will probably never be reached by tourists. Many of the lakes stocked during the past three years are at present inaccessible except to experienced mountaineers, and it is not likely that they will be fished until many projected trails are built, which time seems very indefinite.

It is very gratifying that grayling planted in barren lakes in 1921 have done remarkably well and we now have some excellent grayling fishing. Previous attempts to introduce this fish into the park had proved unsuccessful.

A list of the fish planted in the park the past season follows:

EAST SIDE.

Brook trout (fry):		
Two Medicine Lake	52,440	
Unnamed lake, vicinity Dawson Pass	2,100	
Unnamed lakes, headwaters Swift Current Valley	17,600	
McDermott Lake	9,600	
		81,740
Rainbow trout (fry):		
South Fork Kennedy Creek	24,000	
Lake Josephine	45,000	
McDermott Lake	26,500	
Gunsight Lake	40,000	
Upper Two Medicine Lake	11,000	
St. Mary Lake	8,000	
Elizabeth Lake	9,360	
		163,860
Lake trout—Mackinaw (fry): Waterton Lake		51,000
Blackspotted trout (fry):		
St. Mary Lake	212,000	
Lower Two Medicine Lake	83,000	
Cobalt Lake	12,000	
Unnamed lake, headwaters Cut Bank Creek	13,000	
Lower St. Mary Lake	15,000	
Cut Bank Creek	84,000	
Red Eagle Lake	84,000	
Red Eagle Creek	42,000	
Grinnell Lake	50,000	
Iceberg Lake	10,000	
Ptarmigan Lake	5,000	
Upper St. Mary River	50,000	
		665,000
Blackspotted trout—Egg plants (eggs):		
Headwaters Nyack Creek	65,800	
Hidden Lake	105,280	
Unnamed lake, headwaters Roes Creek	98,700	
Twin Lakes	59,220	
		329,000

WEST SIDE.

Salmon: Lake McDonald	112,000
Eastern brook trout:	
Fish Creek	10,600
Rainbow trout	370,500
Total number of fish planted during past season	1,783,700

During the past season the Glacier Park Hotel Co. used 12,631 pounds of fish, of which 10,106 pounds were whitefish. The catch of whitefish for the season was much heavier than in any previous year. The average weight per fish was about 1½ pounds.

WILD ANIMALS.

While the winter of 1922-23 was not so cold as the previous winter, the snow was much deeper. However, the rangers reported that the game wintered very well. A campaign of extermination was waged against mountain lions, and nine were secured. The last two months of the winter no lion tracks were seen, and we should probably have small game losses from them next winter.

Coyotes did considerable damage to deer and efforts are being made to exterminate them. One man was appointed as a temporary ranger for this purpose, but did not wish to comply with our regulations and had to be dismissed. Another man was appointed, and after trapping five coyotes he resigned. An effort to secure another man will be made.

The continued slaughter of game on the Blackfeet Indian Reservation, which joins the park to the east, was in evidence. Numerous deer and elk were slain, and consequently the big game is gradually being exterminated on the east side of the park, as deer and elk are driven out on the reservation by heavy snows, and the Indians kill at any time. Most of these Indians have received patents to their allotments, and an effort is being made to determine whether these Indians are subject to the same laws as the whites or still retain their Indian rights. The State game warden has a case now pending which will decide this matter.

FIRES.

Due to continued rains there were comparatively few forest fires and these were of little consequence. Telephone lines were built to the tops of Indian Ridge, Huckleberry Mountain, and Riverview Mountain, and lookout posts organized. The supervisors of the Blackfeet and Flathead National Forests have given us some splendid cooperation and we freely consult them on forest fire-prevention matters.

TELEPHONES.

Telephone lines were built from Bowman Junction to Bowman Lake, a distance of 6 miles; from Nyack to Paola, a distance of 12 miles; telephone lines were also built to lookout stations listed in the previous paragraph.

Many of the older telephone lines are poorly constructed and need rebuilding very badly.

VIOLATIONS OF REGULATIONS.

During the past year four men were tried and convicted of violations of park regulations. One man was fined \$25 for grazing without a permit; two men were fined \$25 each and sentenced to 30 days in jail for hunting in the park. This case has been appealed and has not yet come to trial. One man was fined \$100 for carrying firearms into the park, but on account of the fact that he was a minor the sentence was suspended on good behavior. One man was tried before the United States commissioner for grazing without a permit, but was found not guilty.

RECOMMENDATIONS.

The wet season has emphasized the fact that it is necessary that all roads be made double width and graveled. The graveled portions of the roads have stood up very well, but the ungraveled sections require excessive maintenance and are practically impassable in wet weather. Under present conditions it is only a question of time until there are some terrible accidents. The Two Medicine Road, especially, deserves an emergency appropriation, in the event the road budget fails. The congressional party, headed by Senator Warren, was driven over the road during a heavy rain storm and all members of the party with whom I talked readily agreed that it deserves emergency consideration.

An emergency appropriation of \$15,000 should be made to keep the road from Bowman Junction to Bowman Lake, a distance of 6 miles, passable in wet weather. As already stated this road was not open for automobile travel until June 28. The lack of a decent road greatly hampers the operation of Skyland Camps. This improvement would enable visitors to get to Skyland Camps by way of Columbia Falls and the Blackfeet National Forest Road on the west side of the North Fork of the Flathead River. Improvements on the North Fork Road from Lake McDonald to Bowman Junction are also badly needed, but will have to wait until a road budget is granted. This road serves a section of the park that is very susceptible to forest fires caused by electrical storms, and its improvement is justified from that standpoint alone.

Sufficient funds should be provided to complete the Transmountain Road in three years.

The Garden Wall Trail from Logan Pass to Granite Park should be extended to Flat Top Mountain, a distance of 10 miles. The present trail across Flat Top traverses Mineral Creek for its entire length, in dense timber, and is in poor condition and there are many soft places. It is believed that the construction of the Granite Park Flat Top Trail just under the Continental Divide would cost less than the rebuilding of the Mineral Creek Trail. The former would also be highly scenic.

A trail should be constructed from Brown's Pass to Kintla Lake, in order that the northern part of the park may be traveled from east to west, or vice versa, without making a long detour into Canada. A trail from St. Mary Lake to Red Eagle Creek via Virginia Creek is necessary to link up the hotels and chalets in such a manner as to permit visitors to traverse the park from south to north on the east side of the Continental Divide without being compelled to travel any portion of the Indian reservation, which is flat and uninteresting. This trail would greatly facilitate the movement of hikers.

A telephone line connecting the east and west sides of the park is necessary to the administration of the park. The telephone line to Lewis Glacier Hotel, which traverses Lake McDonald on the opposite side of the Transmountain Road, is very badly constructed and should be built along the Transmountain Road, eventually extending across the Continental Divide when the road is completed.

A telephone line should be constructed from Skyland Camps across Brown's Pass to Waterton Lake and from the Sherburne Lake ranger station to Belly River, by way of the ranger station on the South Fork of Kennedy Creek.

With a comparatively short line to the international boundary, the Waterton Lake and Belly River ranger stations could be connected to the Canadian telephone system. The Canadian authorities have promised that we might use their lines for connection between the stations mentioned. As there is the closest cooperation between the Waterton Lakes Canadian Park and Glacier National Park, this would be an ideal arrangement and a great saving in telephone construction, as it would be practically impossible to keep a line open directly between these two stations during the winter and spring.

Camp grounds should be enlarged and water piped to them in order that they may be adequate as motor travel greatly increases, which is certain to be the case when the Transmountain Road is completed. Automobile travel the past year increased 70.11 per cent.

The fish hatchery at Glacier Park station has been enlarged, but we seem to be unable to get sufficient eggs to operate it to capacity. Spawn should be collected in the park, as it is believed that such operations would not only supply our needs but would furnish fry for many other sections of the country.

A ranger cabin should be built at the junction of the Transmountain Road and the road leading to the Park Cabin Resort (Geduhn's) at the head of Lake McDonald. The present cabin used at the head of the lake was built about 30 years ago and is unfit for human habitation, and, besides, it is not located properly.

The establishment of winter patrol stations at strategic points would greatly aid in the prevention of poaching, and funds are needed for the erection of six additional cabins.

Additional rangers should be provided, in order that the game may be protected, forest fires prevented, and movement of tourists facilitated.

Hotels, camps, and chalets should be materially enlarged, as no doubt they will be more congested next year than they were this year.

Permanent camps should be established similar to the camps now in operation in Yellowstone and Yosemite National Parks.

Stores for the sale of provisions and supplies to automobile campers should be established. The lack of this feature was the cause of considerable criticism during the past season.

An assistant superintendent's residence, a registration station, and a combination bunk and mess house should be built at Belton; a house to be used as clerks' quarters should be built at Glacier Park station.

At present our fire lookout stations consist merely of tents, and equipment must be packed to them each year, over very difficult trails, at considerable cost. Small lookout cabins should be built on these sites which would permit equipment to be stored on the ground.

A horse trail should be constructed from Sperry Chalets to Sperry Glacier—a distance of two miles. This distance at present can be traveled only by hikers and entails a climb of approximately 2,000 feet. Many tourists are physically unable to do this and consequently do not have an opportunity to see Sperry Glacier.

A sanitary sewerage system should be constructed at Belton headquarters. Under present conditions sewerage is drained into cesspools. Aside from the fact that these cesspools are insanitary, the ones in use at present are caving in, and it is important that a sanitary sewerage system be installed as soon as possible.

The present water main is too small for effective fire prevention. A larger main should be laid.

Past experience had taught us that the maintenance funds must be materially increased if roads and trails are to be kept in good condition.

ROCKY MOUNTAIN NATIONAL PARK.

ROGER W. TOLL, Superintendent, Estes Park, Colo.

GENERAL STATEMENT.

Rocky Mountain National Park was created by the act of January 26, 1915 (38 Stat., 798). Under the act approved February 14, 1917 (39 Stat. 916), an area of approximately 43 square miles was added, making the present area of the park 397½ square miles. About 8 per cent of the area within the park boundaries is held in private ownership, having been acquired prior to the creation of the park. The village of Estes Park is the principal eastern entrance to the national park, and is a mile and a half east of the park boundary. Denver, the largest city near the park, is 70 miles distant. The eastern side of the park is reached by three automobile routes, and the western side is reached by way of Grand Lake. The entire park lies at an elevation of more than 7,500 feet, and is free from oppressive heat in summer. The park is easily and quickly reached from large centers of population. These factors, combined with the beauty and grandeur of the region, draw large numbers of visitors every season.

The park contains 68 miles of road, about 100 miles of trail, and 75 miles of telephone lines.

ADMINISTRATION.

The superintendent is assisted in the work of administration of the park by a chief clerk and disbursing agent, clerk and accountant, chief ranger, and three permanent rangers. In addition, one temporary clerk and stenographer, one information clerk, and 11 temporary rangers were on duty during the summer season. During the winter the superintendent's headquarters were located in the post-office building, Denver.

TRAVEL.

Rangers were stationed at the three principal entrances to the park for the purpose of checking travel, giving information, and aiding in the administration and protection of the park. The checking of travel began on June 15 and continued until September 15. All persons passing through the gateways during the 8 or 10 hours that the rangers were on duty were counted and recorded on printed forms. These forms show classification of travel and certain other information. In some cases visitors enter the park on more than one occasion and the count probably does not accurately represent the number of individuals visiting the park. In addition to the actual count certain estimates are added to get total park travel. The park is open to travel throughout the 24 hours of each day and throughout the year, while the count is obtained during 8 or 10 hours per day and during a three-months' period only. An estimate is also added for travel to other portions of the park where no count is made.

No entrance fee is charged at this park, and it is not desirable to stop cars as they pass through the entrance gateways. For that reason the total figures given are approximate rather than exact. Travel statistics for this park are not readily comparable with statistics for other parks, because of the difference in local conditions.

Travel during the early part of the season was less than normal because of frequent rains and rough roads both in and out of the park. At times two of the approach roads were closed to travel by washouts. During August travel increased, and the total travel for the year was approximately the same as last year.

Estimated travel for 1923.

	Cars.	People.
Actual count at three automobile entrances:		
June 15 to 30, inclusive.....	3, 153	11, 449
July.....	10, 524	42, 929
August.....	13, 298	56, 033
Sept. 1 to 15, inclusive.....	3, 809	15, 102
Total actual count.....	30, 784	125, 513
Estimated:		
a. Missed by checkers at these entrances during same period, 30 per cent.....	9, 216	37, 387
b. Travel at these entrances during months not counted:		
October, 1922 (people).....	3, 000	
November, 1922 (people).....	300	
December, 1922 (people).....	100	
January, 1923 (people).....	100	
February, 1923 (people).....	100	
March, 1923 (people).....	500	
April, 1923 (people).....	2, 000	
May, 1923 (people).....	4, 000	
June 1 to 14, inclusive (people).....	10, 000	
Sept. 16 to 30, inclusive (people).....	15, 000	
	35, 100	
c. Travel at other entrances of the park not included in above figures:		
Longs Peak.....	3, 000	12, 000
Wild Basin, on foot or horseback.....		3, 000
Other portions of the park, on foot or horseback.....		5, 000
Grand total.....	51, 800	218, 000

The actual count by automobile entrance is as follows:

	Cars.	People.
Fall River.....	13, 569	56, 702
Beaver Point.....	12, 417	51, 412
Grand Lake.....	4, 798	17, 399
Total.....	30, 784	125, 513

The actual count by type of travel is as follows:

	Cars.	People.
Private automobiles.....	24, 184	92, 625
Private automobiles, campers.....	4, 170	14, 590
Rocky Mountain Parks Transportation Co. cars.....	1, 495	10, 949
Hotel cars.....	374	1, 504
Rent cars.....	96	513
Trucks.....	371	783
Motoreycles.....	85	141
Horseback.....		3, 750
Pedestrians.....		658
Total.....	30, 784	125, 513

The private automobiles, by States, are shown below.

	Cars.	People.		Cars.	People.
Alabama.....	6	23	Nebraska.....	1,990	7,562
Arizona.....	25	95	Nevada.....	6	22
Arkansas.....	79	300	New Jersey.....	21	80
California.....	178	627	New Mexico.....	52	198
Colorado.....	19,062	72,085	New York.....	92	349
Connecticut.....	4	15	North Dakota.....	8	31
Florida.....	8	30	Ohio.....	179	680
Georgia.....	5	19	Oregon.....	18	68
Idaho.....	8	31	Oklahoma.....	745	2,831
Illinois.....	509	1,934	Pennsylvania.....	59	225
Indiana.....	130	494	South Carolina.....	3	11
Iowa.....	884	3,309	South Dakota.....	69	262
Kansas.....	1,728	6,500	Tennessee.....	14	53
Kentucky.....	11	42	Texas.....	722	2,744
Louisiana.....	29	110	Utah.....	34	129
Maryland.....	4	16	Virginia.....	3	12
Maine.....	2	7	Washington.....	26	98
Massachusetts.....	20	76	West Virginia.....	5	19
Michigan.....	84	271	Wisconsin.....	75	285
Minnesota.....	56	213	Wyoming.....	452	1,718
Missouri.....	922	3,504	District of Columbia.....	15	57
Mississippi.....	2	7			
Montana.....	19	73		28,363	107,215

It will be noted that practically one-third of the private automobiles entering the park come from outside of the State of Colorado. The proportion of visitors from outside of the State is more than one-third, since many Colorado cars carry visitors from other States, and since the passengers carried by the Transportation Co. cars are largely from outside of the State.

The Fall River Road is the principal automobile trip of the park, since it crosses the Continental Divide, reaches an elevation of 11,797 feet, and runs about 37 miles through the park. The best method of approximating the through travel over this road is to take the sum of the inbound and outbound travel past the Grand Lake entrance, since there is very little local travel north of the Grand Lake entrance. The estimate of through travel over the Fall River Road is as follows:

	Cars.	People.
Inbound travel at Grand Lake.....	4,798	17,399
Outbound travel at Grand Lake.....	3,234	14,580
Total.....	8,032	31,979

TRANSPORTATION.

The transportation franchise in this park is held by the Rocky Mountain Parks Transportation Co. Their equipment includes seventy-six 11-passenger busses and twenty-six 7-passenger touring cars. The approximate number of passengers carried on various trips during the season is as follows:

Over Fall River Road, between Estes Park and Grand Lake.....	6,500
Fall River Pass and Highdrive Loop.....	750
Loop service to hotels.....	1,250
Special service other than scheduled trips.....	1,500

Total passengers carried..... 10,000

The company added 15 new passenger cars to its equipment this year and was able to handle all passengers without difficulty.

HOTELS AND CAMPS.

In and adjacent to the park are some 30 hotels and camps, with a combined capacity for 4,000 guests. Many of these are in the vicinity of Estes Park, while others are located at Moraine Park, Horseshoe Park, Longs Peak, Allens Park, and Grand Lake. The majority of these hotels are located on patented land and are under private ownership and operation.

Six hotels and lodges were operated on Government land within the park, under franchise from the National Park Service. These are Grand Lake Lodge, at Grand Lake; Sprague's Hotel, in Glacier Basin; Fern Lodge; Bear Lake Lodge; Forest Inn, at the Pool; Timberline Cabin, on Longs Peak.

During the year 10 new cottages for guests were constructed at Grand Lake Lodge. Each of these contain two rooms and bath. A new septic tank was constructed.

At Sprague's Hotel two new cottages for guests were built this season. Each of these contains four rooms and bath.

At Bear Lake Lodge the main building was enlarged by the construction of a wing. This increases the space for kitchen and dining-room quarters. Construction was begun on buildings for a trail school, which is to be operated in connection with Bear Lake Lodge.

The control of the Rocky Mountain Lodges (Inc.) was transferred last winter from Mr. A. D. Lewis to interests connected with the Rocky Mountain Parks Transportation Co. The property consists of Grand Lake Lodge and the Lewiston Chalets, the name of the latter being changed to Estes Park Chalets. During the spring and summer improvements were made to enable these hotels to care for the increasing business coming to them through the trip from Denver to Denver over the Fall River Road.

INFORMATION BUREAU.

An information bureau, with one clerk in charge, was maintained at the superintendent's office from June 16 to September 30. This bureau rendered valuable service to the traveling public in the way of free information regarding hotel and cottage accommodations, camping, road and trail trips, points of interest in the park, classification of flowers, and other subjects of interest to visitors.

During the season 8,500 persons from 46 States and 12 foreign countries registered in the book kept at the office for that purpose.

Several Government publications regarding this and other parks were on sale at the information bureau. Sales during the season were as follows:

	Number of copies.	Value.
Toll's "Mountaineering in the Rocky Mountain National Park".....	191	\$66.85
Lee's "Geologic Story of the Rocky Mountain National Park".....	208	62.40
Panoramic View of the Rocky Mountain National Park.....	23	5.75
Topographic Map of the Rocky Mountain National Park.....	420	42.00
National Parks Portfolio.....	37	37.00
Glimpses of our National Parks.....	29	2.90
Total.....	908	216.90

WEATHER CONDITIONS.

The past season has been an unusually wet one. The heaviest snowfalls of the winter occurred in March. These storms continued throughout the spring. On June 8 and 9 there was a heavy snowfall at elevations above 10,000 feet. At Fall River ranger station, where one road camp was located, a 12-inch snow crushed down the tents. At Timberline Bridge, elevation 11,600 feet, where another road camp was located, the snowfall was 2 feet deep, and not only broke down the tents, but a large quantity of snow drifted into cuts which had already been shoveled clear of snow. Observations made at the fish hatchery, 4 miles west of Estes Park, showed the largest snowfall ever recorded in any season during the 13 years that observations have been made at that point. The heavy snows of the spring were followed by heavy rains during the months of June and July, which did tremendous damage both to the approach roads and to the roads within the boundaries of the park. The wet season reached its climax during the month of July, which registered 7.51 inches of rainfall, which is the greatest precipitation ever recorded at this station in any one month.

ROADS.

The work of removing snow from the Fall River Road was begun on May 18. The preceding winter had been one of unusually heavy snowfall, and at the time of beginning work the depth of snow in the large drift at Fall River Pass exceeded 20 feet. The Fall River Road is the highest road in the national park system and one of the highest automobile roads in the United States. The elevation at Fall River Pass is 11,797 feet. Some snow removal was necessary for 5 miles on each side of the pass. In the absence of a steam shovel the work was done by hand shoveling, teams, and explosives. The road was opened to travel on June 20. For the first 10 days after opening travel was difficult and somewhat dangerous on account of snow, mud, and the narrowness of the road. At the time of opening the maximum depth of snow on the road was 18 feet, and this snow did not entirely disappear from the roadway until the 1st of August.

The severe rainstorms of the summer did much damage to all roads in the park. The most serious damage occurred on the afternoon of Friday, July 20, when a cloudburst washed out 5 or 6 miles of surfacing on the Fall River Road, leaving bedrock and boulders projecting. At two points, about 13 miles west of Estes Park, the streams from steep side gulches washed out about half the roadway, carrying away the retaining walls and covering the other half of the road with 6 or 8 feet of material, including rocks 4 to 5 feet in diameter. All available men were put to work opening the road, and the Transportation Co. furnished a number of men. The road was opened on Sunday, although travel was difficult for a week or so, and the damage was not entirely repaired this season. In order to avoid a recurrence of this condition, bridges should be constructed at the two gulches where the washouts occurred with sufficient waterway to carry the large volume of water that occasionally comes down these gulches.

The Moraine Park Cutoff Road was closed to travel for a week during July on account of washouts.

A small crew of experienced stone men was engaged during the summer replacing retaining walls on the Fall River Road which had fallen out.

The Bear Lake Road was made passable for autos all the way to the lake. Two switchback curves were widened, one curve was relocated to give a better grade, and seven corrugated iron culverts were installed.

TRAILS.

Work on the trail from Hidden Valley to Trail Ridge, which was begun last fall, was completed during the summer. This trail starts at Deer Ridge, follows an old logging road for a distance of 3 miles, up Hidden Valley, passing many beaver dams, and from the end of the road the new trail leads through a beautifully timbered valley, up to timberline, and joins the old Ute Trail at the crest of Trail Ridge. The route along Trail Ridge to the Fall River Road, at the head of Forest Canyon, has been marked by stone cairns. This route makes it possible for horseback parties to cross the range to the northwestern portion of the park without having to ride over the Fall River Road, which can not safely be used by both automobiles and horses. A number of parties have made a circuit trip over this trail to Grand Lake, returning to the eastern side of the park by the Flattop Trail. These are the only two trails in the park that cross the Continental Divide.

The Gem Lake Trail was rebuilt so as to make it passable for saddle horses the entire distance. This trail is used by a very large number of visitors, due to its proximity to Estes Park.

ADMINISTRATION BUILDING.

The erection of an administration building for this park was begun in May. The plans for the building were prepared by the landscape engineer of the service. The building is located on a lot donated to the National Park Service by the Estes Park Woman's Club, and is a quarter of a mile south of the main street of Estes Park. The building is one story in height, 28 feet by 45 feet in size, and is of masonry construction to the line of the window sills. The upper part of the building is of frame construction, using rough lumber on the exterior. An appropriation of \$6,000 is available for construction of this building, which will be completed and occupied this fall, thus giving the park permanent headquarters in place of the present rented quarters.

GROUNDS AND BUILDINGS.

Improvements were made at the main road camp, Horseshoe Park. The camp road was widened and drained; the camp grounds were cleared of brush; a 600-gallon gasoline tank, with pump, was installed, for the more economical handling of gasoline; parking space for road trucks was provided; buildings were all painted, and spring water was piped into the cook house.

Improvements were made on the superintendent's residence, consisting of an inclosed porch, a woodshed, and an extension of the garage.

A combined woodshed and toilet was constructed at Horseshoe Park ranger station.

A public comfort station is being constructed at the Fall River entrance gateway.

A new ranger station has been constructed at Bear Lake. The plan was prepared by the landscape engineer. With the opening of the automobile road to Bear Lake, the necessity for a ranger at this location was increased, and this building furnishes suitable quarters. It is an attractive addition to the park buildings.

WILD BASIN TELEPHONE LINE.

A metallic circuit telephone line was constructed from Longs Peak post office to Wild Basin, replacing the previous grounded line, for the purpose of furnishing reliable communication between headquarters and the ranger station in that locality.

PLACING OF SIGNS.

Standard park service metal direction signs were placed at a number of road intersections on the east side of the range. The placing of signs is to be continued until all necessary signs are provided. Mile post signs were placed on the park roads, giving the distance to Estes Park. Those on the Fall River Road give the distance both to Estes Park and Grand Lake.

EQUIPMENT.

A Fordson tractor, an air compressor, and compressed air drill were purchased to facilitate the extensive rock work on the roads in the park. This equipment did excellent service in the excavation of the basement for the new administration building and in getting out rock for the retaining walls on the Fall River Road. Two or three places on the road were widened in connection with this work.

A Ford truck was purchased for the use of the road foreman and has greatly facilitated his work.

Three road graders, with 6-foot blade, have been purchased and put into use on the roads.

ROAD SURVEYS.

During May and June a small crew was engaged in the survey of all the roads within the park, except the Fall River Road. The object of these surveys was to ascertain the present alignment and grades and to prepare maps which may be used as a basis for future improvement work. This survey has been completed and maps prepared.

Last fall the State highway department, through District Engineer P. J. Becker, surveyed a portion of the Fall River Road from a point 3 miles east of Estes Park village to a point opposite Camp Wheeler, 27½ miles west of Estes Park, where work was interrupted by heavy snowstorms. The results of this survey will be available later.

MOSQUITO CONTROL.

Mosquito-control work was done at Grand Lake under the direction of the United States Public Health Service. This work consisted in ditching swamps and treating the breeding places of mosquitoes with kerosene. This work resulted in a marked improvement in conditions during the early part of the season. After July 10 mosquitoes became more numerous, although not as bad as in other years. If this work is to be continued in future years it is believed that the operations must be extended over a larger area.

NATURE STUDY AND GUIDE SERVICE.

During the past season for the first time this park offered facilities to the public for nature study and guide service. Mr. J. M. Johnson, assistant principal of one of the New York City high schools, was engaged for this work. Mr. Johnson gave lectures, illustrated with lantern slides, at the leading hotels, on such subjects as birds, flowers, mammals, and the glacial history of the park. Field trips were taken on the mornings following the lectures. All lectures and field trips were open to the public without charge. The lectures were well attended, averaging approximately 100 persons, while the field trips were attended by 20 to 30 persons each. During the months of July and August more than 2,000 persons availed themselves of this service.

WILD ANIMALS.

The larger animals are gradually increasing in numbers. In June one man counted more than 100 deer from his automobile on a 4-mile section of the Highdrive Road. Elk were seen in Horseshoe Park early in the season in herds ranging from 70 to 80 animals. Sheep were seen in their usual numbers around Sheep Lake, in Horseshoe park, and Marys Lake. During the State open season on deer last fall all available men were put on game patrol. No arrests were made, and there were no indications of any hunting in the park.

During the winter the rangers set out poison stations, principally for coyotes. Permits were issued to several hunters last winter to trap predatory animals. The following animals were killed in the park or immediately adjacent to it: 4 fox, 6 bob-cats, and 7 coyotes.

FISH PLANTING.

Fish were planted in the waters of the park during the year, as follows:

Eastern Brook, from Federal hatchery, Leadville, Colo-----	245, 000
Eastern Brook, from Estes Park hatchery-----	680, 000
Native, from Estes Park hatchery-----	190, 000
Total-----	1, 115, 000

The planting of these fish was done by the Estes Park Fish and Game Association, with the active cooperation of the National Park Service and the Rocky Mountain Parks Transportation Co.

In order to improve the fishing in the park, it would be desirable to greatly increase the number of fry that are placed in the streams each year. It is hoped that much larger shipments of trout eggs may be received from Federal hatcheries during the summer. These eggs can be hatched at the State hatchery in Estes Park, which had a capacity that is not fully utilized during the summer months.

CAMPING.

An average of 20 automobile parties per day were camping during the summer season at the public camp grounds in Glacier Basin. This camp ground is 6 miles from Estes Park, and this distance, combined with the steep grade necessary to reach the location, detracts somewhat from the usefulness of the camp ground. Six new sheet-iron stoves and six camp tables were installed for the convenience of campers. An attendant was on duty throughout the season to see that the grounds were kept in a clean, sanitary condition, and that fires were extinguished.

SPECIAL CAMPS.

The Olinger Highlanders maintained a 10-day camp in Glacier Basin, in June, with 750 boys in attendance. This organization is composed principally of boys between 9 and 12 years of age. The time while in camp was spent in regular camp routine, military drills, hikes, and nature studies.

Troops of Boy Scouts from practically all of the near-by towns camped in Glacier Basin, each troop spending from 10 days to 2 weeks.

WINTER SPORTS.

Fern Lodge was kept open for winter sports throughout a large part of the winter. The first organized party was a group of 30 Olinger Highlanders, the latter part of November. This organization held a number of winter outings, the last one occurring in April. The Colorado Mountain Club held their regular outing the latter part of February. Improvements were made on the ski courses at Fern and Odessa Lakes, consisting of blasting out several large rocks and removing rocks and brush which at times projected through the snow. An additional ski course for beginners was constructed near the present course at Fern Lake, and a new ski trail was marked out between Fern and Spruce Lakes for use in cross-country runs. Several ski trips were taken to points on top of the Continental Divide, above Fern and Odessa Lakes. A total of more than 500 persons participated in the winter sports at Fern Lake during the past winter. It is interesting to note that the use of skis is replacing to a large extent the use of snowshoes. Many people who previously used snowshoes are finding skis more interesting.

FOREST FIRES.

The year has been notably free from destructive forest fires. Two fires were started by lightning but were extinguished before any damage was done.

ACCIDENTS.

The most serious accident that occurred was when Miss Ethel B. Ridenour, of Kansas City, was struck by lightning on September 1. Miss Ridenour, in company with Dr. Mary L. Edwards, of New York City, was on the way to Chasm Lake. While on the crest of Mills Moraine, above timberline, at an elevation of about 11,500 feet, they

encountered a severe thunderstorm accompanied by hail. One flash struck Miss Ridenour and also stunned Miss Edwards. When Miss Edwards regained consciousness she applied artificial respiration to Miss Ridenour, and after half an hour she began to show signs of life. Help was secured and Miss Ridenour was taken to the shelter house at Timberline Cabin. The following day she was taken to Estes Park. Because of severe burns, she remained in a critical condition for more than a week but then began a steady improvement. She has lost the sight of her left eye.

Mr. H. F. Gits, of Chicago, was killed in an airplane accident $2\frac{1}{2}$ miles east of the park on August 7.

DEATH OF ENOS A. MILLS.

Enos A. Mills died of heart failure at his residence, Longs Peak Inn, on September 21, 1922. During the past season Longs Peak Inn has been operated under the management of Mrs. Mills.

VISIT OF CONGRESSIONAL PARTY.

On June 26 and 27 the congressional party, which had recently returned from a trip to Alaska, visited the park. The party consisted of 31 persons, including 2 Senators and 9 Representatives. The party was entertained by the Estes Park Chamber of Commerce at a luncheon. They then made the trip over the Continental Divide to Grand Lake, spending the night at that point and proceeding the next day to Denver by way of Berthoud Pass. Since this party traveled over the Fall River Road within a week after it was first opened to travel they had an opportunity to see the snow conditions that exist on the higher portions of the road during the early part of the season.

ORGANIZATION OF BRANCH OF COLORADO MOUNTAIN CLUB.

The Estes Park group of the Colorado Mountain Club was organized last fall with a membership of more than 60 persons. During the past 10 years the Colorado Mountain Club has given valued cooperation to the National Park Service, and the Estes Park group has an opportunity for an extended service to the public and to the community in stimulating interest in the out-of-door activities of this region.

AUTOCHROME LECTURES.

Some desirable publicity was given this park last winter in the series of lectures delivered by Mr. F. P. Clatworthy, illustrated by autochrome photographs. Mr. Clatworthy lectured in a number of eastern cities, and gave two lectures before the National Geographic Society, Washington, D. C., which were attended by 2,400 persons. The April number of the National Geographic Magazine contained 16 full-page colored plates, made from Mr. Clatworthy's autochromes, which included several beautiful views of this park.

LAWSUIT.

A suit was brought in the Federal District Court, in the name of the State of Colorado, against the superintendent of the park, to prevent the enforcement of the regulations excluding automobiles operated for hire. This suit was dismissed as the judge ruled that the court was without jurisdiction in the matter.

LOAN OF BOOKS.

The National Park Service loaned to the public library of Estes Park 394 volumes which had been donated to this park by the American Library Association. Officers and employees of the National Park Service are given free access to these books and other books in the public library, and it is felt that the loan increases the usefulness of the books and assists the public library in its service to the community.

CONTEMPLATED IMPROVEMENTS.

Roads.—One of the improvements most needed is the widening of the roads in the park so as to permit cars to pass at all points. In some cases heavy grades may be reduced by the relocation of sections of the road. An improvement in alignment is needed at certain points. On the Fall River Road there are a few switchback curves that must be widened to permit a long wheel-based car to make the turn without backing. There are a number of sharp curves around rock points where the road is not sufficiently wide for safety. Many additional culverts are needed. The bridges in the park are all of timber construction and should be replaced with masonry or concrete as soon as practicable, since these timber bridges require frequent repairs in order to keep them in service.

Among the items of road work most needed are the following: (1) Widening Fall River Road; construction of parapet walls; surfacing where most needed. (2) Widening and partial reconstruction of the Highdrive. (3) Widening and surfacing the Moraine Park Road. (4) Widening the Glacier Basin Road. (5) Widening and partial reconstruction of the road to Bear Lake. (6) Widening the Moraine Park Cutoff. (7) Widening and surfacing the Longs Peak Road.

Several new roads are contemplated, but it is believed most necessary to get the present roads in creditable shape before extensions or additional roads are begun.

Buildings.—The buildings most needed in this park are as follows: (1) A centrally located group of utility buildings located near the headquarters at Estes Park. This group would include a storehouse, quarters for road crew, stable and space for storage of hay. (2) A bunk and mess house below timberline, on the eastern side of the Fall River Road. (3) A museum and information office. This will be the center for all park work along the lines of conservation and education. This building can be placed on the same lot as the administration building, and will increase efficiency by separating the information office from the clerical office. (4) Community house at the public camp grounds. (5) Living quarters for women clerks and also for the chief clerk. (6) A ranger station near Estes Park. (7) A shelter cabin at Odessa Lake for use during the season of winter sports, as well as during the summer season.

Trails.—Most of the trails in the park have been in use for many years and are not in satisfactory condition. Several miles of the more important trails should be rebuilt each year, improving the grades where they are excessive and protecting the trails against washing from heavy rains. A new trail is needed between Bear Lake and Odessa Lake and also from Fern Lake to Spruce Lake. The reconstruction of the Longs Peak Trail should be extended from timberline to the Boulder Field. This park is splendidly adapted to trail trips for hikers and horseback parties. Many of the best parts of the park can only be developed by trails. There is an insistent call for better trails and more trails, but for several years there have been no funds for the construction or improvement of trails.

HAWAII NATIONAL PARK.

THOMAS BOLES, Superintendent, Volcano House, Hawaii.

GENERAL STATEMENT.

Hawaii National Park, comprising 186 square miles and located in the Territory of Hawaii, was established by act of Congress approved August, 1916, and was formally dedicated in July, 1921; actual development started February, 1922. The park consists of three sections:

Kilauea section, 79,367 acres, on the island of Hawaii, contains the Kilauea Volcano, with its 50-acre lake of molten lava; also scores of smaller craters, many continually smoking; two in eruption during 1922; forests of tropical trees and gigantic ferns; miles of tunnels and caverns, one being formed in 1921; deserts of volcanic ash gashed with terrific earthquake cracks, many emitting steam; sulphur banks; steaming bluffs; and tree molds; all conveniently accessible via park roads and trails.

Mauna Loa summit, altitude 13,675 feet, on the island of Hawaii, contains the enormous crater of Mokuaweoweo, 17,380 acres in area, which at irregular intervals pours out rivers of lava, at times extending to the sea. Has threatened to destroy Hilo, 40 miles distant. Active on flank in 1916 and 1919. Connected with Kilauea section by a 30-mile trail.

Haleakala section, 21,150 acres, on island of Maui, contains Haleakala Crater, altitude 10,000 feet, 2,600 feet deep, and 8 miles across; large enough to contain the city of Philadelphia. Cinder cones 800 and 900 feet high rise inside the crater. Sleeping quarters in rest house at summit easily reached by horseback.

LOCAL DEVELOPMENT.

The park appropriation was devoted to improving the existing roads and trails in Kilauea section, the volcano being the objective of nearly all visitors. The half-mile approach to the volcano, which was destroyed by lava in 1918, has been rebuilt so automobiles can now be driven to the very edge of the crater.

A public camp ground with water supply has been established convenient to the volcano and park trails. Grates have been built over hot cracks near the volcano so meals may be cooked by volcanic heat.

There is no spring or stream in our 118,000 acres of park, and "getting lost" is a real disaster; therefore hundreds of trail markers have been erected and all points of interest properly signed.

A three-room frame building erected near the hotel and heated by controlled volcanic steam serves the present need of an administration building. The information bureau fills a long-felt need.

A small cottage, which was purchased, has been converted into a paint shop and ranger quarters.

FORESTS.

Fatal famine is offset by floral abundance, and many visitors find our forests as interesting as the volcanic features. Bird Park, of only 100 acres, contains nearly every variety of Hawaiian tree. A magnificent specimen of koa (Hawaiian mahogany) was preserved when a prehistoric lava flow stopped 20 feet from its base. The road to the volcano winds through a paradise of ferns, many 40 feet high, arching gracefully over the road to the volcanic inferno.

VOLCANIC ACTIVITY.

Kilauea Volcano's activity during the past season has been varied and astonishing. The risings of the "lake of fire" have been accompanied by fountains of incandescent lava, brilliantly illuminating the fumes and clouds above the crater at night. On May 12 scores of fiery geysers poured nearly 2,000,000 cubic yards of liquid rock into the pit, raising the level of the lake nearly 30 feet. The crater in July, 1922, was 1,000 feet deep, but by July 4, 1923, the lake was within 120 feet of the rim, when the level began to slowly subside. On August 25 a score of earthquakes rapidly lowered the level 600 feet, the liquid lava disappearing from the crater, to reappear next day spurting up through fresh earthquake cracks 8 miles distant, destroying many acres of forest and bleaching thousands of ferns with dense clouds of sulphuric-acid gas.

VOLCANO OBSERVATORY.

The Department of Agriculture and Hawaiian Volcano Research Association jointly maintain the Volcano Observatory, located just across the road from the administration building, and to this are directed visitors requesting technical information about volcanoes.

WEATHER.

Although located in the Tropics, Kilauea's 4,000-foot elevation furnishes fairly equable temperature, the days averaging 70° and the nights 55°; season's highest temperature, 75°; lowest, 43°. The mean temperature for December and June differed but 4½°. Total rainfall during the past year was 124 inches, but no mud at any time, the water vanishing into the porous ground or flowing into earthquake cracks, coming up the next day as live steam. The difficulty in maintaining our roads may be imagined with 10.6 inches

of rain falling within three hours. Appreciating the park's scenery and invigorating climate, the War Department operates a recreation camp within the park to which are sent over 100 soldiers each week from Honolulu.

TRAVEL.

The visits of many world-tour parties and ships from the American, British, and Japanese navies, the distribution of 100,000 park folders throughout the mainland, and the almost continuous activity of Kilauea Volcano resulted in bringing our total attendance up to 41,150, as against 27,750 visitors during last year.

HOTEL ACCOMMODATIONS.

Kilauea Volcano House, a recently completed modern hotel, with 120 rooms, is delightfully located on the outer rim of Kilauea, and from its windows may be seen the lurid glow from the "lake of fire" at night. Over \$200,000 was spent in improving this hotel, including a nine-hole golf course near by. The confidence of the hotel company in the future of the park is very gratifying. The company now has under consideration the establishment of a summer camp.

RECOMMENDATIONS.

1. Removal of appropriation inhibition.
2. Continued development of roads and trails.
3. Suitable summer camp, with moderate prices.
4. Residence for the superintendent.
5. Checking station at park entrance.
6. Extension of park to include additional features.
7. Continued publicity.

CONCLUSION.

Travel is increasing from the mainland as well as from foreign countries; the Territory of Hawaii is spending \$100,000 for publicity; the palatial tourist steamer *Haleakala* provides triweekly service between Honolulu and Hilo; a million-dollar highway is under construction between Hilo and the park entrance; and every day we have a choice of climates varying from the tropical sunshine of the South Seas to the perpetual snow on Mauna Loa; all these guarantee a big future for the Hawaii National Park.

MOUNT MCKINLEY NATIONAL PARK.

HENRY P. KARSTENS, Superintendent, McKinley Park, Alaska.

GENERAL STATEMENT.

Mount McKinley National Park was established by act of Congress approved February 26, 1917; the eastern boundary was extended eastward to the one hundred and forty-ninth meridian by act of Congress approved January 30, 1922. The park is situated in south central Alaska. Its dimensions are about 100 miles northeast and southwest and an average of about 26½ miles wide north and south, giving an area of 2,645 square miles. Its altitude is 1,800 to 20,300 feet.

ADMINISTRATION.

The park is administered by a superintendent assisted by one ranger. The entrance to the park and superintendent's headquarters are located at McKinley Park station on the Alaska Railroad, 233.6 miles north of the city of Anchorage, on the coast, and 119.6 miles south of the city of Fairbanks, in the interior.

ROADS.

The pioneer road constructed last year by the superintendent, one ranger, two prospectors from the railroad at McKinley Park station into the park, and was largely washed out this past spring by a rise of water in the creeks and rivers amounting to a cloudburst. Work was immediately started to put the road in shape again for wagon travel, but on June 29 the work was taken over by the Alaska Road Commission. Superintendent Sterling, of the Road Commission, has completed surveys to locate a permanent park road from the railroad at McKinley Park station to the head of Hines Creek, upon which \$5,000 of the commission's funds will be expended this season. Such portions of the road as are nearly completed give indications that it will be a beautiful scenic highway.

TRAILS.

A crude trail has been made which extends from the railroad at McKinley Park station through the park to Wonder Lake, a distance of 86 miles. The Alaska Road Commission has erected eight tents with small stoves along this trail at about 10 mile intervals for shelter. Sign posts were also placed along the trail to guide the traveler.

DESTRUCTION OF GAME.

There is still a large quantity of game within the park, but they are being driven back from the trail through the park. If the present rate of destruction continues, there will be few left. Most of the prospectors going through the park will not observe the rules and wantonly kill game for themselves and dogs.

On a recent trip through the park the superintendent observed many indications of killings which were done last winter and this spring. At the east fork of Toklat River there was a hind quarter of a sheep thrown in the creek and indications of a number of killings around the camp. At the main Toklat River there was a pile of winter-killed hides numbering possibly 15 or 20 sheep and caribou; a mile up Toklat River the decomposed remains of one sheep and one caribou were found on the bars. On previous trips through the park never less than 800 sheep were counted; on this trip only 300 were

seen. To allow prospectors to kill game in the park is ruining the object for which this reserve was created. The superintendent and one ranger can not cope with the situation, as travel is difficult and the park area is large.

TRANSPORTATION.

A permit was let last winter for a pack and saddle train to operate within the park. Under this permit three camps were to be established extending 50 miles into the park from the railroad at McKinley Park station. The permittee has established only one of these camps at Savage River, 12 miles from the railroad, with sleeping accommodations for only a few visitors. Failure to erect these camps has prevented a number of visitors from entering the park this season, only the harder ones taking the trip.

VISITORS.

Visitors to the gates of the park were numerous this season. On June 7 the congressional party, numbering 65 persons, spent one and one-half hours at McKinley Park station. During their stay the superintendent gave a short address on the park and its needs, also a brief outline of his ascent of Mount McKinley in 1913 as a member of the Stuck Karstens party.

The Brooklyn Eagle party, numbering 70 persons, spent the night of July 8 and all day the 9th at Mount McKinley Park station. This party was invited by the Secretary of the Interior to dedicate the park. It was planned to transport about 40 or 50 of the harder members to the Savage River Camp and there hold the dedication services and a barbecue, consuming two days on the trip, but owing to the railroad being able to give us only one day the trip was abandoned and the dedication services and barbecue were held at the entrance to the park. A good road would have permitted this party to have had a most enjoyable trip during their stay here.

On July 15 the presidential party, numbering 70 persons, arrived at the entrance to the park and spent one-half hour mingling with the local people. Many inquiries were made regarding the park and its needs.

On August 2 the Massachusetts Forestry Association party, consisting of Mr. Harris A. Reynolds, secretary and conductor, and 12 members, arrived at the park entrance at noon. They spent the night at the Morino Roadhouse and departed at 3 p. m. August 3. This party was very eager to make a trip into the park, but under the present conditions of transportation and accommodations they did not care to risk the hardship of the trip. They had a most enjoyable visit at the park superintendent's home, where a luncheon was served followed by an address on the park and its needs. At the request of Mr. Reynolds a description of the ascent of Mount McKinley was given.

It is to be regretted that there was not a good road into the park, as it was a great disappointment to many who had come thousands of miles to the very gates of the park and were unable to go in.

Besides the above-mentioned parties the number of hardy visitors who actually went into the park was 34 persons.

FIRES.

In August there was a fire in a small patch of timber on the McKinley River west of the Muldrow Glacier, which did very little damage and burned itself out in a short time.

During August a party of hunters started a fire in the timber east of the Nenana River and outside of the park. This fire, many large fires in the Tanana Valley, and a southerly wind kept the park in a dense smoke haze during the whole month. The smoke haze was so dense that only a faint outline of the hills could be seen from the valleys.

MINING AND PROSPECTING.

There were quite a number of prospectors in the park this summer, a number of them going in by way of the Kantishna district. They are scattered through the park as far as the western boundary and there is no possible chance of the present park force investigating their activity, as the distance is too great and the park force too small. The Guggenheim interests have shut down work on Copper Mountain, and it is reported they have thrown up their option. A rich strike was reported close to the northern boundary on the east fork of the Toklat River; many men from the towns of Nenana and Fairbanks rushed into that section by the Lignite route along the northern boundary. Twelve of them returned to the railroad by the McKinley Park Trail and reported nothing found.

RECOMMENDATIONS.

A good automobile road into the park and an increase in its personnel are this park's most urgent needs.

GRAND CANYON NATIONAL PARK.

W. W. CROSBY, Superintendent, Grand Canyon, Ariz.

GENERAL STATEMENT.

Grand Canyon National Park, established by act of Congress February 26, 1919, is situated in Coconino County, Ariz., and embraces 958 square miles, covering 103 miles of the windings of the Colorado River in its bed a mile below the earth's surface. The titanic main gorge, from 8 to 20 miles wide at the top, with its labyrinthal side canyons, inner mountainous peaks, and precipices done in kaleidoscopic coloring, forms "by far the most sublime of all earthly spectacles."

The park is reached by the Grand Canyon Railway, a branch line of the Santa Fe System, from Williams on the main line, 60 miles to the south. Motorists traveling the National Old Trails Highway turn north at Maine, about midway between Flagstaff and Williams. The north rim of the canyon is reached by motor from Lund, Utah, on the Union Pacific System or from Marysville, Utah, on the Denver & Rio Grande Western

Railroad, through Kanab, Utah, and Fredonia, Ariz. Prior to its establishment as a national park and since January, 1908, the area was reserved as a national monument, under the control of the United States Forest Service.

ORGANIZATION.

The reorganization of the park forces under the present superintendent, in the spring of 1922, has been completed and the results have proved satisfactory. The organization scheme planned contemplated a comprehensive personnel which would have sufficient elasticity to function properly under a maximum appropriation. The appropriations, however, for 1923 were smaller than expected, and the personnel provided for by the organization scheme was not necessary nor desirable. Consequently, while the scheme was adhered to, many of the positions provided were not filled. The appropriation for the fiscal year 1924 being considerably larger, such additional personnel has been secured in 1924 as necessary for the proper functioning of the organization and for the performance of the operations involved, in so far as it has been possible to secure properly qualified and otherwise competent individuals for the positions.

Following the instructions of the general accounting office and the director, National Park Service, the new system of accounting has been successfully made to supplant the previous bookkeeping in this park and the results have shown an appreciable improvement.

SUMMARY OF RESULTS ATTAINED BY THE PARK ORGANIZATION.

It is felt that extraordinary good results have been obtained by the forces of this park during the past year, especially in view of the unfavorable conditions under which the year's operations began and in view of the limited appropriation of \$75,000 that was finally made this park for the fiscal year 1923.

In spite of the variety and amount of the fundamental needs of the park, the insistent and multitudinous demands for expenditures toward betterments in various ways and the unavoidable amounts required from the small appropriation for simple administration, protection, and maintenance, accomplishments from the small appropriation have been considerable.

The housing and living conditions, at least for the minimum park forces required, have been made reasonably comfortable and civilized, and the supplemental temporary forces have been comfortably sheltered and fed during the period of their employment. The property, such as equipment and materials, of the park has been protected and reasonably well cared for and in many cases the equipment has been improved. The supply of stores and materials necessarily kept on hand has been replenished and brought nearly to what is proper.

The livestock has been cared for and improved. Some of the worthless animals have been disposed of and replaced with more satisfactory ones. Considerable new equipment needed for the proper operation of the park has been acquired. In addition, not only have the roads and trails of the park been reasonably well maintained but in several instances they have been very much improved. The telephone, electric light, and water systems have been improved and extended.

Perhaps the greatest accomplishment has been the improvement of the morale of the park forces and advancement of the position of the park service here during the past year.

BUILDINGS.

A new house was completed for the acting general foreman about October 15, according to plans furnished by the landscape engineer of the service. The stable corral has been further enlarged and necessary repairs have been made to the old stable with a view to its satisfactory maintenance until such time as a more suitable building can be provided in a better and final location.

Improvements and repairs have been made to the old structure occupied by the Public Health Service doctor and it now furnishes very satisfactory and comfortable quarters for the park blacksmith. The small building assigned to the Public Health Service doctor for an office has recently been altered at slight cost to furnish quarters needed for a night watchman. The quarters formerly occupied by a woman clerk have been repaired and improved to furnish suitable quarters for the barn boss and his family.

The quarters occupied last year by the chief ranger have been assigned to Dr. J. A. Warburton, now stationed here as resident physician, in accordance with agreements made with Dr. W. A. Morrison, chief surgeon, Atchison, Topeka & Santa Fe Railway. Some slight interior modifications in these quarters have been made to render them suitable for Doctor Warburton's personal and professional use. Some repairs and improvements of considerable value have been made to the bunk house.

Further improvements in the temporary tent quarters, the storage of supplies in the warehouse, and in the saddlery storage and repair have been made.

In August, 1923, the construction of a set of new quarters for the assistant superintendent, of a combination garage and blacksmith shop, of a carpenter shop, and of some storage sheds was begun and it is expected they will all be completed for use before winter.

The old temporary checking station at the Maine entrance has been rebuilt.

Repairs and improvements have been made to the Rowe Well ranger station.

The materials for the new Duplex Cottage have been secured and this is to be erected as promptly as possible, probably late this summer.

Efforts have been continued to the end of improving and maintaining in the best possible condition all park structures and grounds.

EQUIPMENT AND SUPPLIES.

Some of the deficiencies in park equipment were remedied during the year. Two new horses and a new engine for the wood saw were purchased. Four motor cycles were obtained with the aid of the War Department. Six new tents were bought. A new seven-passenger car of satisfactory 1923 model was obtained to take the place of the old seven-passenger car which had become practically useless. During the winter and spring all the machinery and equipment was overhauled, painted, and put in generally

good condition. A tractor, much needed for road maintenance and other work, has been secured. Some much needed equipment for the office, such as a safe, mimeograph, and a transit, have been bought.

The information room in the administration building has been further improved by the installation of some bookcases, specimen cases, and a change or reconstruction of the desk. In the spring of 1922 Mrs. Crosby initiated the effort to acquire a collection of books of reference and worthwhile fiction, which would be appreciated by visitors interested in the history and records of the park in this section of the country and by the general community in search of both information and entertainment. A very gratifying response to the efforts has been received. Over 300 books have been donated to the little library. A considerable number of geological specimens have been acquired to fill the specimen cases.

Mrs. Crosby has persistently interested herself in the collection of books, specimens, etc. She has personally collected over 65 specimens of the flora of the park for mounting and display in the information room and has given such colored plates of the native birds as she could obtain for display there.

The collection of specimen photographs, typical of the other national parks and for display in the information room in an interesting frieze, has been attempted with some success, and the results add considerably to the attractiveness of this room. In one corner of the room a frame has been erected for the purpose of displaying colored prints of the birds, flowers, etc., indigenous to this park. Some excellent cases, benches, and two tables for this room were also built. On the larger table is displayed a topographical map of Grand Canyon National Park under a sheet of glass. This map was corrected to date and colored to show the geology in a most creditable manner. It furnishes an exhibit of the greatest interest to visitors and of large value in the determination of many questions that arise almost daily. The information room is constantly attended by a ranger or other attendant and seems to be greatly appreciated by visitors to the park.

PUBLIC CAMP GROUNDS.

The public camp grounds have been further enlarged and improved. Fourteen new fireplaces have been built, three new privies have been erected, on plans furnished by the sanitary engineer of the Public Health Service, in the grounds near headquarters, while two more have been erected at our camp grounds near Rowe Well station. Every effort has been made, with gratifying success, to keep the public camp grounds in presentable and satisfactory condition at all times.

CEMETERY.

In the past several interments have been made in a suitable location on park property not far from headquarters. Among them were Capt. John Hance, one of the original settlers and perhaps the most noted of all the old guides in this park. Another was Robert Bingham, a forest ranger here. These graves have been unprotected from cattle and existing conditions seemed to contribute to their neglect.

In a community such as this the provision of a decent cemetery by the authorities in charge seemed only proper. The plat of ground referred to was approved for the purpose by the landscape architect of the service and with his assistance has been platted out. A suitable fence around it has been erected and the protected area suitably provided with roads and paths. There are now nine graves in the area, which latter has been divided into 287 lots suitably apportioned to proper units.

ROADS.

The maintenance of the Hermit Rim Road has been all that was permissible within the decreased appropriation. The other roads of the park which are unsurfaced have been kept in excellent condition during the open season by maintenance forces. Funds available permitted no relocations nor material improvements. However, some improvements were made through the operations of the maintenance forces. Under the provisions of the 1924 appropriation act a contract has been entered into for the resurfacing of the Hermit Rim Road and the work has been begun.

TRAILS.

The trails have been maintained in excellent condition, and some considerable improvements made in the Tonto and Kaibab Trails, although much remains to be done when further funds shall become available for this work. It is expected that some of the further improvements needed will be performed in the fall of 1923.

BRIDGE.

The Kaibab Bridge has been maintained in good condition and some minor though appreciable improvements made to the approaches.

On April 30, 1923, a sudden and terrific gale swept up the river gorge and nearly wrecked this bridge in a few moments. Prompt action by Assistant Superintendent Bolton, together with generous assistance from United States Geological Survey Gauging Station Keeper J. W. Johnson, who was on the spot, enabled the saving of the bridge and its prompt restoration.

PATHS.

The paths on the rim near Grand Canyon have been kept in good condition. The new footpath from Bright Angel Cottages to Powell Monument built last year has been much appreciated by visitors. It furnishes some of the most spectacular and interesting views from the south rim.

BRIDLE PATHS.

Two new bridle paths were built during the past year. One which avoids entirely the roadways used by automobilists and which at the same time furnishes excellent footing for horses has been built from El Tovar corral to Yavapai Point. The other, located with the same objects in mind, has been built from near Bright Angel Hotel through the woods to Sentinel Point, and thence along the Hermit Rim Road to Hermits Rest. The total length of these two paths is $8\frac{1}{2}$ miles.

SEWERS AND WATER SUPPLY.

Some minor extensions of the sewers in the service area have been made, but only as necessary. Some small additions needed in the water supply system have been put in and some rearrangements have been made for this improvement.

SIGNS.

Late in June, 1922, an order was placed with the approved contractors for metal signs according to standard designs and with suitable lettering for points in this park. These signs were received in January and most of them have been erected and are now in place on both the north and south rims, where they are proving of great advantage to visitors.

TELEPHONE SYSTEM.

The telephone system has been maintained in satisfactory condition. Its extension to the north rim last season has proved of inestimable value. Some further extensions are now being planned for, such as a line from the north rim ranger station out to Bright Angel Point and a line connecting with the north rim line at Indian Gardens and thence westerly to Hermit Camp. These will probably be made this coming fall.

NORTH RIM.

Under the terms of the appropriation for fiscal year 1923 it was provided that "no expenditure shall be made * * * for maintenance or construction of physical improvements on the north rim." Consequently, while the "administration and protection" functions of the service were performed there during the open season—June to October, 1922—it was not possible to meet the many demands or needs there for physical work. The administration and protection forces performed so far as they were able what was absolutely necessary for the protection of the park interests. Otherwise the accomplishment of results was postponed to comply with the act.

PUBLIC UTILITIES AND PARK OPERATORS.

The Atchison, Topeka & Santa Fee Railway Co. and the Fred Harvey Co. organizations have continued to meet the demands on them satisfactorily and, in fact, to keep somewhat in advance of them, as is their custom. The physical operations of both these companies, as well as those of the park service itself here, have been delayed somewhat by the necessity for awaiting the final developments in the matter of the establishment of a comprehensive plan for all developments on the south rim. The matter of this plan was referred to in last year's report. While considerable progress has undoubtedly been made it is not possible at this time to state definite conclusions.

The general store operated in this park by the Babbitt Bros. Trading Co. concessionaires has been much improved the past year and now is operating fairly satisfactorily to all concerned. Considerable further improvement in it is needed and will undoubtedly be made as soon as some questions concerning its final location and reconstruction with proper storage and other facilities can be settled. These questions depend on the solution of the general plan above referred to.

FOREST FIRES.

No serious fires have occurred in the park the past year. Our patrols have been regularly maintained. A few small fires have been discovered and extinguished by the rangers or others before much damage occurred.

WILD ANIMALS, BIRDS, AND FISH.

Wild life in the park seems to be on the increase under the protection afforded it by the service. Birds and rabbits are more numerous and seem tamer. Deer have been much more in evidence recently. Two small tanks or drinking places for them were constructed last year, and it seems as though they had helped somewhat to increase the number of deer seen by visitors to this park.

Arrangements have been made through the State fish and game commissioner to secure a supply of trout for planting in Bright Angel Creek this summer or fall.

PREDATORY ANIMALS.

In October, 1922, John B. Tooker was appointed predatory animal killer, temporary, and during the winter of 1922-23 he rendered excellent service toward the end of destroying predatory animals that would otherwise prey on the deer, squirrels, rabbits, etc., which it is desired to increase on the south rim of this park. The records show his destruction of predatory animals to have been as follows: 82 coyotes, 14 bobcats, and 1 cougar.

Our rangers on the north rim report that this summer (1923) the killing of deer there by cougars is more in evidence than heretofore. The further protection of the deer is now under consideration.

FLOWERS AND TREES.

Flowers in the park below the rims of the canyon are extremely varied and beautiful in their successive seasons, but flowers on the rims are much scarcer than they should be because of the cattle grazing. Were the latter abolished few parks would outdo the Grand Canyon in its floral display.

GIFTS.

In the spring of 1922 Mr. George S. Crosby, a visitor to this park, observing the dilapidated condition of the old scenic locators on the rim near El Tovar and the Hopi House, expressed a desire to replace them by suitable bronze instruments to be built by himself on designs of his daughter, Miss H. Crosby. His generous offer was gladly accepted and one of the locators has already been received and installed on a suitable rubble foundation in front of El Tovar Hotel. The other is expected to be received and installed shortly. These locators enable the visitors to find the various points of interest in the canyon and are greatly appreciated.

Doctor Fewkes, Chief, Bureau of Ethnology, Smithsonian Institute, at the request of the superintendent, has most generously sent a valuable collection of publications, including his own authoritative works, for the reference library in the information bureau.

Mr. W. W. Bass, the oldest resident in this vicinity, has given a valuable collection of geological specimens for the display cases.

Mr. Ellsworth Kolb has given some valuable photographs to the information bureau.

Generous donations of books have been made to our reference library by park visitors, among them being Mr. J. W. Hiltman, Mr. G. K. George, Mr. J. D. Ripley, Miss C. A. Avery, Mr. and Mrs. E. E. Ayer, and Mrs. Blanche Kolb.

RECOMMENDATIONS.

Buildings.—A suitable building is needed for the housing of the ranger force. These men are picked men and their work requires that they be kept in the best possible condition and spirit. The morale of the ranger force should furnish an example for all the rest of the park forces. At present they are unsuitably housed and in quarters better suited and much needed for others. A separate building suitably located should be provided as ranger quarters, and an estimate to cover the erection of such a building is included in the estimates for 1925.

Roads and trails.—Road improvements on a large scale and of a durable nature are badly needed in this park. A special estimate with recommendations has been submitted in this connection. New trails and the material improvement of the old ones are needed. The present Kaibab Trail from Phantom Ranch to Altar Falls and the north rim should be relocated and in many portions entirely rebuilt. A new trail from the south rim into the canyon, which will enable access to be had to Phantom Ranch in less time than now required and in a way similar to the connection between Headquarters and Hermit Camp, should be built in the near future.

Lighting.—At present the electric current used in the park work is supplied from the steam generating station of the railway company. Its cost is high (30 cents per kilowatt-hour), largely due to the high cost of water here. The generating plant is reported to be overloaded already, and the demands of the railway company itself are increasing on it. It is understood that a limitation to the supply for park use is imminent, even if this source of supply is not eventually denied. To reduce, therefore, the cost of current to enable a larger use of it for service and public benefit (such for instance as lights in the privies of the public camp grounds) and to enable the service to have the numerous advantages of its own electric plant it is strongly recommended that a suitable explosion-engine generating station be provided for the park at the earliest possible moment. It is estimated that the cost of current to us would be cut to one-fifth or one-sixth our present figures, besides giving us the other advantages mentioned, and that such a properly designed plant would readily pay for itself in a short time.

HOSPITAL.

Under the present arrangements, which seem to be the most satisfactory yet entered into for providing necessary medical attendance to the visitors to the park, the permanent employees, and the residents of this community a staff surgeon of the Santa Fe Railway is detailed here as resident physician. Under the arrangements made the park service is under no expense for any part of the salary involved, but in return for free medical attendance to park service employees the service furnishes the physician with living quarters, fuel, water, and light.

A small reception room in the living quarters has been made available as an office, but at some expense of comfort or some inconvenience in the living quarters themselves.

A suitable doctor's office, with a small operating room, laboratory, and probably space for three to five hospital beds, is needed in a building suitably designed and located and probably separate from the living quarters of the resident physician. Accidents, some of them fairly serious, or cases of sudden and serious illness among visitors to the park do occur, and at present there is no suitable place in which these cases can receive proper attention. The hotel people have been extremely thoughtful and generous in such cases whenever appealed to. Some cases, however, have to be rushed to Williams or Los Angeles in order that the necessary hospital care might be secured, and in some of these latter cases the delay incident to the travel involved has been a serious matter to the patients. The prompt provision of a suitable emergency hospital here is of great importance.

FENCES.

Permits for grazing stock on park lands have been constantly decreased, and there can be but little question but that all commercial grazing of stock on this park should be entirely eliminated at the earliest possible moment if the proper protection of park property is to be hoped for.

Commercial grazing is and probably will be continued on lands contiguous to the park for a considerable period in the future. The practice of refusing permits for grazing on park lands while permits for stock grazing on adjacent lands are being issued simply

results in a certain amount of trespass of the stock on park lands at certain seasons of the year. Financial adjustment of this trespass does not compensate for the damage done. To prevent the trespass by physical means is necessary, as moral and legal means do not seem to be effective. A stock-proof fence should separate the areas of the park which invite grazing from any other grazing areas, and such fence should be erected around the park areas wherever it may be found necessary because of the presence of livestock and any tendencies on their part to enter the park.

	Mileage.	
	1922	1923
<i>Park telephone lines.</i>		
Hull Tank to Headquarters, via Rowe Well.....	21.6	17.6
Hull Tank to Headquarters.....		3.6
Rowe Well to Headquarters.....		
Total, main line, south rim.....	21.6	21.2
Branch, ¹ checking station to Kirsch Ranch.....	6.0	6.0
Branch, ² Hull Tank to Berry's Ranch.....		2.0
Headquarters to north rim ranger station.....	30.0	30.0
Total.....	57.6	59.2
<i>Park roads.</i>		
Grand Canyon to Hermits Rest.....	8.0	8.0
Grand Canyon to main entrance and Yavapai Point Branch.....	7.0	7.0
Grand Canyon to Bass Camp and Havasupai Point.....	40.0	40.0
Forks, Bass Camp Road to Hilltop.....	15.0	15.0
Main entrance to Desert View.....	26.0	26.0
Bright Angel ranger station to park entrance (north rim).....	3.0	3.0
Total.....	99.0	99.0
<i>Park trails.</i>		
Hermit.....	8.5	8.5
Tonton-Hermit to Indian Gardens.....	16.0	16.0
Kaibab-Tip Off to north rim.....	17.0	17.0
Tonto-Indian Gardens to Tip Off.....	4.5	4.5
Hill Top to Supai.....	15.0	15.0
Dripping Springs.....	3.6	3.0
Total in canyon.....	66.0	66.0
Loop to Shoshone Point and return.....	15.0	15.0
Rowe Well to Hermit Rest.....	4.0	4.0
Moqui Cut-off.....	4.0	4.0
Bridle Path to Hermit Rest.....	3.0	7.0
Bridle Path to Yavapai Point.....	0.0	1.5
Total, south rim.....	26.0	31.5
North rim ranger station to Quaken Asp.....	25.0	25.0
Quaken Asp to Powell Plateau.....	15.0	15.0
Rim (head Kaibab Trail) to north rim ranger station.....	4.0	4.0
Rim (head Kaibab Trail) to Point Imperial.....	5.0	5.0
Branch, Quaken Asp Trail to Point Sublime.....	10.0	10.0
Branch, Quaken Asp Trail to Tiyo Point.....	4.0	4.0
North rim ranger station to Tiyo Point.....	6.0	6.0
Total, north rim.....	69.0	69.0
Total mileage trails, north and south rims.....		166.5
<i>Footpaths.</i>		
Yavapai Point.....	1.5	1.5
Sentinel Point.....	1.5	1.5
Total mileage, footpaths.....	3.0	3.0

¹ Partly privately maintained.

² Privately maintained.

Permits, contracts, and revenues therefrom.

Name.	Term.	For—	Revenue.		
			1922	1923	1924 ¹
Bankhead & Henderson.....	Jan. 1, 1923 to Dec. 31, 1923.	Sheep.....	\$25. 16	\$25. 16	\$25. 00
Berry, P. D.....	do.	Horses.....	5. 00	5. 00	5. 00
Big Jim.....	do.	Corral.....			
Buggeln, Martin.....	do.	Cattle.....	200. 00	200. 00	200. 00
Jensen & Vaughn.....	do.	Horses.....			
Kolb Bros.....	do.	Studio.....	100. 00	100. 00	100. 00
Lauzon, Hubert.....	do.	Horses.....	12. 50	12. 50	10. 00
Board of trustees district No. 4.....	do.	School.....			
Verkamp, John.....	do.	Curio store.....	100. 00	100. 00	100. 00
Griffin, W. F.....	do.	Cattle.....	110. 00	110. 00	110. 00
Emory Kolb.....	do.	Horse.....	1. 00	1. 00	1. 00
Board of supervisors.....	do.	Land.....			
W. R. Hearst.....	do.	do.....			
Dean Sinyella.....	do.	Corral.....			
<i>Contracts.</i>					
Babbitt Bros. Trading Co.....	20 years.....	Store.....	289. 80	1 500. 00	1 500. 00
Harvey Co.....	do.....	Hotels.....	3, 600. 00	15, 000. 00	15, 000. 00

¹ Estimated.

Table showing temperature and precipitation by months for the year from September 1, 1922, to August 31, 1923.

Date.	Temperature.			Precipitation.	
	Maximum.	Minimum.	Mean.	Total.	Snow.
September, 1922.....	86	42	64. 10	1. 28	
October, 1922.....	81	16	51. 00	0. 85	04. 00
November, 1922.....	63	10	35. 50	1. 81	12. 50
December, 1922.....	54	13	35. 00	1. 13	01. 00
January, 1923.....	63	05	35. 33	1. 07	07. 00
February, 1923.....	57	02	30. 05	1. 97	19. 00
March, 1923.....	55	09	34. 50	1. 84	15. 00
April, 1923.....	67	22	43. 00	1. 46	05. 00
May, 1923.....	83	26	55. 02	0. 06	
June, 1923.....	90	29	58. 07	T.	
July, 1923.....	93	50	69. 00	2. 06	
August, 1923.....	87	47	65. 00	3. 58	

NOTE.—In a study of these tables it must be remembered that the altitude 6,900 feet, in the case of these records taken and given above, and the resulting thinness and dryness of the atmosphere, render the sensible temperature much less extreme to the individual observer than the instrument record indicates, and far less appreciable than similar temperatures at lower or moist locations. These temperatures were recorded early every evening between 5 and 6 p. m.

WEATHER.

Throughout the year observations and reports as to temperature, wind, sunshine, etc., are made. Weather forecasts are posted daily for the information of park visitors.

Weather conditions for the year, September 1, 1922, to August 31, 1923, are shown in the following summary:

Average daily mean maximum temperature.....	61. 30
Average daily mean minimum temperature.....	34. 60
Average daily mean temperature.....	48. 00
Average monthly maximum temperature.....	73. 03
Average monthly minimum temperature.....	22. 07
Total precipitation.....	inches 17. 65
Total snowfall.....	do 63. 50
Total number of clear days.....	216
Total number of cloudy days.....	54
Total number of partly cloudy days.....	95

TRAVEL STATISTICS.

Attendance to Grand Canyon National Park by train and automobile from October 1, 1922, to September 30, 1923, by months.

Date and month.	Total attendance.	By regular and special trains.			By automobile.		
		Regular.	Special.	Total.	South rim.	North rim.	Total.
1922.							
October.....	7,903	3,727	470	4,197	3,625	81	3,706
November.....	3,077	2,467	146	2,613	464	.....	464
December.....	2,508	2,482	.....	2,482	26	.....	26
1923.							
January.....	3,965	3,833	.....	3,833	132	.....	132
February.....	3,737	3,640	97	3,737	.....	.....	.....
March.....	4,386	3,922	277	4,199	187	.....	187
April.....	5,891	3,988	455	4,443	1,448	.....	1,448
May.....	9,819	4,703	1,062	5,765	4,054	.....	4,054
June.....	18,684	8,976	1,432	10,408	7,869	407	8,276
July.....	16,578	8,073	411	8,484	7,019	1,075	8,094
August.....	14,588	7,431	356	7,787	5,885	916	6,801
September.....	11,030	6,116	210	6,326	4,254	450	4,704
Grand total.....	102,166	59,358	4,916	64,274	34,963	2,929	37,892

Statement showing automobile travel by States to Grand Canyon National Park, Ariz., from October 1, 1922, to September 30, 1923.

State.	South rim.		North rim.		Total.	
	Automobiles.	Passengers.	Automobiles.	Passengers.	Automobiles.	Passengers.
Alabama.....	8	33	1	2	9	35
Arizona.....	2,262	7,926	18	71	2,280	7,997
Arkansas.....	74	282	.....	.....	74	282
California.....	2,296	6,888	70	229	2,366	7,117
Colorado.....	675	2,077	11	31	686	2,108
Connecticut.....	27	81	.....	.....	27	81
Delaware.....	.....	.....	.....	.....	.....	.....
Florida.....	38	95	.....	.....	38	95
Georgia.....	12	39	.....	.....	12	39
Idaho.....	7	17	12	40	19	57
Illinois.....	483	1,514	14	38	497	1,552
Indiana.....	233	598	4	9	237	607
Iowa.....	257	762	.....	.....	257	762
Kansas.....	482	1,511	3	14	485	1,525
Kentucky.....	36	126	.....	.....	36	126
Louisiana.....	92	160	.....	.....	92	160
Maine.....	14	41	.....	.....	14	41
Maryland.....	10	33	.....	.....	10	33
Massachusetts.....	92	265	1	1	93	266
Michigan.....	259	801	6	20	265	821
Minnesota.....	96	318	3	16	99	334
Mississippi.....	13	33	.....	.....	13	33
Missouri.....	364	1,082	7	16	371	1,098
Montana.....	9	46	3	9	12	55
Nebraska.....	156	492	4	15	160	507
Nevada.....	23	66	10	27	33	93
New Hampshire.....	7	26	1	2	8	28
New Jersey.....	63	168	4	14	67	182
New Mexico.....	263	831	2	4	265	835
New York.....	216	636	5	16	221	652
North Carolina.....	14	43	1	3	15	46
North Dakota.....	16	47	2	7	18	54
Ohio.....	410	1,247	4	11	414	1,258
Oklahoma.....	425	1,488	1	4	426	1,492
Oregon.....	62	192	2	6	64	198
Pennsylvania.....	220	648	3	11	223	659
Rhode Island.....	16	32	2	8	18	40
South Carolina.....	7	25	.....	.....	7	25
South Dakota.....	51	167	5	18	56	185
Tennessee.....	37	115	.....	.....	37	115
Texas.....	801	2,481	7	20	808	2,501
Utah.....	20	46	528	2,088	548	2,134
Virginia.....	20	61	2	7	22	68

Statement showing automobile travel by States to Grand Canyon National Park, Ariz., from October 1, 1922, to September 30, 1923—Continued.

State.	South rim.		North rim.		Total.	
	Automobiles.	Passengers.	Automobiles.	Passengers.	Automobiles.	Passengers.
Vermont.....	8	33	.....	.....	8	33
Washington.....	100	280	9	20	109	300
West Virginia.....	24	89	.....	.....	24	89
Wisconsin.....	87	256	3	13	90	269
Wyoming.....	39	108	7	23	46	131
District of Columbia.....	22	53	4	14	26	67
Canada.....	14	35	.....	.....	14	35
Hawaii.....	6	19	.....	.....	6	19
Philippine Islands.....	2	6	.....	.....	2	6
Mexico.....	4	11	.....	.....	4	11
Motor cycles.....	30	50	.....	.....	30	50
Miscellaneous.....	.....	484	.....	92	.....	586
Total.....	11,002	34,963	759	2,929	11,761	37,892

LAFAYETTE NATIONAL PARK.

GEORGE B. DORR, Superintendent, Bar Harbor, Me.

Lafayette National Park has had a wonderful year in the larger horizons it has opened for the future. Lands of importance have been secured and motor-road construction started on a splendid scale. This has all been done through the interest the park idea—the saving of a great landscape for the people—has aroused and the contribution from private sources which has followed it.

THE MOUNTAIN ROAD.

The motor road now built, a mile in length, is the initial portion of the system approved for construction by the National Park Service and the Assistant Secretary of the Interior in July, 1922, and leads to a splendid point of view, whence the road to the summit of Cadillac Mountain—the greatest elevation near the sea on our Atlantic coast—will spring, for whose construction appropriation by Congress is hoped during the coming session.

The road under construction does not end, however, at this point, but extends on to Bubble Pond, a picturesque lake filling the wild gorge between Cadillac and Pemetic Mountains, whence ultimately it will turn to skirt the side of Pemetic Mountain to the foot of Jordan Pond, a distance of 5 miles, including what is built.

This road, boldly traversing steep and rocky mountainsides, looks down on two of the most beautiful mountain lakes in eastern North America, passes across the outlet of a third, and through fine woods of sugar maple, beech, and yellow birch.

It is a costly road, involving deep blasting over large portions of the way, and is being built to endure. The first 2 miles, to Bubble Pond, will be finished for next season. The remaining portion will be contributed on appropriation by the Government for the road to the mountain summit, which rises from the portion now constructed and to which the remaining portion of the contributed road will give access from the south.

When the road to the mountain summit is built, there will be nothing like it in our eastern country within reach of motorists, to whom in great numbers it will be a boon of the first magnitude. This, the highest and most massive, is the only mountain in the island chain up which a road is contemplated; the others will be traversed by trails only and left in native wildness.

BRIDLE PATHS.

A splendid system of bridle paths and roads for use with horses is also being constructed in the section to the west. This, similarly to the motor road, traverses in some considerable portion of its course bold and rocky mountain slopes, whence it commands wide views over the ocean and over the Somes Sound Fjord and Bluehill Bay to the distant Camden Hills. This system, the cost of which is also being contributed, will, when complete, be over 20 miles in length and cover representative portions of the whole park landscape.

ENTRANCE ROADS.

The mountain road apart, an immediate need of the park is entrance roads, opening it to visitors. No roads have been built within the park since its creation, and the only access to it, with a single exception, is by foot from the public highways. Excellent approaches can be obtained and surveys have been made. As soon as funds become available they will be built and the gain to park and public will be great.

FOOTPATHS.

Footpaths to connect the mountain trails are badly needed also. The mountain trails, an inheritance from generations of early summer visitors, form a superb but disconnected system, originating from independent centers and needing to be now bound up into a connected whole centering in the park.

FORESTRY.

Another need gravely important to the future is that of forestry. The park has thousands of acres of splendid forest land on which young and older woods are growing. These, if preserved from fire and disease, will make a noble forest in the future and become a source of great delight. They are not original woods; all such were lumbered generations since and fires followed in the wake of lumbering. The present growth is dense and cumbered with dead and dying trees, caused by crowding. It needs to be relieved of these, and lanes should be opened for control. The present condition is dangerous in the extreme and the safety of the woods depends on chance. One of the most beautiful mountains in the park was wrecked three years ago by fire, and it will be many years before its former beauty can be regained.

MOTOR CAMPING.

A serious problem is presented by the rapid increase in motor camping. People come from far and near and reasonably count on exceptionally attractive camping opportunities within the park. These can be given but not without cost. The very picturesqueness of the land, mountainous and rocky, makes it difficult to adapt to motor camping, and added to this are the necessities of water supply, sanitation, and control and the avoidance of disfigurement.

RESORT TO THE PARK.

The extent of resort to Lafayette National Park depends on its development, for which little has been done as yet; yet the resort is great. Its combination of land and ocean, of mountains, lakes, and woods within easily traversed distances is unique and may be made a source of enjoyment and interest to innumerable people.

USE OF THE OCEAN.

The use of the ocean as a recreational feature is increasing rapidly. Motor boats, now used by every fisherman in place of sail, enable excursions to islands and the neighboring mainland shores to be made with equal certainty to trips on land, and the experience is novel, with elements of great delight.

ROADS LEADING TO THE PARK.

Large sums are being spent by the State and towns on roads leading to the park and on roads affording excursions from it within the distance of a day or half a day to Mount Katahdin or St. Andrews by the Sea, to Castine, beautifully situated on Penobscot Bay, to nearer features of great natural interest.

GEOLOGICAL AND OTHER PAPERS.

The park has been made the subject of much geological study during the past summer and papers of importance are being written on it. The soil also has been studied in relation to the forest growth, and a report upon this is now in preparation. A most attractive paper, with illustration, written by R. C. Shelsé, of the Geological Survey, was published in the August issue of *The Mentor* under the title of "The Enchanted Isle: Lafayette National Park." And steadily the park is coming into its own as a unique possession of the people, occupying the grandest, the most beautiful, and interesting spot on our Atlantic coast.

ZION NATIONAL PARK.

WALTER RUESCH, Acting Superintendent, Springdale, Utah.

GENERAL STATEMENT.

Zion National Park was created by act of Congress November 19, 1919. A portion of the area was originally set aside as a national monument by presidential proclamation July 31, 1909, under the name "Mukuntuweap." The monument area was enlarged by presidential proclamation March 18, 1918, and named "Zion," the name given the canyon by the earliest settlers. The park contains approximately 120 square miles, or 76,800 acres, and is located in the extreme southern part of Utah. It is reached by motor stage from Cedar City, nearest rail connection, and by private motor over the Arrowhead Trail, an all-year route between Salt Lake City and Los Angeles.

ADMINISTRATION.

The park is in charge of the acting superintendent, who is aided by a clerk, one permanent and one temporary ranger.

WEATHER CONDITIONS.

The weather has been unusually mild. A late cool spring attended with showers did much to improve range conditions. During July and August some heavy rains fell, but did not result in any serious damage to roads within the park. On the 30th of July a cloud-burst below the park, washed out some bridges and culverts on the approach road, and stopped all travel to or from the park for 48 hours.

ROADS WITHIN THE PARK.

The 5 miles of road within the park have been maintained in good condition with less expense than for some years. The high banks in many places have almost ceased to slide. Seven I-beams have been purchased and are now on the ground for the reconstruction of the Zion River bridge.

ROADS LEADING TO THE PARK.

The State of Utah, with the assistance of Washington County, maintained a convict camp for several months upon the road along the Virgin River. They widened the roadway in many places and kept the worst part of the road in continual repair during the height of the tourist season. The old dangerous crossing at North Creek has been eliminated and an overhead truss steel bridge built. The Automobile Club of Southern California has signified their intention to place some large signs at the junction of the Zion Park Highway with the county road near Hurricane and also at the junction of the highway with the Arrowhead Trail near Echo Farm.

TRAILS.

The 26 miles of trail have been kept in fair condition for travel and have proven popular with visitors.

BUILDINGS.

The Utah Parks Co., under a franchise granted it by the Department of the Interior, is proceeding with plans for the construction of a hotel. This building will be unique in many respects and bids fair to be the best designed hotel in the entire national park system. The lumber is being taken from the east rim and lowered to the floor of the canyon by means of the 6,000-foot tram on Cable Mountain.

CAMP GROUNDS.

The public camp grounds have been enlarged and much attention has been given to sanitation. Two shower baths are in course of construction and will prove of much benefit to travelers.

WILD ANIMAL AND BIRD LIFE.

Deer are becoming numerous and are often seen by tourists from the roads and trails. The grass and underbrush which they feed upon has been excellent during the present season, and generally they are in good condition. The grey squirrels are numerous, and until they are exterminated they will be a menace to bird life. They destroy the eggs in the nests and drive the birds away.

INSECT AND PLANT PESTS.

As soon as the boxelder and ash trees begin to leaf in the spring they are attacked by large numbers of a little red bug known locally as "the boxelder bug." At about the same time of the year the brown caterpillar also appear in large numbers and destroy nearly all forms of vegetable life. Through advice received from the Bureau of Entomology we were enabled to destroy large numbers of both insects this year and will be prepared to combat them if they make their appearance next season.

CLIFF DWELLINGS.

In October, 1922, a new group of cliff dwellings was discovered. The buildings are of the two-story type and are in an almost perfect state of preservation. Due to the protection afforded by the giant bluffs above, the rough timbers, thatched with rushes and plastered with clay, which compose the roofs of the houses, are in perfect condition. While the group is relatively small, it is pronounced by students of such things to be among the best preserved specimens of aboriginal life.

RECOMMENDATIONS.

The ranger force is inadequate for the needs of the park. Sheep and cattle trespass on park lands at all seasons of the year, and at least two permanent men should be employed, with assistants during the spring and summer months, for patrol and protection work.

A sprinkling wagon should be purchased so that roads within the park could be sprinkled during the dry season, preventing the increasing travel from cutting the caping to pieces. At the present time no method of sheltering the equipment is available. Trucks and tools of all kinds are kept in the open near the checking station, and a building suitable for storage purposes should be constructed at once. Funds should be provided for the development of a system of trails to the various points of interest in the park.

TRAVEL.

The greatly increased travel to the park this year is gratifying, and the efforts of both State and county officials in maintaining the roads leading to the park are worthy of recognition by the park service.

On June 27 our late President and Mrs. Harding and party visited the park. This was an outstanding event not only in the history of this park but of this section of Utah, and the news of the President's death was received with profound sorrow. Space will not permit of a detailed list of the many notable men and women who have visited the park the past year. Many classes from schools of higher learning paid the park a visit for the purposes of study.

Visitors to Zion National Park, season of 1923, classified by States and countries.

State.	Number of cars.	Number of people.		
		By private automobile.	By stage.	By miscellaneous ways.
Alabama.....	2	5		
Arizona.....	18	66		4
Arkansas.....	1	5		
California.....	141	527	28	
Colorado.....	14	51	2	
Connecticut.....	1	2	4	
Delaware.....	2	7	5	
Florida.....	1	2		
Georgia.....	1	4		
Idaho.....	31	113	5	
Illinois.....	8	29	29	
Indiana.....	4	8		
Iowa.....	7	26	1	
Kansas.....	3	10	3	1
Kentucky.....	1	2		
Louisiana.....	3	9		
Maine.....	2	8	4	
Maryland.....	1	4		
Massachusetts.....	4	15	11	
Michigan.....	8	24	4	
Minnesota.....	3	11	1	
Mississippi.....	1	5	2	
Missouri.....	13	38	5	
Montana.....	5	13		
Nebraska.....	10	33	2	
Nevada.....	22	81	5	
New Hampshire.....	2	6		
New Jersey.....	3	6	7	
New Mexico.....	8	22		
New York.....	11	31	29	
North Carolina.....	2	8		
North Dakota.....	4	13	1	
Ohio.....	7	18	12	1
Oklahoma.....	3	10	1	
Oregon.....	3	12	6	4
Pennsylvania.....	6	22	9	
Rhode Island.....	2	8	6	
South Carolina.....	3	10		
South Dakota.....	4	15	2	
Tennessee.....	3	10	2	
Texas.....	3	15		1
Utah.....	1,008	4,066	57	549
Vermont.....	1	4		
Virginia.....	2	6	2	
Washington.....	9	25		
West Virginia.....	1	4		
Wisconsin.....	3	11	5	
Wyoming.....	11	39		
Alaska.....	1	3		
District of Columbia.....	36	119	3	
Canada.....	2	5	2	
Chili.....	1	2		
Mexico.....	1	2		
Cuba.....			1	
England.....			1	
Germany.....			2	
Total.....	1,446	5,591	257	560

Total number of visitors, 6,408.

CASA GRANDE NATIONAL MONUMENT.

FRANK PINKLEY, Custodian, Blackwater, Ariz.

The Casa Grande National Monument is located in the south central part of Arizona about midway between Phoenix and Tucson and lies at an elevation of 1,422 feet.

The Casa Grande or "Great House" ruin was first seen by European eyes, so far as our records show, when Padre Kino visited it and gave it its name in 1694. It is the only ruin of its type now left in the United States. This monument, then, may be considered one of first importance in the scheme of the National Park Service for the preservation of American antiquities.

Visitors should try to reach the monument in the fall, winter, or spring months, as the summer temperatures, ranging from 100° to 114°, are too high for one to gain much pleasure from the walk of a mile or more which is required to examine all the plans of the buildings.

The prehistoric civilization which built these ruins must have settled in the valley some 1,700 to 2,000 years ago. The earlier parts of the village which we now have uncovered on the monument must be not less than 1,400 years old, and the Casa Grande itself must have been erected some three or four hundred years before Columbus discovered America.

The builders had no metallic implements and there were no pack or draft animals on the continent, yet they lived for a thousand or more years in villages scattered throughout the Gila Valley by cultivating the soil and raising crops.

That they had enemies who harassed them is shown by the fact that they had walls for defense around their pueblos or compounds. These enemies in the end probably grew strong enough to make farming unprofitable and the inhabitants departed, a few here and a few there, gradually being assimilated by other tribes in the Southwest and losing their racial characteristics.

During the past year no protection or restoration work could be undertaken, due to a lack of funds in the appropriation for the protection of national monuments.

A collection of the artifacts of the ancient people has been started in the new museum building which was erected at this monument last year, and visitors have expressed great pleasure at being able to see and examine these artifacts so close to the place of origin. The information and instruction which can be given with even a small collection is surprising and as the years pass and the collection is enlarged it will add to the importance of the monument and be a large factor in increasing the number of visitors.

During the coming year no funds will be available for repair or restoration work.

The number of visitors in 1923 was 6,787, coming in 2,498 autos.

MONTEZUMA CASTLE NATIONAL MONUMENT.

MARTIN L. JACKSON, Custodian, Camp Verde, Ariz.

Montezuma Castle National Monument is located in Yavapai County, Ariz., 3 miles north of Camp Verde, a small town on the Verde River, where camp and automobile supplies may be obtained.

The castle can be reached by three different routes—from Prescott, via Jerome, Clarkdale, Cottonwood, and Camp Verde; from Flagstaff, via Mormon Lake, Stonemans Lake, and Montezuma Well; and from Phoenix, via Humboldt, Dewey, and Camp Verde.

Montezuma Castle is the largest, most interesting, and well preserved of all the cliff dwellings of Arizona. It is built in a niche or recess in a perpendicular cliff, approximately 150 feet high, the castle occupying about 40 feet of this, while over it is a 30-foot ledge of solid rock, which has protected the building for many years, or, perhaps, many centuries, for no one knows the age of Montezuma Castle. No doubt those people of long ago felt that the gods had been very kind in preparing such a place in which they might build their home and a fortress as well, for it is wonderfully protected from any enemies they might have had.

However, during the long period of time this building has stood the elements have gotten in their work on the outside wall, which is not as completely shielded by the overhanging cliff as are the walls further back, which are in a good state of preservation. The wasting and wearing away of the mud in this front wall caused a part of it to fall, taking with it the roof and greatly damaging the floors of the outer rooms, five or six of them being greatly in need of repair.

During the past year the sum of \$300 was expended at this monument in underpinning a part of the front wall, restoring parts of floors and walls that had been seriously damaged by the ever-frequent vandal, and in cleaning the debris from the floors of all the rooms.

The cleaning of the rooms made them more inviting to visitors, less tempting to vandals, and also disclosed some very interesting relics which were very carefully removed to the home of the custodian, 1 mile south of the castle, where they may be seen by interested visitors until such a time as the National Park Service makes other arrangements for their care and protection.

Yavapai County has at present a road under construction reaching from the approach highway to the foot of the cliff, directly in front of Montezuma Castle. This road is to be completed by the first of the year 1924 and will enable visitors to take advantage of the abundance of shade and water throughout the year.

Any funds that may be available for this monument another year should be used in the continuation of the repair work that was started this year. The front wall should, if possible, be preserved, for if it should fall it would detract greatly from the beauty and interest of the monument. The visitors for the year numbered 7,400.

EL MORRO NATIONAL MONUMENT.

EVON Z. VOGT, Custodian, Ramah, N. Mex.

The travel entering the monument from the east has always been very limited, because of the fact that the approach road passes through an unsettled country with many side roads, used by sheepmen, which have proved very confusing to the stranger who wished to pass through to the points of interest. The road goes through 20 miles of lovely pine forests and along a rough and rugged and, as yet, a somewhat unexplored lava bed.

During the past winter the Commercial Club of Ramah, in cooperation with the custodian and some of the merchants at Ramah and Grants, has placed metal highway signs all along this route in such a way that no one can be lost and so the most inexperienced traveler can find his way through the pines to El Morro and on to Zuni and other places off the beaten path. At Grants, where the road leaves the National Old Trails Highway, large display signs, telling of El Morro National Monument and Zuni, were placed in front of the post office and garages. This road posting and advertising has led to a great deal of travel through this way, and many cars from the West, entering from Zuni and Gallup, have, after seeing the historical points at El Morro, continued east over this road to Grants, Acoma, Laguna, and Albuquerque.

The annual travel figures average well with other years and would have greatly passed previous records but for an unusually rainy summer, which has somewhat curtailed travel. The estimated number of visitors for the year is 2,500 persons.

A number of new discoveries have been made during the year, which should be noted. In the monument grounds, on the north side not far from the west fence, there is a tunnel formed by a great slab of rock which leans against the main cliff. Within this tunnel, thus roughly formed, there have been found some Indian pictographs which had never been noted before. They cover 4 or 5 square yards and are very well preserved. In design they are similar to those found on the south side of El Morro, not far from the shelter house and were, doubtless, left by the same prehistoric dwellers of the ruined villages on top of the mesa of El Morro. They form unreadable messages or clan symbols of these early tribes.

On the south side of El Morro, near the westernmost old Spanish "Escritura," an oil geologist who visited the rock with the custodian, noted, for the first time, a deposit or cache of potters clay, placed by human hands in the dim days of long ago under the overhang of the mesa where the rain never touches it. Here several tons of clay have been walked on by hundreds of people intent on seeing the old Spanish inscriptions. On the upper side of the deposit and only several feet from the Spanish inscription there is a perfectly round hole a foot wide and 8 inches deep, which was used by the old Indian pottery makers to shape their water jars or "ollas."

Twenty miles east of El Morro, on the south side of the road which leads to Grants, there is an unexplored lava country, so rough that horses can not travel over it and persons afoot wear out a pair of shoes in one day. The jagged volcanic rock, cut by crevices, cracks, and canyons, reaches for miles from the great volcanic cone known as Cerro de La Bandera (or Flag Butte) in a perfect wilderness. In places the sand has blown in, and in the soil thus formed great trees of pine, spruce, oak, cedar, piñon and quaken aspens have taken root and grown up so that they relieve the otherwise fearful-looking region. Following an old map said to have been made by the Apache Indians, some local prospectors have been making expeditions into this wild country, seeking the famed "Adams diggings" which have been lost since the last gold miners were killed by the Apaches, who claim this country for ceremonial reasons connected with their religious beliefs.

While wandering around afoot in this rough region a number of caves have been found in which ice exists all summer long. The altitude is but 7,000 feet, and, in view of the fact that the caves which contain the ice are but 30 feet deep and partially exposed to the sun, it seems quite wonderful that ice, some as thick as 6 feet, should last during the warmest weather of a rather hot country. In addition to the ice caves several smaller caves have been located, showing prehistoric occupancy by Indians of the Pueblo tribe. The pottery shards and bowls found indicate that the Indians may have been Acomas or Zunis, who passed through here or lived here temporarily.

Two old trails passed through this lava region, and one is said to be in line with the direction of El Morro and Acoma. This is perhaps the old Indian trail used by the Indians who traded with each other from village to village. This was, then, perhaps the route which Coronado and the early campers at El Morro, first colonizers of the Southwest, followed with their Indian guides.

A great many people are coming to see this lava region with its ice caves, among them some of the officials of the Santa Fe Railway. It would seem that the National Park Service might well look into this region as a possible national monument. Owing to its proximity to El Morro and its historical connection, the suggestion is hereby made that it be considered and investigated so that its wonders can be preserved and protected.

During the month of July the custodian built a new automobile entrance where the Grants Road enters, thus enabling motorists to pass into the monument without stopping at a sandy place to open a heavy gate. Another much-needed improvement added was the building of a rustic bridge across the arroyo near the shelter house.

The greatest need of this monument is the establishment of a pure water supply. In the Southwest, where rain is less frequent than in other portions of the country and where ranches are few and far between, water for camping purposes and car use is always a necessity. The natural basin in the cove on the south side of the rock formed of solid rock and supplied by the water shed from the great cliffs above could be dammed by a concrete wall so as to create an adequate and pure supply of water. This should certainly be done without further delay if funds are available for doing it.

The summer of 1922 was the driest this State has experienced for 30 years. There was untold suffering among the herds of sheep and cattle as a result of no forage. The losses during the winter were very heavy. Among the farmers who had come into the country and homesteaders in the valleys near El Morro there was a general exodus. A few have returned to live in their abandoned homes and some have raised crops this year.

The summer of 1923 has had abundant rains, and as a result the range is having a re-seeding. Within the protected area of the 240 acres of El Morro the grama grass waves in stately elegance like fields of grain. Wild flowers are beautiful and luxuriant. Many delicious mushrooms have been gathered by discerning persons along the shaded walls of the monument.

There have been but three cases of vandalism during the season. Three men carved their names on the surface of the rock, but returned upon being notified by the custodian and took their names off forthwith.

MUIR WOODS NATIONAL MONUMENT.

JOHN T. NEEDHAM, Custodian, Mill Valley, Calif.

Muir Woods National Monument is situated 3 miles west of Mill Valley, Marin County, Calif. It contains 426 acres of land and was created to preserve the primeval stands of *Sequoia sempervirens* on the tract.

Because of the proximity of Muir Woods to San Francisco and the bay cities, being only 7 miles from the Golden Gate, it is on Sundays and holidays the rendezvous of thousands of hikers and numerous picnic parties. Visitors reach the monument from Mill Valley over the auto road, a distance of 4 miles, or via the Mount Tamalpais and Muir Woods Railway, which has a terminus at Muir Inn on the northern boundary of the reservation.

In spite of frequent San Francisco newspaper reports to the contrary, Muir Woods is a safe place for the hiker and picnicker. Acts of vandalism, so often reported from this part of Marin County, have never during the incumbency of the present custodian oc-

curred within the monument. Violations of the regulations have all been of minor character, such as the building of fires in unauthorized places and picking of flowers, in which cases the offenders were reprimanded and allowed to go. In no instance was an offense deemed serious enough to warrant taking the case before a United States commissioner.

On Sundays and holidays during the summer season the custodian has employed two men to help patrol the grove. As visitors are made to realize that the monument is carefully guarded, order is easily maintained and the work necessary to keep the woods clear reduced to a minimum.

Much was accomplished this year with the limited funds available. Sixty-one standard metal warning and guide signs were put upon galvanized pipe and are proving a great help in obtaining observation of the regulations. One bridge across the stream was replaced, and now all bridges and trails are in good condition. Piles of dead brush and fallen limbs that had accumulated in the grove were burned. In accordance with the policy of the service, near-by residents were allowed to come in and cut up, under the supervision of the custodian, dead and fallen timber for firewood. Redwood posts set in the ground, in place of board fences, were placed at points where autos had previously entered the grove. An adequate sewage disposal system for the custodian's cottage was installed and a combined garage and tool house, 10 by 22 feet, was built at very little cost.

More facilities for the benefit of visitors are needed. Fireplaces and tables for the picnickers and two or three drinking fountains should be constructed as soon as funds are available. A telephone is much needed in case of forest fires. More work should be done on the road where it crosses the monument and several of the fire trails need clearing out. A small woodshed, adjacent to the custodian's house, in which firewood could be stored for use during the rainy season is also needed.

The new water system installed last year has proved to be very efficient. It provides an abundance of pure water adequate for all present and immediate future needs of the monument.

The exclusion of automobiles has resulted in a marked improvement in the vegetation on the floor of the grove. Also, it has stimulated in the visiting public a greater reverence for the forest.

No forest fires occurred in the monument during the past year.

Deer are more numerous this year than usual and fawns are much in evidence. The woods abound with gray squirrels, raccoons, and skunks, and occasionally the tracks of a bobcat can be seen. Birds, as is generally the case in redwood forests, are conspicuous by their absence, bluejays being the only birds seen in numbers.

The past season has witnessed a new development in methods of travel to Muir Woods. Early in the summer two San Francisco sightseeing companies instituted trips to the monument, and throughout the season have maintained a daily schedule, each company sending over from two to four cars every day.

Visitors to the monument from October 1, 1922, to September 30, 1923, inclusive, totaled 91,253. Of these, the Mount Tamalpais & Muir Woods Railway carried 19,619; San Francisco sightseeing companies carried, 5,634; in private autos came 12,000; and hikers numbered 54,000.

PAPAGO SAGUARO NATIONAL MONUMENT.

J. E. McCLAIN, Custodian, Tempe, Ariz.

The Papago Saguaro National Monument is located $5\frac{1}{2}$ miles east of Phoenix, the State capital, and 1 mile north of Tempe, the home of the State Normal School.

There are automobile stages passing hourly through the monument. One wishing to visit the monument should leave the Apache Trail and follow one of the trails to the "Hole in the Rock." From this place there is another trail which will take one to the north side of the monument, to the west side and back to the Apache Trail.

These are not official roads and no work has been done on them. One will find deep washouts and sharp turns, therefore it is advisable to drive slowly. While these trails are very difficult one is well paid for his trouble if he stops and studies the floral growth, for many species of the plant life on the Great American Desert will be found. The Saguaro (giant cactus) is seen not only surviving but even flourishing, although its roots are apparently in solid rock. The cacti bloom beautifully during the spring and summer months.

From the summit of any of the small mountains in the monument one can gain a wonderful view. To the north is seen the beautiful Scottsdale Valley, which is all under cultivation, still farther beyond is seen Paradise Valley, 100,000 acres of desert. In the near future this land is to be made to produce the comforts of man and beast by the power of that life-giving fluid water. To the east of the monument is seen the Salt River Indian Reservation. There thousands of the so-called "wild Indians" live peacefully under the guidance of the American Government. They are becoming very civilized and the extent of their cultivation is always a surprise to our eastern tourists. To the southeast is seen Chandler and Mesa, and to the south Tempe, the oldest settlement in the valley, bordered by thousands of acres of fertile land now under irrigation.

In the midst of this vast stretch of farming land lies the Papago Saguaro National Monument, consisting of 1,940.43 acres of typical desert. It is our supreme wish that this beautiful work of creation may be preserved in all its natural beauty, so that future generations can see and enjoy the works of Almighty God as we have seen and enjoyed them.

NEEDS OF THE COMING YEAR.

Roads.—There are only difficult trails through the monument at present. The sharpness of the stones on these trails makes them unpopular with the motorist. I have selected a route to take in all the scenic places, which has been approved by the various local civic organizations. A preliminary survey of this road has been made, and it is estimated that \$3,107 will construct it. It is recommended that an appropriation be requested for this purpose.

Signs.—There are some old painted signs on the rocks which should be removed and replaced by standard ones.

DESERT GROWTH.

The desert growth on the monument has increased noticeably since the grazing of stock has been stopped.

VISITORS.

While thousands of persons passed through the monument, the estimate of the number of persons to actually visit the monument is 6,000.

PETRIFIED FOREST NATIONAL MONUMENT.

WILLIAM NELSON, Custodian, Adamana, Ariz.

ADMINISTRATION.

On July 18, 1922, the ranger employed for patrolling the monument left the service, and on August 1 the custodian took residence on the monument grounds and entered field duty at \$1,050 per annum.

IMPROVEMENTS.

The monument has been fortunate enough this year to receive a sufficient allotment of funds to enable us to accomplish gratifying results; \$115.03 were expended in establishing a ranger station in the second forest; and road signs and warning signs have been erected at a cost of \$70.25; \$1.184 were applied to road work, and a stretch of approximately 10 miles was completely rebuilt.

TRAVEL.

The travel figures for the season are 14,899 cars, with 45,475 passengers. The improvement in roads and the signs were much welcomed by the visitors, and we look for a still greater attendance in 1924.

RECOMMENDATIONS.

Rebuilding of the road through the third forest.
Issuance of a descriptive pamphlet for distribution to tourists at points east and west of the monument.
New warning signs with concise and specific wording.
Erection of an exhibition and specimen building to preserve a number of rare and exceptionally beautiful specimens of the smaller sizes, which are in danger of being damaged or carried away.

TUMACACORI NATIONAL MONUMENT.

FRANK PINKLEY, Custodian, Blackwater, Ariz.

Tumacacori National Monument is located within 18 miles of the Mexican border between Tucson and Nogales, Ariz. It is in the valley of the Santa Cruz River and is at an elevation of about 3,500 feet.

This mission was first visited by Padre Kino in 1691, and from that time it was more or less regularly under the charge of the Jesuit and Franciscan fathers until about 1824, when it seems to have been abandoned and was never afterward occupied by the Catholic Church.

The mission had fallen into sad ruins, and since it has come under our administration we have striven as best we could with the limited means at our disposal to stop the disintegration caused by the weather and the destruction caused by vandals. It should be remembered that Padre Kino's work in northern Sonora and southern Arizona began some 79 years before Padre Serra founded the first mission in upper California at San Diego. These missions of the Southwest are the warp upon which the history of the country is woven, and it is from this historical standpoint that the Tumacacori National Monument is of interest to the country as a whole, and it was this that caused it to be set aside and preserved for future generations.

During the year a windmill, tank, pump, tower, and pipe were purchased so that water can be piped over the monument and provision made for the comfort of visitors in the way of shade and the surroundings beautified with shrubs and flowers. Our funds would not admit of further restoration and protection work.

The Legislature of the State of Arizona granted an appropriation of \$1,000 to be used in preservation and restoration, and this money will be expended in the fall and winter of 1923. Aside from the actual good this money will do, it is very pleasing to the National Park Service to have the importance of this monument recognized in this manner by the State.

We have no way of keeping an accurate check on the number of visitors at this monument, having no resident custodian, but we estimate that 6,000 persons visited it this year, using 1,775 automobiles.

REPORT OF THE CIVIL ENGINEERING DIVISION.

GEORGE E. GOODWIN, Chief Civil Engineer.

The work of the engineering division for the past year has been large, consideration being given to its widely scattered location and the small permanent and temporary force engaged; and while the apparent actual accomplishments do not appear to be much in excess of previous years, the inapparent preparatory and incidental work has been very much more than usual. Some of the apparent accomplishments of the past year are as follows:

ROAD PROJECTS UNDER CONSTRUCTION.

On the west side of Glacier Park the 12-mile Lake McDonald section of the Transmountain Road was completed and work started and continued throughout the year on the McDonald Creek section, which when completed this fall will extend the road about 6 miles up McDonald Creek, or to above Avalanche Creek. On the east side of the Continental Divide contracts have been let and work started on the St. Mary Lake section, covering the construction of about 8 or 9 miles of this road extending from St. Mary Chalet along the north shore of the lake toward Going-to-the-Sun Chalet.

Work on the second section of the Carbon River Road in Mount Rainier Park, involving the construction of about 2.5 miles of road between Ipsut Creek and Cataract Creek, was continued with a small force throughout the summer and should be completed this fall; and contract has been entered into and work started on the erection of a highway suspension bridge supported on rustic log towers across the Nisqually River at Longmire.

The construction of the Morfield-Prater Canyon section of the Knife Edge Road in Mesa Verde Park, which was held up during the winter on account of bad weather, was completed in September.

In Zion Park work is just being started on the reconstruction and construction of about 7 miles of road terminating below The Narrows. This work will be completed next fall.

Aside from the above road construction carried on by contract, hired labor forces have worked throughout the season on the widening of the Nisqually Road and the construction of the Narada Cutoff on the Nisqually Road in Mount Rainier National Park. Work has also been continued on the construction of the Middle Fork—Giant Forest section of The Generals Highway in Sequoia National Park and other less important road betterment and protection work has been done.

SURVEYS, ESTIMATES, AND REPORTS.

The preliminary location and construction surveys incident to the above work have been made, together with the estimates, plans, and designs required. Also proposals, plans, and contract specifications issued and contracts entered into covering the new contract work. Preliminary and location surveys for the construction of a 220-foot bridge across the Virgin River outside of Zion Park have been made and proposals and specifications prepared which will soon be issued. A preliminary survey and estimate for the West Side Highway in Mount Rainier National Park was made; a reconnaissance and report for the general improvement of Lassen Volcanic Park was made and surveys for general road system for the latter park are now under way. In addition to these surveys and estimates, other examinations, estimates, and preliminary surveys have been made and standard and special designs worked out for different physical improvements, and the necessary general administration and routine office and field work carried on.

During the past year two of our permanent engineers resigned, due to not receiving merited promotions in salary. This, with the difficulty encountered this spring and summer in securing qualified engineers to look after our different road projects and surveys, emphasizes the necessity of increasing our permanent engineering force and paying our engineering assistants salaries commensurate with their qualifications and responsibilities.

REPORT OF THE LANDSCAPE ENGINEERING DIVISION.

D. R. HULL, Landscape Engineer.

The season just closing has been marked in the accomplishment of definite results in many of the parks.

Yellowstone, which was well advanced in its landscape results a year ago, has carried on its improvement work in a very creditable manner. I have no doubt that you personally observed the fine regard for landscape matters in Yellowstone, not only by Government employees but by the park operators as well, and Superintendent Albright is to be congratulated for his splendid efforts in this direction. His report on landscape improvements in Yellowstone Park, which was read at the superintendents' conference last November, has been an inspiration to me and I am sure it has been helpful to everyone in the service who has the operation of a park in his hands and its interest at heart.

In Yosemite a definite plan has finally been approved for the future development of the valley, and it is believed that many long-delayed projects, both Government and under franchise, will now proceed, thus helping to relieve the congested situation which has developed.

In Mesa Verde Park a general scheme for development of the Spruce Tree Camp area was prepared and approved by the service, and already the new layout is taking definite form.

In Sequoia Park an administrative and industrial headquarters has been developed for the Alder Creek district, and several buildings planned by the landscape division are now being occupied. It is hoped that we will be able to spend some time in the Giant Forest area before the season closes, with the idea of working out a more adequate development for handling the large number of tourists visiting this beauty spot.

Two weeks were spent at Grand Canyon National Park with the architect employed by the operator there, and various outlines were developed for an adequate solution of the Grand Canyon situation. The various schemes are now being considered and it is believed that before another season passes we will have a real solution of the canyon problem which will not only conserve its wonderful landscape beauty but provide adequately for the large number of visitors there.

Zion Park, which until the recent visit of our late President was little known to the public, bids fair to become one of our finest playgrounds. With scenic attractions of a superior order, it is now planned to provide accommodations for the traveler which will make his stay in the park comfortable. I visited the park early in the season with the operator's architect, and together we went into the problem of proper accommodations for the tourist, having always in mind the necessity of keeping unharmed the splendid scenery of this area. The hotel plans resulting from this study have been approved and highly complimented by the Fine Arts Commission of Washington, and work is now progressing on this important development.

Besides the parks listed above, there have been problems in many of the others which have demanded our attention. Crater Lake, Glacier, Mount Rainier, General Grant, and Rocky Mountain National Parks were visited in addition to the parks above mentioned. Also we have had numerous calls for assistance in landscape problems from more distant parks and from a number of the national monuments which are under the control of the service.

The whole-hearted interest in the protection of our park landscapes which is developing from the superintendent down in our various national parks has been splendid to observe and has made my work and relationship to the service really enjoyable.

APPENDIX D.

LEGISLATION.

	Page.
Legislation affecting the national parks, enacted by Congress since date of the sixth annual report-----	184
Presidential proclamations relating to the national monuments, issued since date of the sixth annual report-----	188
Executive orders relating to national parks and national monuments, issued since date of the sixth annual report-----	194

LEGISLATION.

[Excerpts from an act making appropriations for the Department of the Interior for the fiscal year ending June 30, 1924, and for other purposes.]

DEPARTMENT OF THE INTERIOR.

NATIONAL PARKS.

National Park Service: Director, \$4,500; assistant director, \$2,500; chief clerk, \$2,000; law clerk, \$2,000; editor, \$2,000; draftsman, \$1,800; accountant, \$1,800; clerks—two of class four, three of class three, two of class two, four of class one; messenger, \$600; in all, for park service in the District of Columbia, \$33,200.

For compensation to be fixed by the Secretary of the Interior for accounting services in the District of Columbia or in the field in checking and verifying the accounts and records of the various operators, licenses, and permittees, conducting utilities and other enterprises within the national parks and monuments under his jurisdiction, including necessary travel and incidental expenses while absent from their designated headquarters, \$6,000.

Fighting forest fires in national parks: For fighting forest fires in national parks or other areas administered by the National Park Service, or fires that endanger such areas, and for replacing buildings or other physical improvements that have been destroyed by forest fires within such areas, \$25,000: *Provided*, That these funds shall not be used for any precautionary fire protection or patrol work prior to actual occurrence of the fire: *And provided further*, That the allotment of these funds to the various national parks or areas administered by the National Park Service for fire fighting purposes shall be made by the Secretary of the Interior, and then only after the obligation for the expenditure has been incurred, and the Secretary of the Interior shall submit with his annual estimate of expenditures a report showing the location, size, and description of each forest fire, together with the number of men, their classification, and rate of pay and actual time employed, and a statement of expenditures showing the cost for labor, supplies, special service, and other expenses covered by the expenditures made from these funds.

Crater Lake National Park, Oregon: For administration, protection, and maintenance, including not exceeding \$600 for the purchase, maintenance, operation, and repair of motor-driven passenger-carrying vehicles for the use of the superintendent and employees in connection with general park work, \$26,200; for construction of physical improvements, \$8,800, including not exceeding \$2,500 for the construction of a barn at Anna Spring; in all, \$35,000.

General Grant National Park, California: For administration, protection, and maintenance, \$10,000; for construction of physical improvements, including not exceeding \$38,878 for a sewer, garbage disposal, and water-supply system, \$40,000; in all, \$50,000.

Glacier National Park, Montana: For administration, protection, and maintenance, including necessary repairs to the roads from Glacier Park Station

through the Blackfeet Indian Reservation to various points in the boundary line of the Glacier National Park and the international boundary, including not exceeding \$3,000 for the purchase, maintenance, operation, and repair of horse-drawn and motor-driven passenger-carrying vehicles for the use of the superintendent and employees in connection with general park work, \$100,000; for construction of physical improvements, \$125,000, including not exceeding \$100,000 for the continued construction of the transmountain road connecting the east and west sides of the park, not exceeding \$3,500 for an office building and not exceeding \$3,500 for a residence for the superintendent of the park; in all, \$225,000.

Grand Canyon National Park, Arizona: For administration, protection, and maintenance, including not exceeding \$2,000 for the purchase, maintenance, operation, and repair of motor-driven passenger-carrying vehicles for the use of the superintendent and employees in connection with general park work, \$60,000; for construction of physical improvements, \$65,400, including not exceeding \$40,000 for completing widening and paving of the Hermit Rest Road, not exceeding \$6,000 for a building to be used as a community center, and not exceeding \$3,000 for the construction of a duplex cottage for employees; in all, \$126,000.

Hawaii National Park: For administration, protection, maintenance, and improvement, including not exceeding \$800 for the purchase, maintenance, operation, and repair of motor-driven passenger-carrying vehicles for the use of the superintendent and employees in connection with general park work, \$10,000.

Hot Springs National Park, Arkansas: For administration, protection, maintenance, and improvement, including not exceeding \$2,500 for the purchase, maintenance, operation, and repair of motor-driven, passenger-carrying vehicles for the use of the superintendent and employees in connection with general park work, including not exceeding \$2,000 for the erection of a comfort station, \$67,600.

Lafayette National Park, Maine: For administration, protection, maintenance, and improvement, including not exceeding \$1,500 for the purchase, maintenance, operation, and repair of motor-driven, passenger-carrying vehicles for the use of the superintendent and employees in connection with general park work, \$30,000.

Lassen Volcanic National Park, California: For protection and improvement, \$3,000.

Mesa Verde National Park, Colorado: For administration, protection, and maintenance, including not exceeding \$2,400 for the purchase, maintenance, operation, and repair of horse-drawn and motor-driven passenger-carrying vehicles for the use of the superintendent and employees in connection with general park work, \$25,000; for construction of physical improvements, \$10,000, including not exceeding \$3,000 for completion of the water system at Spruce Tree Camp; in all, \$35,000.

Mount McKinley National Park, Alaska: For protection and improvement, \$8,000.

Mount Rainier National Park, Washington: For administration, protection, and maintenance, including not exceeding \$1,800 for the purchase, maintenance, operation, and repair of motor-driven passenger-carrying vehicles for the use of the superintendent and employees in connection with general park work, \$60,000; for construction of physical improvements, \$73,000, including not exceeding \$38,000 for completion of the widening of the Nisqually entrance to Paradise Valley Road, including not exceeding \$25,300 for new public camp grounds at Longmire Springs, not exceeding \$2,000 for a residence for the chief clerk, and not exceeding \$2,000 for an employees' duplex cottage; in all, \$133,000.

National monuments: For administration, protection, maintenance, preservation, and improvement of the national monuments, \$12,500.

Platt National Park, Oklahoma: For administration, protection, maintenance, and improvement, \$10,000.

Rocky Mountain National Park, Colorado: For administration, protection, and maintenance, including not exceeding \$2,400 for the purchase, maintenance, operation, and repair of motor-driven passenger-carrying vehicles for the use of the superintendent and employees in connection with general park work, \$55,000; for the purchase of privately owned land within the park boundaries, not exceeding \$8,280; for construction of physical improvements, \$11,000, including not exceeding \$6,000 for an administration building, and \$2,000 for camp grounds; in all, \$74,280.

Sequoia National Park, California: For administration, protection, and maintenance, including not exceeding \$2,000 for the purchase, maintenance, operation, and repair of motor-driven passenger-carrying vehicles for the use of the superintendent and employees in connection with general park work, \$35,000; for construction of physical improvement, \$85,000, including not exceeding \$3,000 for the construction of an administration building, not exceeding \$54,000 for completion of construction Middle Fork Road, three miles, and not exceeding \$18,600 for a water system at Giant Forest; in all, \$120,000.

Wind Cave National Park, South Dakota: For administration, protection, maintenance, and improvement, \$10,000.

Yellowstone National Park, Wyoming: For administration, protection, and maintenance, including not exceeding \$7,600 for the purchase, maintenance, operation, and repair of horse-drawn and motor-driven passenger-carrying vehicles for the use of the superintendent and employees in connection with general park work, not exceeding \$8,400 for maintenance of the road in the forest reserve leading out of the park from the east boundary, not exceeding \$7,500 for maintenance of the road in the forest reserve leading out of the park from the south boundary, and including feed for buffalo and other animals and salaries of buffalo keepers, \$320,000; for construction of physical improvements, \$48,000, including not exceeding \$25,000 for a sewer system at Yellowstone Lake, and not exceeding \$15,000 for auto camps; in all, \$368,000.

Hereafter the Secretary of the Interior is authorized, in his discretion and under regulations to be prescribed by him, to give surplus elk, buffalo, bear, beaver, and predatory animals inhabiting Yellowstone National Park to Federal, State, county, and municipal authorities for preserves, zoos, zoological gardens, and parks: *Provided*, That the said Secretary may sell or otherwise dispose of the surplus buffalo of the Yellowstone National Park herd, and all moneys received from the sale of any such surplus buffalo shall be deposited in the Treasury of the United States as miscellaneous receipts.

Yosemite National Park, California: For administration, protection, and maintenance, including not exceeding \$3,600 for the purchase, maintenance, operation, and repair of horse-drawn and motor-driven passenger-carrying vehicles for the use of the superintendent and employees in connection with general park work, not exceeding \$3,200 for maintenance of that part of the Wawona Road in the Sierra National Forest between the park boundary two miles north of Wawona and the park boundary near the Mariposa Grove of Big Trees, and not exceeding \$2,000 for maintenance of the road in the Stanislaus National Forest connecting the Tioga Road with Mather Station on the Hetch Hetchy Railroad, \$225,000; for construction of physical improvements, \$70,000, including not exceeding \$35,000 for the construction of an administration building and not exceeding \$25,000 for installation of flush toilets and waste hoppers in public camps; in all, \$295,000.

Zion National Park, Utah: For administration, protection, maintenance, and improvement, \$13,750.

Ten per centum of the foregoing amounts shall be available interchangeably for expenditures in the various national parks named, but not more than 10 per centum shall be added to the amount appropriated for any one of said parks or for any particular item within a park.

Appropriations herein made for construction of physical improvements in national parks shall be immediately available.

Hereafter the purchase of supplies or the procurement of services by the National Park Service outside the District of Columbia may be made in open market without compliance with sections 3709 and 3744 of the Revised Statutes of the United States in the manner common among business men, when the aggregate amount of the purchase or service does not exceed \$50.

The National Park Service may exchange hereafter, as part consideration, in the purchase of new equipment, motor vehicles, and any other equipment for use in the national parks.

[PUBLIC—No. 453—67TH CONGRESS.]

[S. 3593.]

An Act To authorize an exchange of lands with owners of private land holdings within the Glacier National Park.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of the Interior, for the purpose of eliminating private holdings of land within the Glacier National Park, is hereby empowered, in his discretion, to obtain for the United States the complete title to any or all of the lands held in private ownership within the boundaries of said park by accepting from the owners of such privately owned lands complete relinquishment thereof and by granting and patenting to such owners, in exchange therefor, in each instance, like public land of equal value situate in the State of Montana, after due notice of the proposed exchange has been given by publication for not less than thirty days in the counties where the lands proposed to be exchanged or taken in exchange are located.

SEC. 2. That the value of all patented lands within said park, including the timber thereon, offered for exchange, and the value of other lands of the United States elsewhere situate, to be given in exchange therefor, shall be ascertained in such manner as the Secretary of the Interior may direct; and the owners of such privately owned lands within said park shall, before any exchange is effective, furnish the Secretary of the Interior evidence satisfactory to him of title to the patented lands offered in exchange; and lands conveyed to the Government under this Act shall be and remain a part of the Glacier National Park.

Approved, February 28, 1923.

[PUBLIC RESOLUTION—No. 97—67TH CONGRESS.]

[S. J. Res. 270.]

Joint Resolution Concerning lands devised to the United States Government by the late Joseph Battell, of Middlebury, Vermont.

Whereas Joseph Battell, deceased, late of Middlebury, county of Addison, State of Vermont, in and by his last will and testament devised to the Government of the United States of America about three thousand nine hundred acres of land situated in the towns of Lincoln and Warren, in the State of Vermont, for a national park; and

Whereas said lands were devised to the United States of America upon certain conditions, among which were the following: That the Government should construct and maintain suitable roads and buildings upon the land constituting such national park for the use and accommodation of visitors to such park, and should employ suitable caretakers to the end and purpose that the woodland should be properly cared for and preserved so far as possible in its primitive beauty; and

Whereas it is deemed inexpedient to accept said devise and to establish a national park in accordance with the terms thereof: Therefore be it

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That the acceptance of said devise so made by Joseph Battell in his last will and testament be declined by the Government of the United States, and that the estate of the said Joseph Battell be forever discharged from any

obligation to the United States growing out of the devise before mentioned.

Approved, March 2, 1923.

[FOSSIL CYCAD NATIONAL MONUMENT, SOUTH DAKOTA.]

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA.

A PROCLAMATION.

Whereas, there are located in section thirty-five, township seven south, range three east of the Black Hills Meridian, South Dakota, rich Mesozoic deposits of fossil cycads and other characteristic examples of paleobotany, which are of great scientific interest and value; and

Whereas it appears that the public interest would be promoted by reserving these deposits as a national monument, together with as much land as may be needed for the protection thereof;

Now, therefore, I, Warren G. Harding, President of the United States of America, by authority of the power in me vested by section two of the act of Congress entitled, "An Act for the preservation of American antiquities," approved June eighth, nineteen hundred and six (34 Stat., 225) do proclaim that there is hereby reserved and set apart as a national monument to be known as the Fossil Cycad National Monument all that piece or parcel of land in the County of Fall River, State of South Dakota, shown upon the diagram hereto annexed and made a part hereof, and more particularly described as follows: southwest quarter of the northeast quarter, southeast quarter, east half of the southwest quarter and southwest quarter of the southwest quarter of section thirty-five, township seven south, range three east of the Black Hills Meridian.

Warning is hereby expressly given to all unauthorized persons not to appropriate, injure, destroy or remove any of the fossils of this monument and not to locate or settle upon any of the lands thereof.

The Director of the National Park Service, under the direction of the Secretary of the Interior, shall have the supervision, management, and control of this monument as provided in the act of Congress entitled, "An Act to establish a National Park Service and for other purposes," approved August twenty-fifth, nineteen hundred and sixteen (39 Stat., 535) and Acts additional thereto or amendatory thereof.

In witness whereof, I have hereunto set my hand and caused the seal of the United States to be affixed.

Done in the City of Washington this twenty-first day of October in the year of our Lord one thousand nine hundred and twenty-two and of the Independence of the United States of America the one hundred and forty-seventh.

[SEAL.]

WARREN G. HARDING.

By the President:

CHARLES E. HUGHES,

Secretary of State.

[No. 1641.]

AZTEC RUIN NATIONAL MONUMENT (NEW MEXICO).

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA.

A PROCLAMATION.

Whereas, there is near the town of Aztec, New Mexico, a ruin of great antiquity and historical interest; and

Whereas, the ground on which said ruin stands has been donated to the United States for the establishment of a national monument with a view to the preservation of said ruin for the enlightenment and culture of the Nation;

Now, therefore, I, Warren G. Harding, President of the United States of America, by virtue of the power in me vested by section two of the act of Congress entitled, "An Act for the Preservation of American Antiquities," approved June 8, 1906 (34 Stat., 225) do proclaim that there is hereby reserved

and set apart as a national monument to be known as the Aztec Ruin National Monument all that piece or parcel of land in the County of San Juan, State of New Mexico, shown upon the diagram hereto annexed and made a part hereof, and more particularly described as follows: Beginning at a point 347 feet north from the south line of section 4 and 20 feet east from the west side of the southeast quarter of the southwest quarter of section 4, township 30 north, range 11 west, N. M. P. M. and running thence north $0^{\circ} 53'$ east 179.1 feet; thence north $64^{\circ} 46'$ east 385 feet; thence south $81^{\circ} 23'$ east 52.3 feet; thence south $42^{\circ} 45'$ east 436.4 feet; thence south $67^{\circ} 01'$ west 501.4 feet; thence north $0^{\circ} 53'$ east 176.5 feet; thence west 240 feet to place of beginning, containing 4.6 acres, all in the southeast quarter of the southwest quarter of section 4, township 30 north, range 11 west.

Warning is hereby expressly given to all unauthorized persons not to appropriate, injure, destroy or remove any of the features or objects included within the boundaries of this monument and not to locate or settle upon any of the lands thereof.

The Director of the National Park Service, under the direction of the Secretary of the Interior, shall have the supervision, management and control of this monument, as provided in the act of Congress entitled, "An Act to establish a National Park Service, and for other purposes," approved August 25, 1916 (39 Stat., 535) as amended June 2, 1920 (41 Stat., 732).

In witness whereof, I have hereunto set my hand and caused the seal of the United States to be affixed.

Done at the City of Washington this twenty-fourth day of January, in the year of our Lord one thousand nine hundred and twenty-three, and of the Independence of the United States of America the one hundred and forty-seventh.

[SEAL.]

WARREN G. HARDING.

By the President:

CHARLES E. HUGHES,
Secretary of State.

[No. 1650.]

[HOVENWEEP NATIONAL MONUMENT (UTAH-COLORADO.)]

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA.

A PROCLAMATION.

Whereas, there are in southwestern Colorado and southeastern Utah four groups of ruins, including prehistoric structures, the majority of which belong to unique types not found in other National Monuments, and show the finest prehistoric masonry in the United States; and

Whereas, the said four groups of ruins are situated upon the public lands owned and controlled by the United States and it appears that the public good would be promoted by reserving these prehistoric remains as a National Monument with as much land as may be necessary for the proper protection thereof,

Now, therefore, I, Warren G. Harding, President of the United States of America, by virtue of the power in me vested by section two of the act of Congress entitled, "An Act for the Preservation of American Antiquities," approved June 8, 1906 (34 Stat., 225) do proclaim that there is hereby reserved, subject to all prior valid claims, and set apart as a National Monument to be known as the Hovenweep National Monument the lands shown upon the diagram hereto annexed and made a part hereof and more particularly described as follows:

Utah, Salt Lake Base and Meridian.

In township thirty-nine south, range twenty-six east, northeast quarter of the northeast quarter and the southwest quarter of the northeast quarter of section twenty, and the southwest quarter of the northwest quarter of section twenty-one; in township forty south, range twenty-five east, northwest quarter of the northwest quarter of section twenty-one.

Colorado, New Mexico Principal Meridian.

In township thirty-six north, range twenty west, lot four and southwest quarter of the northwest quarter of section two, and lot six and southwest quarter of the southeast quarter of section three.

Warning is hereby expressly given to all unauthorized persons not to appropriate, injure, destroy, or remove any of the features or objects included within the boundaries of this Monument and not to locate or settle upon any of the lands thereof.

Executive Order No. 3755, dated November 17, 1922, is hereby revoked and such lands thereby temporarily withdrawn and not included in said Hovenweep National Monument by this Proclamation are restored to entry under the public land laws of the United States.

The Director of the National Park Service, under the direction of the Secretary of the Interior, shall have the supervision, management and control of this Monument, as provided in the act of Congress entitled, "An Act to establish a National Park Service, and for other purposes," approved August 25, 1916 (39 Stat., 535), as amended June 2, 1920 (41 Stat., 732).

In witness whereof, I have hereunto set my hand and caused the seal of the United States to be affixed.

Done at the City of Washington this second day of March, in the year of our Lord one thousand nine hundred and twenty-three, and of the Independence of the United States of America the one hundredth and forty-seventh.

[SEAL.]

By the President:

CHARLES E. HUGHES,

Secretary of State.

WARREN G. HARDING.

[No. 1654.]

[PINNACLES NATIONAL MONUMENT, CALIFORNIA.]

(Second Proclamation.)

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA.

A PROCLAMATION.

Whereas, it appears that the public good will be promoted by adding to the Pinnacles National Monument certain lands in the State of California, containing natural formations, known as Pinnacle Rocks, with a series of caves underlying them;

Now, therefore, I, Warren G. Harding, President of the United States of America, by virtue of the power in me vested by section two of the act of Congress entitled, "An Act for the Preservation of American Antiquities," approved June 8, 1906 (34 Stat., 225) do proclaim that said lands, to-wit, the tracts described as lot 4, SW $\frac{1}{4}$ NW $\frac{1}{4}$, and SW $\frac{1}{4}$ Sec. 2, and W $\frac{1}{4}$ Sec. 11, in T. 17 S., R. 7 E., Mount Diablo Base and Meridian, are hereby reserved from appropriation and use of all kinds under the public land laws, subject to all prior valid claims, and set apart as an addition to the Pinnacles National Monument, and that the boundaries of the said National Monument are now as shown on the diagram hereto annexed and forming a part hereof.

Warning is hereby given to all unauthorized persons not to appropriate or injure any natural feature of this Monument or to occupy, exploit, settle, or locate upon any of the lands reserved by this proclamation.

The Director of the National Park Service, under the direction of the Secretary of the Interior, shall have the supervision, management, and control of this Monument, as provided in the act of Congress entitled, "An Act to establish a National Park Service, and for other purposes," approved August 25, 1916 (39 Stat., 535) as amended June 2, 1920 (41 Stat., 732).

In witness whereof, I have hereunto set my hand and caused the seal of the United States to be affixed.

Done at the City of Washington this seventh day of May, in the year of our Lord one thousand nine hundred and twenty-three, and of the Independence of the United States of America the one hundred and forty-seventh.

[SEAL.]

By the President:

CHARLES E. HUGHES,
Secretary of State.

WARREN G. HARDING.

[No. 1660.]

[PIPE SPRING NATIONAL MONUMENT (ARIZONA).]

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA.

A PROCLAMATION.

Whereas, there is in northwestern Arizona on the road between Zion National Park and the North Rim of the Grand Canyon National Park a spring, known as the Pipe Spring, which affords the only water along the road between Hurricane, Utah, and Fredonia, Arizona, a distance of sixty-two miles; and

Whereas, a settlement was made at Pipe Spring in 1863 and there was built a large dwelling place, called "Windsor Castle," with portholes in its walls, which was used as a place of refuge from hostile Indians by the early settlers, and it was also the first station of the Deseret Telegraph in Arizona; and

Whereas, it appears that the public good would be promoted by reserving the land on which Pipe Spring and the early dwelling place are located as a National Monument, with as much land as may be necessary for the proper protection thereof, to serve as a memorial of western pioneer life,

Now, therefore, I, Warren G. Harding, President of the United States of America, by virtue of the power in me vested by section two of the act of Congress entitled, "An Act for the Preservation of American Antiquities," approved June 8, 1906 (34 Stat., 225) do proclaim that there is hereby reserved, subject to all prior valid claims, and set apart as a National Monument to be known as the Pipe Spring National Monument the lands shown upon the diagram hereto annexed and made a part hereof and more particularly described as follows:

The southeast quarter of the southeast quarter of section seventeen, township forty north, range four west, Gila and Salt River Base and Meridian.

Warning is hereby expressly given to all unauthorized persons not to appropriate, injure, destroy, or remove any of the features or objects included within the boundaries of this Monument and not to locate or settle upon any of the lands thereof.

The Director of the National Park Service under the direction of the Secretary of the Interior, shall have the supervision, management and control of this Monument, as provided in the act of Congress entitled, "An Act to establish a National Park Service, and for other purposes," approved August 25, 1916 (39 Stat., 535), as amended June 2, 1920 (41 Stat., 732): Provided, that in the administration of this Monument, the Indians of the Kaibab Reservation, shall have the privilege of utilizing waters from Pipe Spring for irrigation, stock watering and other purposes, under regulations to be prescribed by the Secretary of the Interior.

In witness whereof, I have hereunto set my hand and caused the seal of the United States to be affixed.

Done at the City of Washington this thirty-first day of May, in the year of our Lord one thousand nine hundred and twenty-three, and of the Independence of the United States of America the one hundred and forty-seventh.

[SEAL.]

By the President:

CHARLES E. HUGHES,
Secretary of State.

WARREN G. HARDING.

[No. 1663.]

[TIMPANOGOS CAVE NATIONAL MONUMENT—UTAH.]

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA.

A PROCLAMATION.

Whereas, a natural cave, known as the Timpanogos Cave, which is situated upon unsurveyed lands within the Wasatch National Forest in the State of Utah, is of unusual scientific interest and importance, and it appears that the public interests will be promoted by reserving this cave with as much land as may be necessary for the proper protection thereof, as a National Monument.

Now, therefore, I, Warren G. Harding, President of the United States of America, by virtue of the power in me vested by section two of the Act of Congress approved June eight, nineteen hundred and six, entitled, "An Act for the perservation of American antiquities," do proclaim that there is hereby reserved from all forms of appropriation under the public land laws, subject to all prior valid adverse claims, and set apart as a National Monument, the tract of land in the State of Utah shown as the Timpanogos Cave National Monument on the diagram forming a part hereof.

The reservation made by this proclamation is not intended to prevent the use of the lands for National Forest purposes under the proclamation establishing the Wasatch National Forest, and the two reservations shall both be effective on the land withdrawn but the National Monument hereby established shall be the dominant reservation and any use of the land which interferes with its preservation or protection as a National Monument is hereby forbidden.

Warning is hereby given to all unauthorized persons not to appropriate, injure, deface, remove, or destroy any feature of this National Monument, or to locate or settle on any of the lands reserved by this proclamation.

In witness whereof, I have hereunto set my hand and caused the seal of the United States to be affixed.

Done at the City of Washington this fourteenth day of October, in the year of our Lord one thousand nine hundred and twenty-two, and of the Independence of the United States of America the one hundred and forty-seventh.

[SEAL.]

WARREN G. HARDING.

By the President:

CHARLES E. HUGHES,
Secretary of State.

[No. 1640.]

[BRYCE CANYON NATIONAL MONUMENT—UTAH.]

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA.

A PROCLAMATION.

Whereas, certain lands within the Powell National Forest, in the State of Utah, known as Bryce Canyon, are of unusual scenic beauty, scientific interest and importance, and it appears that the public interests will be promoted by reserving these areas with as much land as may be necessary for the proper protection thereof as a national monument;

Now, therefore, I, Warren G. Harding, President of the United States of America, by virtue of the power in me vested by section two of the Act of Congress approved June eight, nineteen hundred and six, entitled "An Act for the preservation of American antiquities," do proclaim that there are hereby reserved from all forms of appropriation under the public land laws, subject to all prior valid adverse claims, and set apart as a National Monument to be known as Bryce Canyon National Monument, all of the tracts of land in the State of Utah which are shown on the diagram forming a part hereof.

The reservation made by this proclamation is not intended to prevent the use of the lands for National Forest purposes under the proclamation establishing the Powell National Forest, and the two reservations shall both be effective on the land withdrawn, but the National Monument hereby established shall be the dominant reservation and any use of the land which inter-

feres with its preservation or protection as a National Monument is hereby forbidden.

Warning is hereby given to all unauthorized persons not to appropriate, injure, deface, remove or destroy any feature of this National Monument or to locate or settle on any of the lands reserved by this proclamation.

In witness whereof, I have hereunto set my hand and caused the seal of the United States to be affixed.

Done at the City of Washington this eighth day of June, in the year of our Lord one thousand nine hundred and twenty-three, and of the Independence of the United States of America the one hundred and forty-seventh.

[SEAL.]

WARREN G. HARDING.

By the President:

CHARLES E. HUGHES,
Secretary of State.

[No. 1664.]

["MOUND CITY GROUP" AT CAMP SHERMAN MILITARY RESERVATION, CHILICOTHE, OHIO, DECLARED A NATIONAL MONUMENT.]

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA.

A PROCLAMATION.

Whereas by section 9 of the Act of Congress approved August 9, 1921 (42 Stat. 147-150), the Director of the Veterans' Bureau, subject to the general direction of the President, was authorized to utilize, inter alia, existing facilities of the War Department in connection with the care, rehabilitation, and return to civil employment of disabled persons discharged from the military or naval forces of the United States;

And whereas the President, at the request of the Director of the Veterans' Bureau and upon the recommendation of the Secretary of War, assigned to the Veterans' Bureau, for use in carrying out the provisions of the said Act of Congress, the United States Military Reservation known as Camp Sherman, in the State of Ohio;

And whereas that part of the said Reservation upon which is situated the famous prehistoric group of mounds known as the "Mound City Group" is no longer required for the use of the Veterans' Bureau;

And whereas by section 2 of the Act of Congress approved June 8, 1906 (34 Stat. 225), the President is authorized "in his discretion, to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States to be national monuments, and may reserve as a part thereof parcels of land, the limits of which in all cases shall be confined to the smallest area compatible with the proper care and management of the objects to be protected;"

And whereas, the said "Mound City Group" of prehistoric mounds located within the Camp Sherman Military Reservation, Ohio, is an object of great historic and scientific interest and should be permanently preserved and protected from all depredations and from all changes that will to any extent mar or jeopardize their historic value;

Now, therefore, I, Warren G. Harding, President of the United States of America, under authority of the said Act of Congress of August 9, 1921, do hereby return to the custody and control of the War Department the lands upon which are located the "Mound City Group" of prehistoric mounds situated within the Camp Sherman Military Reservation at Chillicothe, Ohio, and under the authority of the said Act of June 8, 1906, do hereby reserve the lands so returned as a national monument site, and declare and proclaim the said group of prehistoric mounds to be a national monument, the lands so returned to the War Department and reserved for said national monument site being more fully described as follows, viz:

All of Sections N and O, bounded on the north by East Liverpool Street, on the east by the Scioto River, on the west by Columbus Avenue, and on the south by Portsmouth Street, containing fifty-seven (57) acres, more or less.

In witness whereof, I have hereunto set my hand and caused the seal of the United States to be affixed.

Done at the City of Washington this second day of March, in the year of our Lord one thousand nine hundred and twenty-three, and of the Independence of the United States of America the one hundred and forty-seventh.

[SEAL.]

WARREN G. HARDING.

By the President:

CHARLES E. HUGHES,
Secretary of State.

[No. 1653.]

EXECUTIVE ORDERS.

EXECUTIVE ORDER.

SOUTH DAKOTA.

Under authority of the act of Congress approved June 25, 1910 (36 Stat., 847), as amended by the act of August 24, 1912 (37 Stat., 497), all of the vacant public lands lying and being within townships two and three south, ranges fifteen and sixteen east, and township three south, ranges seventeen, eighteen, and nineteen east of the Black Hills meridian, in the State of South Dakota are hereby temporarily withdrawn, subject to the conditions, provisions, and limitations of said acts, for the purpose of classifying said lands and pending enactment of appropriate legislation for their proper disposition;

PROVIDED, That this withdrawal shall not prevent or preclude the use of these lands, or any of them, for grazing or other analogous purposes temporary in character and not inconsistent with the purpose of this order.

WARREN G. HARDING.

THE WHITE HOUSE,
October 23, 1922.

[No. 3748.]

EXECUTIVE ORDER.

ARIZONA.

Proclamation of January 31, 1914 (No. 1262—38 Stat., 1991), reserving 2,050.43 acres in Maricopa County, Arizona, for the Papago Saguaro National Monument, is hereby modified by eliminating from the withdrawal thereby made the S. $\frac{1}{4}$ NW. $\frac{1}{4}$ NW. $\frac{1}{4}$, SW. $\frac{1}{4}$ NE. $\frac{1}{4}$ NW. $\frac{1}{4}$, W. $\frac{1}{4}$ SE. $\frac{1}{4}$ NW. $\frac{1}{4}$, SW. $\frac{1}{4}$ NW. $\frac{1}{4}$, and W. $\frac{1}{4}$ NE. $\frac{1}{4}$ SW. $\frac{1}{4}$, Sec. 9, T. 1 N., R. 4 E., G. & S. R. M., thus reducing the area of the said National Monument to 1,940.43 acres.

WARREN G. HARDING.

THE WHITE HOUSE,
December 28, 1922.

[No. 3769.]

SECOND EXECUTIVE ORDER.

ALASKA.

Under authority of the Act of Congress approved June 25, 1910 (36 Stat., 847), as amended by the Act of August 24, 1912 (37 Stat., 497), Executive Order of January 13, 1922 (No. 3617), temporarily reserving and setting apart certain lands in Alaska for use in connection with the administration of the Mount McKinley National Park and to protect a right-of-way for a proposed road into the Park, is hereby amended to include in the said temporary reservation the SW. $\frac{1}{4}$ SE. $\frac{1}{4}$ Sec. 4, and NW. $\frac{1}{4}$ NE. $\frac{1}{4}$ Sec. 9, T. 14 S., R. 7 W., F. B. M., and the same are hereby temporarily withdrawn from settlement, location, sale, or entry, except as provided in said Acts.

WARREN G. HARDING.

THE WHITE HOUSE,
March 2, 1923.

[No. 3800.]

EXECUTIVE ORDER.

In view of the prior occupation and development of the tract by John J. Folstad as a coal mine for supplying fuel for local use, Executive proclamation of September 24, 1918 (40 Stat., Vol. 2, p. 1855), establishing the Katmai National Monument, Alaska, is hereby modified so as to eliminate therefrom, to the end that a coal mining permit may be granted Folstad, the following tract of land:

Beginning at the northeast corner stake, situated on Alaskan Peninsula, latitude $58^{\circ} 2' 30''$, longitude $154^{\circ} 32' 08''$ south end of Takli Island bears north 76° east, variation 23° east; thence west 660 feet to northwest corner stake; thence south 660 feet to southwest corner stake; thence east 660 feet to southeast corner stake; thence north along the meander line 660 feet to place of beginning.

CALVIN COOLIDGE.

THE WHITE HOUSE,
September 5, 1923.

[No. 3897.]

APPENDIX E.

MISCELLANEOUS.

	Page.
An act to establish a National Park Service, and for other purposes.....	196
An act for the preservation of American antiquities.....	197

AN ACT TO ESTABLISH A NATIONAL PARK SERVICE, AND FOR OTHER PURPOSES.

(39 Stat. 535.)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That there is hereby created in the Department of the Interior a service to be called the National Park Service, which shall be under the charge of a director, who shall be appointed by the Secretary and who shall receive a salary of \$4,500 per annum. There shall also be appointed by the Secretary the following assistants and other employees at the salaries designated: One assistant director, at \$2,500 per annum; one chief clerk, at \$2,000 per annum; one draftsman, at \$1,800 per annum; one messenger, at \$600 per annum; and, in addition thereto, such other employees as the Secretary of the Interior shall deem necessary: *Provided*, That not more than \$8,100 annually shall be expended for salaries of experts, assistants, and employees within the District of Columbia not herein specifically enumerated unless previously authorized by law. The service thus established shall promote and regulate the use of the Federal areas known as national parks, monuments, and reservations hereinafter specified by such means and measures as conform to the fundamental purpose of the said parks, monuments, and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.

SEC. 2. That the director shall, under the direction of the Secretary of the Interior, have the supervision, management, and control of the several national parks and national monuments which are now under the jurisdiction of the Department of the Interior, and of the Hot Springs Reservation in the State of Arkansas, and of such other national parks and reservations of like character as may be hereafter created by Congress: *Provided*, That in the supervision, management, and control of national monuments contiguous to national forests the Secretary of Agriculture may cooperate with said National Park Service to such extent as may be requested by the Secretary of the Interior.

SEC. 3. That the Secretary of the Interior shall make and publish such rules and regulations as he may deem necessary or proper for the use and management of the parks, monuments, and reservations under the jurisdiction of the National Park Service, and any violations of any of the rules and regulations authorized by this act shall be punished as provided for in section fifty of the act entitled "An act to codify and amend the penal laws of the United States," approved March fourth, nineteen hundred and nine, as amended by section six of the act of June twenty-fifth, nineteen hundred and ten (Thirty-sixth United States Statutes at Large, page eight hundred and fifty-seven). He may also, upon terms and conditions to be fixed by him, sell or dispose of timber in those cases where in his judgment the cutting of such timber is required in order to control the attacks of insects or diseases or otherwise conserve the scenery or the natural or historic objects in any such park, monument, or reservation. He

may also provide in his discretion for the destruction of such animals and of such plant life as may be detrimental to the use of any of said parks, monuments, or reservations. He may also grant privileges, leases, and permits for the use of land for the accommodation of visitors in the various parks, monuments, or other reservations herein provided for, but for periods not exceeding twenty years; and no natural curiosities, wonders, or objects of interest shall be leased, rented, or granted to anyone on such terms as to interfere with free access to them by the public: *Provided, however,* That the Secretary of the Interior may, under such rules and regulations and on such terms as he may prescribe, grant the privilege to graze livestock within any national park, monument, or reservation herein referred to when in his judgment such use is not detrimental to the primary purpose for which such park, monument, or reservation was created, except that this provision shall not apply to the Yellowstone National Park.

SEC. 4. That nothing in this act contained shall affect or modify the provisions of the act approved February fifteenth, nineteen hundred and one, entitled "An act relating to rights of way through certain parks, reservations, and other public lands."

Approved, August 25, 1916.

The act of August 25, 1916 (39 Stat. 535), was amended by the act of June 2, 1920 (41 Stat. 731, 732), as follows:

SEC. 5. * * * Any person, or persons, * * *, or who shall violate any of the other provisions of this act, or any rule or regulation that may be promulgated by the Secretary of the Interior * * *, shall be subject to the penalty provided for the violation of rules and regulations of the Secretary of the Interior authorized by section 3 of the act of Congress approved August 25, 1916 (Thirty-ninth Statutes, page 535), entitled "An act to establish a National Park Service, and for other purposes," which section is hereby amended by striking therefrom the words "and any violations of any of the rules and regulations authorized by this act shall be punished as provided for in section 50 of the act entitled 'An act to codify and amend the penal laws of the United States,' approved March 4, 1909, as amended by section 6 of the act of June 25, 1910 (Thirty-sixth United States Statutes at Large, page 857)," and inserting in lieu thereof the words "and any violation of any of the rules and regulations authorized by this act shall be punished by a fine of not more than \$500 or imprisonment for not exceeding six months, or both, and be adjudged to pay all cost of the proceedings": *Provided,* That nothing herein shall be construed as repealing or in any way modifying the authority granted the Secretary of the Interior by said section 3 of the said act approved August 25, 1916, to sell or dispose of timber in national parks in those cases where, in his judgment, the cutting of such timber is required in order to control the attacks of insects or diseases or otherwise conserve the scenery of the natural or historic objects in such parks and to provide for the destruction of such animals and such plant life as may be detrimental to the use of any of said parks, or the authority granted to said Secretary by the act approved April 9, 1912, entitled "An act to authorize the Secretary of the Interior to secure for the United States title to patented lands in the Yosemite National Park, and for other purposes," as amended by the act approved April 16, 1914.

AN ACT FOR THE PRESERVATION OF AMERICAN ANTIQUITIES.

(34 Stat. 225.)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That any person who shall appropriate, excavate, injure, or destroy any historic or prehistoric ruin or monument, or any object of antiquity, situated on lands owned or controlled by the Government of the United States, without the permission of the Secretary of the department of the Government having jurisdiction over the lands on which said antiquities are situated, shall upon conviction, be fined in a sum of not more than \$500 or be imprisoned for a period of not more than ninety days, or shall suffer both fine and imprisonment, in the discretion of the court.

SEC. 2. That the President of the United States is hereby authorized, in his discretion, to declare by public proclamation historic landmarks, historic and

prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States to be national monuments, and may reserve as a part thereof parcels of land, the limit of which in all cases shall be confined to the smallest area compatible with the proper care and management of the objects to be protected: *Provided*, That when such objects are situated upon a tract covered by a bona fide unperfected claim or held in private ownership, the tracts, or so much thereof as may be necessary for the proper care and management of the objects, may be relinquished to the Government, and the Secretary of the Interior is hereby authorized to accept the relinquishment of such tracts in behalf of the Government of the United States.

Sec. 3. That permits for the examination of ruins, the excavation of archaeological sites, and the gathering of objects of antiquity upon the lands under their respective jurisdictions may be granted by the Secretaries of the Interior, Agriculture, and War to institutions which they may deem properly qualified to conduct such examination, excavation, or gathering, subject to such rules and regulations as they may prescribe: *Provided*, That the examinations, excavations, and gatherings are undertaken for the benefit of reputable museums, universities, colleges, or other recognized scientific or educational institutions, with a view to increasing the knowledge of such objects, and that the gatherings shall be made for permanent preservation in public museums.

Sec. 4. That the Secretaries of the departments aforesaid shall make and publish from time to time uniform rules and regulations for the purpose of carrying out the provisions of this act.

Approved, June 8, 1906.

